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RESEARCH ARTICLE

Violations of health information privacy: The role of attributions and anticipated regret in shaping whistle-blowing intentions

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Abstract

We examine the role of attributions, the seriousness of wrongdoing, and emotion in shaping individuals' whistle-blowing intentions in the context of health information privacy violations. Based on 3 studies in which the intentionality of wrongdoing and the stability of wrongdoing were manipulated independently, we found consistent evidence that the intentionality of wrongdoing affects anticipated regret about remaining silent. The findings regarding the effect of stability, however, were mixed. In study 1, the stability of wrongdoing was found to affect anticipated regret about remaining silent, and in studies 2 and 3, stability was found to have a direct effect on whistle-blowing intention but no effect on anticipated regret about remaining silent. In the 3 studies, the seriousness of wrongdoing was found to have an effect on whistle-blowing intentions, but this effect was mediated by anticipated regret about remaining silent. Implications for research and practice are discussed.

KEYWORDS

anticipated regret, attribution, emotion, health information privacy, whistle-blowing

1 | INTRODUCTION

Protecting the privacy of individuals' health information is a significant concern in health care systems worldwide (see Appendix A for an overview of the health information privacy regulations in various countries), and the United States is no exception. With the passage of the American Recovery and Reinvestment Act of 2009, which included $20 billion to modernize health information technology systems, the digitization of patients' medical records accelerated in the United States. However, this growth brings increased concerns regarding the protection of sensitive health information, which can now be more readily shared. According to Angst and Agarwal (2009, p. 348), there is "substantial and growing evidence that privacy and security of health information is a matter of paramount importance to individuals." This is consistent with the fact that people are more sensitive about their personal health information than other

types of personal information (Smith, Dinev, & Xu, 2011; Stahl, Doherty, & Shaw, 2012). A survey conducted by the California Health Care Foundation found that 67% of respondents felt "somewhat" or "very concerned" about health information privacy (Bishop, Holmes, & Kelley, 2005).While the US Health Insurance Portability and Accountability Act (HIPAA) of 1996 was enacted in part to protect patients' health information privacy, there have been numerous instances in which violations of health information privacy have occurred. Some examples include the following:

> *In 2013, the Shasta Regional Medical Center ("SRMC") of California paid a sum of $275,000 for intentionally disclosing protected health information to the media. The U.S. Department of Health and Human Services (DHHS), Office of Civil Rights (OCR) Director Leon Rodriguez stated, "When senior level executives intentionally and repeatedly violate HIPAA by disclosing identifiable patient information, OCR will respond quickly and decisively to stop such behavior" (Sylvia & Freedman, 2013). [Example A]*

> *In 2012, St. Elizabeth's Medical Center agreed to pay $218,400 to settle potential violations of HIPAA Privacy, Security, and Breach Notification Rules after a whistleblower alleged that employees practiced unsecured internet-based document sharing. While protected health information was contained within the electronic documents, it did not appear that the employees set out to intentionally engage in wrongdoing (HHS, 2015). [Example B]*

> *In 2012, Blue Cross Blue Shield of Tennessee agreed to pay $1.5 million to settle potential violations after 57 unencrypted computer hard drives containing sensitive medical information on more than 1 million patients had been stolen (Mueller, 2012). [Example C]*

Health information privacy violations can be attributed to either intentional (example A) or unintentional (examples B and C) causes and to stable or unstable causes. Stable causes are not likely to change and can be suggested by a pattern of repeated violations or the presence of established, standardized practices resulting in ethical or legal violations. Unstable causes are those that produce an anomalous occurrence. The repeated pattern of violations depicted in example B would seem to suggest a stable cause, whereas the violation in example C appears to be a single anomalous occurrence (triggered by the theft of unencrypted data).

Health information privacy violations like the ones mentioned above are likely to become more common with the growing digitization of health records and the concomitant sharing of sensitive health information within the health care system (Angst & Agarwal, 2009). Prior literature suggests that "unwanted or unjustified disclosure of personal information" can cause economic and psychological harm to patients (Gastin, 1994, p. 490).

In the past, patients' medical records were stored in physical form. There was less sharing of health information and therefore less potential for privacy violations involving such sensitive information. Based on the above examples, it is clear that legislation such as HIPAA, no matter how well intentioned, cannot prevent the inappropriate use of sensitive health information. Therefore, from a patient (or customer) protection perspective, it is important to understand how such violations can be made visible to decision makers authorized to take appropriate corrective action. When an organizational wrongdoing occurs, whistle-blowing remains perhaps the most effective way of bringing such violations to light. While individuals within an organization who become aware of wrongdoing can choose to blow the whistle either internally or externally, our focus here is on situations involving external whistle-blowing. We focus on external whistle-blowing because it tends to be more effective (Dworkin & Baucus, 1998). Further, as organizations are prohibited from intimidating or retaliating against whistle-blowers under HIPAA (UHealth, 2005a), this could reduce the natural reluctance individuals may have about engaging in external whistle-blowing (Conn, 2015).

Unfortunately, little is known about external whistle-blowing in the context of health information privacy violations. Addressing this gap is important because the threat of external whistle-blowing in response to HIPAA violations may act as a deterrent to organizations that might otherwise be tempted to either misuse protected health information or implement lax controls over such information. If patients lack the confidence that their personal health information will be handled appropriately, they may be reluctant to divulge sensitive information (eg. HIV status and drug use), resulting in potential risks to themselves and to the public's health (Gastin, 1994). The above examples suggest

that health information privacy violations can and do occur, that the circumstances under which they arise may vary, and that this can result in different causal attributions related to the wrongdoing. Accordingly, in this research, we draw on attribution theory (eg, Weiner, 1985, 1992) to explore how perceptions of intentionality and stability associated with such violations may influence whistle-blowing intention.

Prior research on whistle-blowing suggests that emotions such as fear and anger can play an important role in influencing whistle-blowing intentions (Betancourt & Blair, 1992; Milliken, Morrison, & Hewlin, 2003). An emotion that remains unexplored in the context of whistle-blowing is anticipated regret. Specifically, we theorize that anticipated regret about remaining silent in the face of wrongdoing may help promote whistle-blowing.

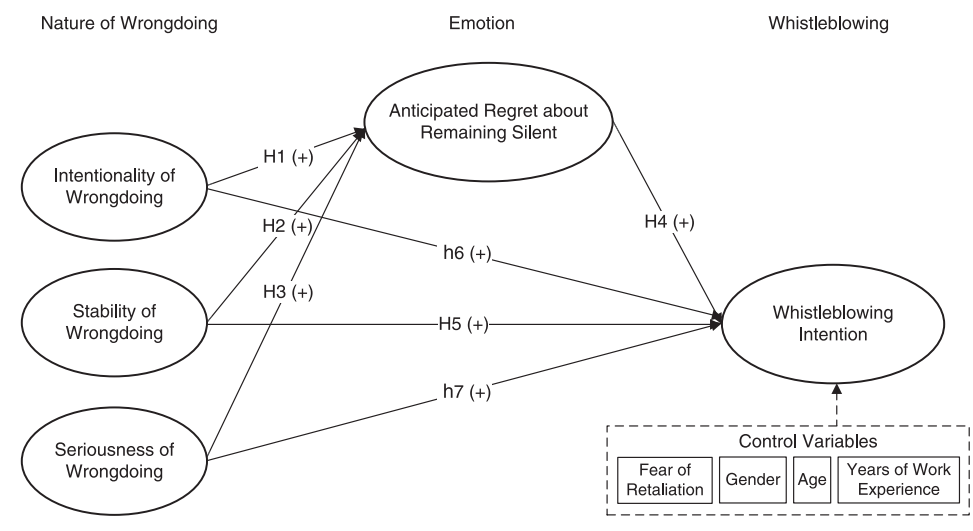
In this research, we address the following research question: "To what extent do attributions of intentionality and stability affect whistle-blowing intentions and what role, if any, does anticipated regret about remaining silent play?" In the following sections, we briefly review the relevant literature, introduce our research model and hypotheses, describe our research methodology, and present our analysis and results of 3 experiments (hereafter referred to as studies 1, 2, and 3). We conclude with a discussion and implications for research and practice.

2 | BACKGROUND AND RESEARCH MODEL

In this section, we briefly discuss the relevant literature that informs the development of our research model (shown in Figure 1). As indicated in Figure 1, our hypotheses (developed in the next section) can be mapped to the paths in the model.

2.1 | Whistle-blowing and the health information privacy context

Whistle-blowing is defined as "the disclosure by organization members (former or current) of illegal, immoral, or illegitimate practices under the control of their employers, to persons or organizations that may be able to effect action" (Near & Miceli, 1985, p. 4). Prior studies on whistle-blowing have investigated the characteristics of wrongdoing and its impact on whistle-blowing (eg, Near & Miceli, 1985, 2008; Near, Rehg, Van Scotter, & Miceli, 2004). Near et al.



Note. (1) H(x): a newly conceptualized hypothesis in this study; (2) h(x): an established path in prior studies and re-examined in this study.

FIGURE 1 Research model

(2004) suggest that the type of wrongdoing (eg, mismanagement, violation of the law, and safety problems) can significantly influence an employee's decision to blow the whistle. Further, wrongdoing can be associated with different types of harm, such as physical, economic, or psychological harm (Dworkin & Baucus, 1998).

Here, we focus on external whistle-blowing intentions in the context of health information privacy violations. This is an area of special concern, particularly with the growing digitization of health records, and has prompted specific legislation to protect individuals' privacy. Health information is known to be extremely sensitive for individuals (Smith et al., 2011; Stahl et al., 2012). Given the new reality of networked access to digitized health records and the sensitivity of personal health information (Xu & Bélanger, 2013), many countries have enacted health information privacy regulations (see Appendix A). Given the complexities of the health care system and the need to share information between primary health care providers (eg, clinics and hospital), payer organizations (eg, insurance, Medicaid, and Medicare), and secondary providers (eg, laboratories), there is tremendous potential for information privacy violations (Appari & Johnson, 2010).

Potential areas of wrongdoing that can lead to such violations include (1) noncompliance with regulations designed to protect personal health information (Buntin, Jain, & Blumenthal, 2010; Smith et al., 2011) and (2) the mismanagement of health information systems that creates opportunities for security breaches (Appari & Johnson, 2010). In this research, we focus on how an organization's noncompliance that can lead to health information privacy violations influences an individual's whistle-blowing intention. We do so by drawing on constructs from attribution theory and the literature on regret, thus enabling us to build a novel research model and to test it in a particularly salient context.

2.2 | Constructs from attribution theory

The basic premise of attribution theory is that people seek to know why particular events have occurred (Kelley & Michela, 1980). As they engage in this sensemaking process, they make certain causal attributions (such as whether an action was intentional) depending on how they construe or evaluate the events. The theory has been extensively used to examine the causal attributions that people make and the consequences that such attributions can have on human emotions and behaviour (eg, Kelley & Michela, 1980; Weiner, 1979; Weiner & Handel, 1985).

For example, Weiner (1979) connects attributions and emotions in observing that subjects who attribute their success in academic exams to their stable efforts are more likely to express happiness and contentment, whereas those who attribute their failure to their unstable efforts are more likely to express guilt and shame. Betancourt and Blair (1992) provide another example of the connection between attribution and emotions, observing that the perceived intentionality associated with a negative action (eg, breaking a car windshield) creates a high level of anger and a low level of pity and sympathy.

In terms of the connection between attributions and behaviour, Dyck and Rule (1978), for example, report a positive relationship between intentionality and retaliation behaviour. That is, when individuals attribute other individuals' aggressive actions toward them as intentional, they are more likely to engage in retaliation.

Drawing on attribution theory (eg, Weiner, 1985, 1986), we investigate the role of two key constructs that are associated with the theory—intentionality and stability—in shaping how an individual reacts emotionally to a situation involving wrongdoings and how that emotional reaction in turn shapes whistle-blowing intentions. In the whistle-blowing context, intentionality refers to the extent to which the cause of the wrongdoing can be attributed to purposive action on the part of the organization. Stability refers to "the degree to which the cause is anticipated to change over time. Stable causes do not change, whereas unstable causes do" (Martinko, 1995, pp. 9–10). As our dependent variable of interest is whistle-blowing intentions, we focus on these two causal dimensions because they are relevant to the assignment of responsibility for acts of wrongdoing (Weiner, 1985). While attributions can lead to various emotional responses, in this study, we particularly focus on anticipated regret. In the whistle-blowing context, it has been suggested that anticipated regret as an anticipatory emotion may affect decision-making (Edwards, Ashkanasy, & Gardner, 2009; Zeelenberg & Pieters, 2007). However, this has not been empirically tested.

2.3 | Anticipated regret and whistle-blowing

Anticipated regret is a comparison-based emotion (Zeelenberg & Pieters, 2007). When decision makers realize the current situation is uncertain and a decision is significant, they anticipate future regret (Zeelenberg & Pieters, 2007). In addition, "when the most preferred alternative is not necessarily superior to another alternative" (Janis & Mann, 1977, p. 223), they experience anticipated regret. Because people are regret-averse, they may choose a regret-avoiding alternative (eg, Reb, 2008; Wong & Kwong, 2007; Zeelenberg & Pieters, 2007).

Edwards et al. (2009) propose a conceptual framework in which they suggest that whistle-blowing decisions can be affected by anticipated regret. Prior empirical work by Fredin (2011a, 2011b) suggests that moral intensity (high/low) and the type of wrongdoing (financial/nonfinancial) can influence predicted (ie, anticipated) regret associated with either blowing the whistle or remaining silent. While Fredin's study (Fredin, 2011b) suggests "individuals will recognize the emotional costs that could come with a decision to sit back and do nothing about a wrongdoing situation" (p. 423), it does not provide an empirical test of the relationship between anticipated regret about remaining silent and an individual's whistle-blowing intentions.

2.4 | Hypothesized relationships and control variables

2.4.1 | Attributions and anticipated regret

We theorize that the nature of the wrongdoing and the attributions made regarding it (i.e., seriousness of a wrongdoing, intentionality, and stability) influence anticipated regret about remaining silent. When potential whistle-blowers realize that an organization intentionally engages in wrongdoing, it may elicit strong emotions in them (Weiner, 1992). For example, prior work has shown that intentionality is likely to elicit anger among potential whistle-blowers (Gundlach, Martinko, & Douglas, 2008). When potential whistle-blowers in health care–related organizations perceive intentionality associated with organizational wrongdoings (eg, intentionally mining health records for marketing purposes or intentionally requiring pharmacists to follow a redesigned work model that may lead to health information privacy violations), they can, in theory, experience greater anticipated regret about remaining silent (Edwards et al., 2009). However, this has yet to be shown empirically.

The intentionality of wrongdoing by health care–related organizations may give rise to anticipated regret about remaining silent for 3 reasons. First, if the potential whistle-blower is an organizational insider and observes an *intentional* act of wrongdoing by the organization, the individual is likely to feel a certain responsibility for any undesired outcomes that may affect patients (Gundlach, Douglas, & Martinko, 2003; Smith & Keil, 2003; Weiner, Amirkhan, Folkes, & Verette, 1987). This sense of responsibility may trigger anticipated regret about remaining silent. Regret theorists suggest individuals who feel a responsibility about a negative outcome are more likely to experience regret (Zeelenberg et al., 1998; Zeelenberg & Pieters, 2007).

Second, the presence of intentionality can make individuals question their initially preferred alternative of remaining silent, such that they are apt to experience anticipated regret (Zeelenberg & Pieters, 2007). Specifically, potential whistle-blowers who perceive organizational wrongdoing as *intentional* may view this as a more reprehensible action on the part of their organization and thus one that is likely to trigger greater anticipated regret if they were to choose to remain silent.

> **H1:** *Intentionality associated with an organization's wrongdoing will be positively related to anticipated regret about remaining silent.*

When there is stability associated with organizational wrongdoing, one can expect that the wrongdoing is the result of well-established or standardized practices and will be repeated in the future. If not, one can predict that it is accidental or temporary (Wang & Huff, 2007). The basic premise is that under conditions of stability, the current situation can be expected to occur again (eg, Folkes, 1984; Weiner, 1992). Weiner (1985) suggests that repeated wrongdoing can also evoke emotional responses. Presumably, the *stability* of wrongdoing is viewed as more morally

reprehensible and therefore more likely to generate strong emotional reactions. In a conceptual paper on whistle-blowing, Gundlach et al. (2003) propose a positive relationship between stability and emotional responses, such as anger, resentment, and fear. In an empirical study, Gundlach et al. (2008) found a positive relationship between stability and anger. However, the relationship between stability and anticipated regret about remaining silent has not been examined.

In the health care context, threats to heath information privacy can occur due to either unstable (eg, accidental disclosure) or stable acts of wrongdoing (Appari & Johnson, 2010). When stability is associated with an organization's wrongdoing, it is likely to generate a stronger emotional reaction among potential whistle-blowers and therefore greater anticipated regret about remaining silent.

H2: *Stability associated with an organization's wrongdoing will be positively related to anticipated regret about remaining silent.*

2.4.2 | Seriousness of wrongdoing and anticipated regret

We theorize that the seriousness of wrongdoing also influences anticipated regret about remaining silent. The seriousness of wrongdoing refers to the extent to which a particular wrongful activity may bring harm by resulting in substantial consequences for those affected (Gundlach, 2003; Miceli & Near, 1985, 1992). We theorize that more serious wrongdoings will be perceived as having the potential to inflict greater harm on the public, thereby triggering greater anticipated regret about remaining silent in the face of such wrongdoings. This argument is consistent with prior research showing that a serious wrongdoing is more likely to cause potential whistle-blowers to feel a personal responsibility to report the wrongdoing (Lowry, Moody, Galletta, & Vance, 2013; Park & Keil, 2009) and to perceive that the wrongdoing needs to be reported (Lowry et al., 2013).

H3: *Perceived seriousness of wrongdoing will be positively related to anticipated regret about remaining silent.*

2.4.3 | Anticipated regret and whistle-blowing intention

Prior research has shown that people are regret-averse. Therefore, individuals will experience anticipated regret as they weigh various alternative courses of action and will tend to choose one that minimizes regret (Reb, 2008). Potential whistle-blowers must weigh blowing the whistle against the alternative of remaining silent, and anticipated regret may influence how they weigh these alternatives. Specifically, the anticipated regret associated with remaining silent may make individuals more inclined to engage in whistle-blowing. This line of reasoning is consistent with conceptual arguments made by Edwards et al. (2009) regarding the relationship between anticipated regret and the whistle-blowing decision. In particular, they argue that when potential whistle-blowers experience strong anticipated regret about remaining silent, there is a high likelihood they will blow the whistle. Nevertheless, the relationship between anticipated regret about remaining silent and whistle-blowing intentions has not been investigated empirically. In this study, we address this gap by proposing and testing the following hypothesis:

H4: *Anticipated regret about remaining silent will be positively related to whistle-blowing intention.*

2.4.4 | Stability and whistle-blowing intention

While prior work (Gundlach, 2003) examines the impact of the stability of wrongdoings on judgments of responsibility and the emotion of anger, the direct effect of stability on whistle-blowing intentions has not, to our knowledge, been previously tested. Martinko and Zellars (1998) suggest that stable attributions are likely to influence behavioural intentions. Building on this work, Gundlach et al. (2003, p. 111) theorize that "when organizational members attribute wrongdoing acts to stable causes, they will be more motivated to change the behavior of wrongdoers by blowing the whistle." We seek to test this empirically by investigating the relationship between stability and whistle-blowing intentions and offer the following hypothesis:

H5: *Stability associated with an organization's wrongdoing will be positively related to whistle-blowing intentions.*

2.4.5 | Intentionality, seriousness of wrongdoing, and whistle-blowing intention

In this section, we hypothesize two relationships: (1) between intentionality and whistle-blowing intentions and (2) between the seriousness of wrongdoing and whistle-blowing intention. These two hypothesized relationships (designated with lowercase h's) represent paths in our research model that have already been established in prior research. We hypothesize and test these relationships here to confirm that they hold in the health information privacy context.

Prior studies have investigated the link between intentionality and behaviour. For instance, in marital interactions, Bradbury and Fincham (1992) find that when spouses view their partners' selfish actions as being intentional, it is more likely to result in marital problems. In an experiment, Betancourt and Blair (1992) find that the perceived intentionality of an action (in this case, a stone thrown by an individual that breaks a car windshield) directly influences the projected behaviour in response to the action. Further, in the context of whistle-blowing, Gundlach et al. (2008) report a positive relationship between intentionality and whistle-blowing intentions. In our study, we test whether this relationship holds in a health information privacy context involving organizational wrongdoings.

h6: *Intentionality associated with an organization's wrongdoing will be positively related to whistle-blowing intentions.*

Prior studies also provide strong evidence for the positive relationship between seriousness of a wrongdoing and the decision to blow the whistle (eg, Miceli & Near, 1985; Miceli & Near, 1992; Miethe, 1999). Smith, Keil, and Depledge (2001), for example, find that when individuals perceive higher levels of wrongdoing, they are more likely to assess that this negative information should be reported. As wrongdoings become more serious, people are more likely to report them. This is because others are more likely to "agree with and support the observer, which gives him or her more power to become the whistle-blower" (Miceli, Near, & Dworkin, 2008, p. 75). In this study, we re-examine this relationship in a health information privacy context involving organizational wrongdoing.

h7: *Seriousness associated with an organization's wrongdoing will be positively related to whistle-blowing intentions.*

2.4.6 | Control variables

In our model, we control for fear of retaliation, gender, age, and years of work experience.

Fear is a powerful emotion that can result in risk avoidance (Lerner & Keltner, 2001; Ohman, 1993). In the context of whistle-blowing decisions, prior research has shown that there is a negative relationship between the fear of retaliation and whistle-blowing behaviour. For example, Near and Miceli (1986) consider retaliation to be a significant factor in shaping whistle-blowing intentions, acknowledging that there is often a significant power relationship between management (ie, superiors) and potential whistle-blowers (ie, subordinates). Based on a large-scale survey of managers, Keenan (1990) found a negative relationship between the fear of retaliation and perceptions regarding the adequacy of a company's encouragement for whistle-blowing. This suggests that the fear of retaliation may create a climate of silence in an organization (Jain, Simon, & Poston, 2011), thereby reducing employees' willingness to engage in whistle-blowing. Based on a qualitative study involving 40 interviews with employees across a wide array of industries, Milliken et al. (2003) report that the fear of retaliation is one of the reasons employees do not speak up against workplace wrongdoing. Therefore, we include the fear of retaliation as a control variable.

Prior literature suggests gender differences in whistle-blowing behaviour. Miethe and Rothschild (1994) suggest that men and women respond to different drivers in deciding whether to blow the whistle. For men, high self-efficacy and self-esteem may trigger whistle-blowing, while for women feelings of responsibility for public well-being may trigger whistle-blowing. Their empirical study (Rothschild & Miethe, 1999) suggests that men are more likely to use

external channels for whistle-blowing, while women tend to favour internal channels. Further, Kaplan, Pany, Samuels, and Zhang (2009) report that women are more likely to use an anonymous channel to blow the whistle than men.

Years of work experience and age have also been found to influence whistle-blowing behaviour. Years of work experience is more likely to lead to whistle-blowing intentions because employees with more years of experiences think that they have greater power in organizations and are considered credible (Near & Miceli, 2008). Prior research by Liyanarachchi and Adler (2011) suggests that in the accounting discipline, age can influence whistle-blowing intentions. Further evidence for the influence of both age and work experience on whistle-blowing intentions has been reported by Stansbury and Victor (2009).

3 | RESEARCH METHODOLOGY

Whistle-blowing is a low-base rate behaviour not easily studied in organizational contexts. Therefore, laboratory experiments were selected as the methodology of choice here. Specifically, we conducted 3 experiments—two involving student subjects and the other involving working professionals in the health care industry. By examining the phenomenon in an experimental setting, we were able to achieve high internal validity. Moreover, by conducting 3 experiments using different manipulations and different subject pools, we were able to determine whether our results would replicate and to demonstrate the robustness of our findings.

Laboratory experiments have been widely used in studying whistle-blowing (eg, Gundlach et al., 2008; Smith et al., 2001). In testing causal relationships between variables, internal validity is paramount, and controlled laboratory experiments are known to be strong in this area. As Cook and Campbell (1979, p. 84) note, "jeopardizing internal validity for the sake of increasing external validity usually entails a minimal gain for a considerable loss." Experimental designs should therefore be evaluated on whether they are likely to increase our understanding of human behaviour, not on the degree to which they reflect the complexity and dynamics of organizational settings (Dobbins, Lane, & Steiner, 1988).

We conducted 3 studies, each involving an experiment that used a 2 × 2 between-subjects factorial design in which intentionality and the stability of wrongdoing were manipulated independently, allowing us to investigate their effect on whistle-blowing intentions. Studies 1 and 2 were done with student subjects, but using a different experimental scenario, an alternative manipulation of stability, and a slightly different measure of anticipated regret. Study 3 was a replication of study 2 but with a different subject pool, namely, health care industry professionals. The purpose of study 2 was to determine the extent to which our findings were robust to changes in the experimental scenario, the manipulation of stability, and the measurement of anticipated regret. The purpose of study 3 was to determine whether the results of study 2 (which used student subjects) could be replicated with health care industry professionals. In the remainder of this section, we describe the subjects, decision tasks, and procedures that were used to conduct the 3 studies, highlighting both the similarities and differences between them, as summarized in Table 1.

3.1 | Subjects

Subjects were asked to read a short scenario (either scenario A or scenario B shown in Appendix B) and to play the role of an employee who has observed the company's actions and must decide whether to engage in whistle-blowing. As shown in Table 1, two different scenarios were used across the three studies (study 1 used scenario A, while studies 2 and 3 used scenario B). For study 1 (N = 136) and study 2 (N = 135), our subjects were undergraduate business school students enrolled in information systems courses at a large urban university in the Southeastern region of the United States and a large university in the Mid-Atlantic region of the United States, respectively. In studies 1 and 2, we focused primarily on generalizing to theory. For this type of generalization, using student subjects is acceptable (Compeau, Marcolin, Kelley, & Higgins, 2012).

TABLE 1 Comparison of the scenarios and subject pools used in the 3 studies

	Study 1 Scenario A	Study 2 Scenario B	Study 3 Scenario B
Context of scenario	Drug company mining patient health records for marketing purposes.	Pharmacy chain redesigns work model placing pharmacists' computers in area of the store where patients' personal medical information is potentially visible to other customers.	Pharmacy chain redesigns work model placing pharmacists' computers in area of the store where patients' personal medical information is potentially visible to other customers.
Intentionality manipulation	Management is aware/unaware that it practices violate HIPAA.	Company intentionally requires/does not require pharmacists to follow redesigned work model.	Company intentionally requires/does not require pharmacists to follow redesigned work model.
Stability manipulation	Management has/has not illegally mined health records before.	The redesigned work model has/has not become a standardized practice across the company's stores.	The redesigned work model has/has not become a standardized practice across the company's stores.
Number of subjects	**N = 136**	**N = 135**	**N = 143**
Type of subjects	**Students**	**Students**	**Professionals in the health and pharmaceutical industries**
Work experience			
<10 years	119	131	39
11–20 years	14	2	61
21–30 years	3	1	27
>31 years	-	1	16
Education			
College student	136	135	-
Bachelor's degree	-	-	95
Graduate degree	-	-	48
Age distribution			
<27 years	110	118	-
28–35 years	16	13	37
36–45 years	6	2	50
46–55 years	4	1	27
56–65 years	-	1	29
Gender distribution			
Males	91	103	26
Females	45	32	117

While our primary emphasis was on generalizing to theory, we conducted multiple studies using two different scenarios to determine whether the model results were replicable and could be generalized across different contexts and persons. The mean age of our subjects was 24 for both studies 1 and 2. The mean years of work experience was four for study 1 and two for study 2. In study 1, 65% of the subjects were male and 35% were female, and in study 2, 76% were male and 24% were female. Subjects in both studies 1 and 2 had completed coursework that incorporated conceptual knowledge about ethics and business decision-making and had some knowledge of HIPAA.

For study 3 (N = 143), our subjects were professionals working in the health and pharmaceutical industries, as our aim was to determine whether the results obtained in study 2 would generalize from students to working professionals. Subjects in study 3, which was administered online, were recruited by a third party

(SurveyMonkey) and compensated for their participation in the study. The mean age of the subjects was 42, the mean years of work experience was 18, and all had knowledge of HIPAA. Eighty-two per cent of subjects were female and 18% were male.

3.2 | Decision tasks and procedure

In study 1, the whistle-blowing decision scenario (see Appendix B, scenario A) involved a pharmaceutical company that was mining the electronic health records of its customers and using the information for marketing purposes, in violation of HIPAA. Subjects were randomly assigned to 1 of 4 treatment conditions in which the intentionality of wrongdoings was portrayed as being either high or low and the stability of wrongdoings was portrayed as being either high or low. In the high-intentionality condition, subjects were informed that the management of their company was intentionally mining the health records for marketing purposes even though they were aware of the HIPAA violation. In the low-intentionality condition, subjects were informed that the management was new to the company and was unaware that the mining of health records violated HIPAA. In the high-stability condition, subjects were informed that this was not the first time that the company had violated HIPAA. In the low-stability condition, subjects were informed that this was the first time that the company had acted in such a manner.

After reading the scenario, subjects responded to a set of questions that included manipulation checks and measures associated with seriousness of the wrongdoing, anticipated regret about remaining silent, whistle-blowing intention, and control variables (fear of retaliation, gender, age, and years of work experience).

In studies 2 and 3, the decision scenario (see Appendix B, scenario B) was developed on the basis of an actual case (Leventhal, 2013) involving a drugstore company that established a new pharmacy model that posed potential privacy risks to patients that would represent a violation of HIPAA. Intentionality and stability were manipulated independently, and subjects were randomly assigned to 1 of 4 treatment conditions. In the high-intentionality condition, subjects were informed that the top management of their company intentionally required the pharmacists to follow the redesigned work model, although some pharmacists within the company had voiced privacy concerns. In the low-intentionality condition, subjects were informed that top management had given the pharmacists the right not to participate in the redesigned work model after some pharmacists voiced privacy concerns. In the high-stability condition, subjects were informed that the redesigned work model had become a standardized practice across virtually all the company's retail pharmacy stores. In the low-stability condition, subjects were told that the work model was not a standardized practice across all the company's retail pharmacy stores.

3.3 | Constructs and measures

Appendix C provides a list of our constructs, measurement items, and informing sources. All construct measures were adapted from existing measures and included multiple measurement items with the exception of anticipated regret about remaining silent, which was assessed using a single item measure in study 1.

With one exception, studies 2 and 3 involved the same constructs and measurement items used in study 1 (see Appendix C); in studies 2 and 3, we used a multi-item of measure of anticipated regret developed based on previous work (Tsiros & Mittal, 2000; Zeelenberg, 1999; Zeelenberg, Dijk, Manstead, & Pligt, 2000) to overcome the limitation of using a single-item measure, as was done in study 1.

4 | RESULTS

4.1 | Study 1

4.1.1 | Manipulation checks

We conducted manipulation checks to examine whether our intentionality and stability manipulations were working as expected. The manipulation check for the intentionality of wrongdoing asked subjects to indicate whether they

perceived the company's HIPAA violation as intentional (1 = strongly disagree [ie, low level of intentionality]; 7 = strongly agree [ie, high level of intentionality]). The manipulation check for stability asked subjects to indicate whether they perceived the company's illegal mining of health records was part of an ongoing pattern of behaviour (1 = strongly disagree [ie, low level of stability]; 7 = strongly agree [ie, high level of stability]). In a one-way analysis of variance (ANOVA), the mean difference between the low level of intentionality of the wrongdoing (M = 5.48, SD = 1.68) and the high level of intentionality of the wrongdoing (M = 6.07, SD = 1.36) was statistically significant and in the expected direction, $F(1, 134) = 5.16$, $P < .05$, $\eta^2_p = .04$. In a separate one-way ANOVA, the mean difference between the low level of stability of the wrongdoing (M = 5.51, SD = 1.82) and the high level of stability of the wrongdoing (M = 6.05, SD = 1.17) was statistically significant and in the expected direction, $F(1, 134) = 4.06$, $P < .05$, $\eta^2_p = .03$. The ANOVA results indicate that the manipulations were effective.

4.1.2 | Analysis

We analysed the data with partial least squares (PLS) using SmartPLS 2.0 (Ringle, Wende, & Will, 2015). PLS is a structural equation modelling technique that uses a component-based approach to estimation. Many prior studies on whistle-blowing have adopted PLS analysis (eg, Keil, Smith, Pawlowski, & Jin, 2004; Smith et al., 2001; Thompson, Smith, & Iacovou, 2007).

Measurement model assessment

All our constructs were modelled reflectively. We began our measurement model assessment by examining the standardized loadings. Standardized loadings greater than 0.707 indicate the shared variance between each item, and the associated construct exceeds the error variance (Chin, 1998). Table 2 shows that all the loadings were 0.848 or higher, thus exceeding this threshold. Next, we evaluated the internal consistency for each block of measures by examining Cronbach's alpha and composite reliability. Values for Cronbach's alpha and composite reliability that exceed 0.70 provide adequate evidence of reliability (Bearden, Netemeyer, & Mobley, 1993; Yi & Davis, 2003). Table 2 shows that all the constructs in the measurement model exhibited Cronbach's alpha of 0.75 or higher and composite reliability of 0.89 or higher. We also examined the average variance extracted (AVE) for each construct. AVE measures the variance that a latent construct captures from its indicators relative to the variance due to measurement error (Chin, 1998). The accepted threshold for AVE is 0.5 or higher, indicating that 50% or more variance of the indicators is accounted for (Chin, 1998). Table 2 shows that all AVEs are above this threshold.

To establish discriminant validity, we examined each indicator's loading on its own construct and its cross loading on all other constructs. Table 3 shows that for each block of indicators, the loadings on the intended construct are higher than the cross loadings on other constructs.

Next, we compared the AVE for each construct with the shared variance between all possible pairs of constructs (Fornell & Larcker, 1981). Table 4 shows that the AVE for each construct is higher than the squared correlation between the construct pairs, indicating that more variance is shared between the latent construct and its block of indicators than with another construct representing a different block of indicators. Together, the above analyses provide adequate evidence of discriminant validity.

Structural model assessment

Having established our measurement model as adequate, we then examined the structural model (Figure 2). To evaluate the explanatory power of the structural model, we assessed R^2 for each dependent variable. The model accounts for 23.3% of the variance in whistle-blowing intention and 18.5% of the variance in anticipated regret about remaining silent. These R^2 values are sufficiently high to make the interpretation of path coefficients meaningful.

We used bootstrapping (1000 resamples) to obtain t values for our path coefficients (see Figure 2). Due to the directional nature of the hypotheses, one-tailed tests were used. The intentionality of wrongdoing had a positive

TABLE 2 Item loadings and construct reliability of study 1

Construct	Item	Standardized Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Seriousness of wrongdoing	Swrong1 Swrong2	0.921 0.924	0.826	0.920	0.852
Whistle-blowing intention	Dc1 Dc2	0.858 0.923	0.746	0.885	0.794
Fear of retaliation	Fear1 Fear2 Fear3	0.956 0.942 0.848	0.909	0.940	0.840

TABLE 3 Loadings and cross-loadings for the measurement model of study 1

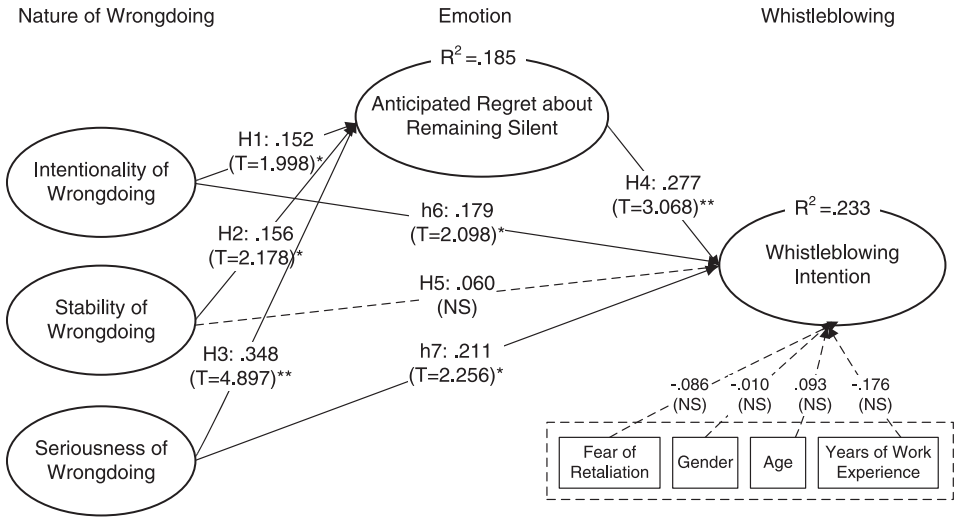
Construct	Item	1	2	3	4	5	6	7
1. Seriousness of wrongdoing	Swrong1 Swrong2	**0.921** **0.924**	0.305 0.378	0.324 0.250	0.065 0.036	−0.052 0.099	0.208 0.237	0.233 0.214
2. Anticipated regret about remaining silent	RegS	0.370	**1.000**	0.401	−0.162	0.194	0.171	0.155
3. Whistle-blowing intention	Dc1 Dc2	0.217 0.324	0.316 0.391	**0.858** **0.923**	−0.068 −0.090	0.046 0.114	−0.004 0.068	−0.040 0.054
4. Fear of retaliation	Fear1 Fear2 Fear3	0.045 0.057 0.055	−0.175 −0.116 −0.142	−0.108 −0.067 −0.052	**0.956** **0.942** **0.848**	0.068 0.168 0.058	0.044 0.039 0.038	0.025 0.021 0.075
5. Gender	Gender	0.026	0.194	0.095	0.102	**1.000**	0.047	0.010
6. Age	Age	0.241	0.171	0.041	0.044	0.047	**1.000**	0.914
7. Years of work experience	Exp	0.242	0.155	0.016	0.038	0. 010	0.914	**1.000**

TABLE 4 Average variance extracted (AVEs) versus square of correlations between constructs of study 1

Construct	AVE	1	2	3
1. Seriousness of wrongdoing	0.852	-		
2. Whistle-blowing intention	0.794	0.097	-	
3. Fear of retaliation	0.840	0.003	0.008	-

effect on anticipated regret about remaining silent (β = 0.152, P < .05), thus supporting Hypothesis 1. The stability of wrongdoing had a positive effect on anticipated regret about remaining silent (β = 0.156, P < .05), thus supporting Hypothesis 2. The seriousness of wrongdoing also had a significant positive effect on anticipated regret about remaining silent (β = 0.348, P < .01), thus supporting Hypothesis 3. Anticipated regret about remaining silent had a significant positive effect on whistle-blowing intention (β = 0.277, P < .01), thus supporting Hypothesis 4. The direct effect of the stability of wrongdoing on whistle-blowing intention, however, was not statistically significant. Therefore, Hypothesis 5 was not supported.

We also examined the direct effects of the intentionality of wrongdoing and the seriousness of wrongdoing on whistle-blowing intentions (Hypotheses 6 and 7). As mentioned earlier, these paths represented relationships that had already been shown to be significant in prior research. Nevertheless, for replication purposes, we tested them as part of our PLS analysis. Consistent with prior research, the direct effects of the intentionality of wrongdoing and the seriousness of wrongdoing on whistle-blowing intentions were found to be significant (β = 0.179, P < .05 and β = 0.211, P < .05, respectively).



Note. (1) NS: path coefficient is not significant; (2) Solid lines indicate significant paths and dashed lines indicate non-significant paths; (3) * p < .05, ** p < .01 (one-tailed test)

FIGURE 2 Structural model of study 1

Post hoc analysis

Given the structure of our model and the results obtained, we conducted a post hoc analysis to probe whether anticipated regret about remaining silent played a significant mediating role in our model. We used a bootstrapping approach to test mediation effects (Hayes, 2013; Preacher & Hayes, 2004). First, we found that the seriousness of wrongdoing is positively associated with whistle-blowing intention (β = 0.40, t(134) = 3.29, P < .01). The relationship between the seriousness of wrongdoing and anticipated regret about remaining silent is also positively significant (β = 0.53, t(134) = 4.58, P < .001). Finally, when we tested whether the seriousness of wrongdoing and anticipated regret about remaining silent together predict whistle-blowing intentions, the positive relationship between anticipated regret and whistle-blowing intentions was supported (β = 0.29, t(133) = 3.30, P < .01). However, the relationship between the seriousness of wrongdoing and whistle-blowing intentions was not supported (β = 0.25, t(133) = 1.95, P = .053), indicating that the anticipated regret about remaining silent fully mediates the relationship between the seriousness of wrongdoing and whistle-blowing. Anticipated regret was not found to mediate the effects of intentionality or stability on whistle-blowing intention.

Overall, in study 1, 6 of 7 hypothesized paths (Hypotheses - and and) were found to be significant.

4.2 | Study 2

4.2.1 | Manipulation checks

ANOVA was conducted to verify that the manipulations were effective. As expected, subjects in the high-intentionality condition perceived greater intentionality (M = 5.56, SD = 1.39) than those in the low-intentionality condition (M = 4.38, SD = 1.75), F(1, 133) = 18.67, P < .001, η^2_p = .12, and subjects in the high-stability condition perceived greater stability (M = 5.37, SD = 1.53) than those in the low-stability condition (M = 4.56, SD = 1.75), F(1, 133) = 8.18, P < .01, η^2_p = .06.

4.2.2 | Analysis

As in study 1, we analysed the data with PLS using SmartPLS 2.0 (Ringle et al., 2015).

Measurement model assessment

We began our measurement model assessment by examining the standardized loadings. All the loadings were 0.901 or higher (see Table 5). Next, we evaluated the internal consistency for each block of measures by examining Cronbach's alpha and composite reliability. Table 5 shows that all the constructs in the measurement model exhibited Cronbach's alpha of 0.93 or higher and composite reliability of 0.95 or higher. We also examined the AVE for each construct. Table 5 shows that all AVEs are above 0.87, which exceeds the 0.50 threshold.

Table 6 shows that for each block of indicators, the loadings on the intended construct are higher than the cross loadings on other constructs, thus providing evidence of discriminant validity. Table 7 shows that the AVE for each construct is higher than the squared correlation between the construct pairs, which provides further evidence of discriminant validity.

TABLE 5 Item loadings and construct reliability of study 2

Construct	Item	Standardized Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Seriousness of wrongdoing	Swrong1 Swrong2	0.978 0.975	0.951	0.976	0.953
Anticipated regret about remaining silent	RegS1 RegS2 RegS3	0.958 0.969 0.952	0.957	0.972	0.921
Whistle-blowing intention	Dc1 Dc2	0.966 0.965	0. 926	0.965	0.932
Fear of retaliation	Fear1 Fear2 Fear3	0.969 0.921 0.901	0.932	0.951	0.866

TABLE 6 Loadings and cross-loadings for the measurement model of study 2

Construct	Item	1	2	3	4	5	6	7
1. Seriousness of wrongdoing	Swrong1	**0.978**	0.696	0.710	−0.002	−0.007	0.157	0.165
	Swrong2	**0.975**	0.652	0.657	−0.025	−0.030	0.097	0.111
2. Anticipated regret about remaining silent	RegS1	0.665	**0.958**	0.685	−0.067	0.007	0.142	0.168
	RegS2	0.680	**0.969**	0.659	−0.005	−0.015	0.158	0.165
	RegS3	0.645	**0.952**	0.667	−0.053	0.028	0.130	0.123
3. Whistle-blowing intention	Dc1	0.672	0.671	**0.966**	−0.048	0.027	0.136	0.185
	Dc2	0.682	0.677	**0.965**	−0.024	−0.048	0.191	0.214
4. Fear of retaliation	Fear1	−0.018	−0.058	−0.048	**0.969**	0.179	−0.094	−0.088
	Fear2	−0.005	−0.017	−0.018	**0.921**	0.102	−0.032	−0.031
	Fear3	−0.007	−0.021	−0.020	**0.901**	0.131	−0.052	−0.034
5. Gender	Gender	−0.019	0.007	−0.011	0.0161	**1.000**	0.174	0.200
6. Age	Age	0.131	0.149	0.169	0.077	0.174	**1.000**	0.960
7. Years of work experience	Exp	0.142	0.159	0.206	−0.067	0.200	0.960	**1.000**

TABLE 7 AVEs versus square of correlations between constructs of study 2

Construct	AVE	1	2	3	4
1. Seriousness of wrongdoing	0.953	-			
2. Anticipated regret about remaining silent	0.921	0.478	-		
3. Whistle-blowing intention	0.932	0.492	0.488	-	
4. Fear of retaliation	0.866	0.000	0.002	0.001	-

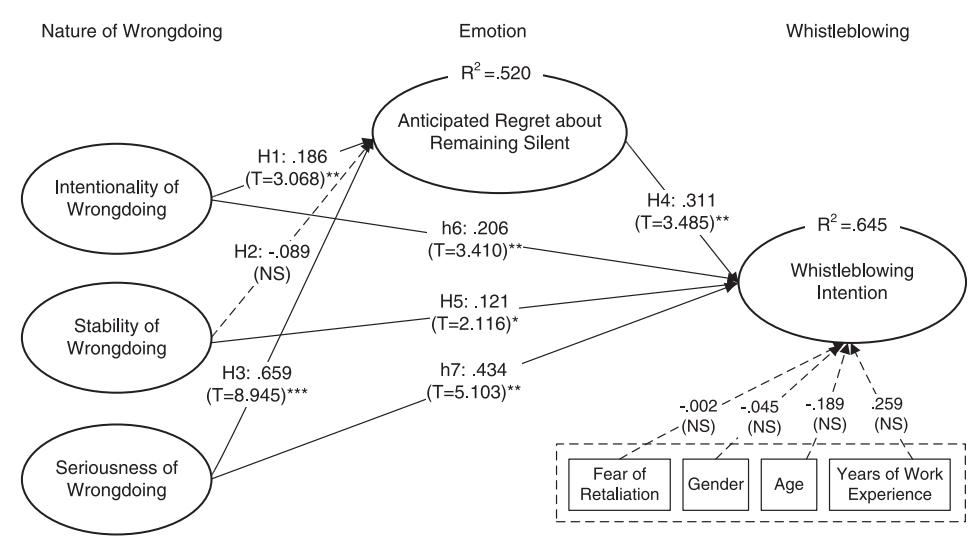
Structural model assessment

The model (see Figure 3) accounts for 64.5% of the variance in whistle-blowing intention and 52% of the variance in anticipated regret about remaining silent. As expected, intentionality had a positive effect on anticipated regret about remaining silent (β = 0.186, P < .01), thus supporting Hypothesis 1. However, in contrast with study 1, stability was not found to have a significant effect on anticipated regret about remaining silent. Therefore, Hypothesis 2 was not supported.

Consistent with study 1, the seriousness of wrongdoing had a significant positive effect on anticipated regret about remaining silent (β = 0.659, P < .001), thus supporting Hypothesis 3. Anticipated regret about remaining silent also had a significant positive effect on whistle-blowing intentions (β = 0.311, P < .01), thus supporting Hypothesis 4. Finally, in contrast to study 1, stability had a significant positive effect on whistle-blowing intentions (β = 0.121, P < .05), thus supporting Hypothesis 5. Consistent with prior research and study 1, the direct effects of intentionality and the seriousness of wrongdoing on whistle-blowing intentions were found to be significant (β = 0.206, P < .01, and β = 0.434, P < .01, respectively), hence supporting Hypotheses 6 and 7.

Post hoc analysis

As in study 1, we conducted mediation testing using bootstrapping (Hayes, 2013; Preacher & Hayes, 2004). We found that the seriousness of wrongdoing is positively related to whistle-blowing intentions (β = .73, t(133) = 11.32, P < .001). The relationship between the seriousness of wrongdoing and anticipated regret about remaining silent was also positive and significant (β = .67, t(133) = 11.03, P < .001). Finally, when we examined whether the seriousness of wrongdoing and anticipated regret together predict whistle-blowing intention, the relationship between anticipated regret and whistle-blowing intentions was significant (β = .44, t(132) = 5.24, P < .001). Unlike the post hoc analysis results of study 1, the relationship between the seriousness of wrongdoing and whistle-blowing intentions was still significant (β = .44, t(132) = 5.34, P < .001) in the presence of the mediator, suggesting that anticipated regret partially mediates the relationship between the seriousness of wrongdoing and whistle-blowing intention.



Note. (1) NS: path coefficient is not significant; (2) Solid lines indicate significant paths and dashed lines indicate non-significant paths; (3) * p < .05, ** p < .01, *** p < .001 (one-tailed test)

FIGURE 3 Structural model of study 2

Furthermore, unlike the post hoc analysis results of study 1, we also found that anticipated regret about remaining silent partially mediates the relationship between the intentionality of the wrongdoing and whistle-blowing intentions. The intentionality of the wrongdoing was positively related to whistle-blowing intentions (β = 1.18, $t(133) = 4.32$, $P < .001$). The intentionality of the wrongdoing also positively influenced anticipated regret about remaining silent (β = .81, $t(133) = 3.08$, $P < .01$). Then, when we examined whether the intentionality of the wrongdoing and anticipated regret together predict whistle-blowing intentions, the relationship between anticipated regret and whistle-blowing intentions was significant (β = .70, $t(132) = 10.42$, $P < .001$). The relationship between the intentionality of the wrongdoing and whistle-blowing intentions was also significant (β = .61, $t(132) = 2.92$, $P < .01$), suggesting that anticipated regret partially mediates the relationship between the intentionality of the wrongdoing and whistle-blowing intentions. Consistent with study 1, no mediating effect of anticipated regret on the relationship between stability and whistle-blowing intentions was found.

Overall, in study 2, 6 of 7 hypothesized paths (Hypotheses H1, H3, H4, H5, h6, and h7) were found to be significant.

4.3 | Study 3

4.3.1 | Manipulation checks

ANOVA was conducted to verify that the manipulations were effective. Subjects in the high-intentionality condition perceived greater intentionality (M = 4.46, SD = 1.30) than those in the low-intentionality condition (M = 3.68, SD = 1.60), $F(1, 141) = 10.36$, $P < .005$, $\eta^2_p = .07$, and subjects in the high-stability condition perceived greater stability (M = 4.42, SD = 1.35) than those in the low-stability condition (M = 3.77, SD = 1.57), $F(1, 141) = 7.01$, $P < .05$, $\eta^2_p = .05$.

4.3.2 | Analysis

As with studies 1 and 2, PLS (using SmartPLS 2.0) was used to analyse the data.

Measurement model assessment

As shown in Table 8, all the standardized loadings were 0.923 or higher. Further, all the constructs in the measurement model exhibited Cronbach's alpha of 0.84 or higher and composite reliability of 0.92 or higher, indicating good internal consistency for each block of measures. Table 8 shows that all AVEs for constructs are above 0.86, which exceeds the 0.50 threshold.

In Table 9, the loadings for measurement items on the target construct are higher than the cross loadings on other constructs, providing evidence of discriminant validity. In Table 10, each construct's AVE is higher than the squared correlation between the construct pairs, which offers additional evidence of discriminant validity.

TABLE 8 Item loadings and construct reliability of study 3

Construct	Item	Standardized Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Seriousness of wrongdoing	Swrong1 Swrong2	0.926 0.934	0.843	0.927	0.864
Anticipated regret about remaining silent	RegS1 RegS2 RegS3	0.965 0.959 0.954	0.956	0.972	0.920
Whistle-blowing intention	Dc1 Dc2	0.924 0.937	0.846	0.928	0.866
Fear of retaliation	Fear1 Fear2 Fear3	0.923 0.957 0.955	0.943	0.962	0.893

TABLE 9 Loadings and cross-loadings for the measurement model of study 3

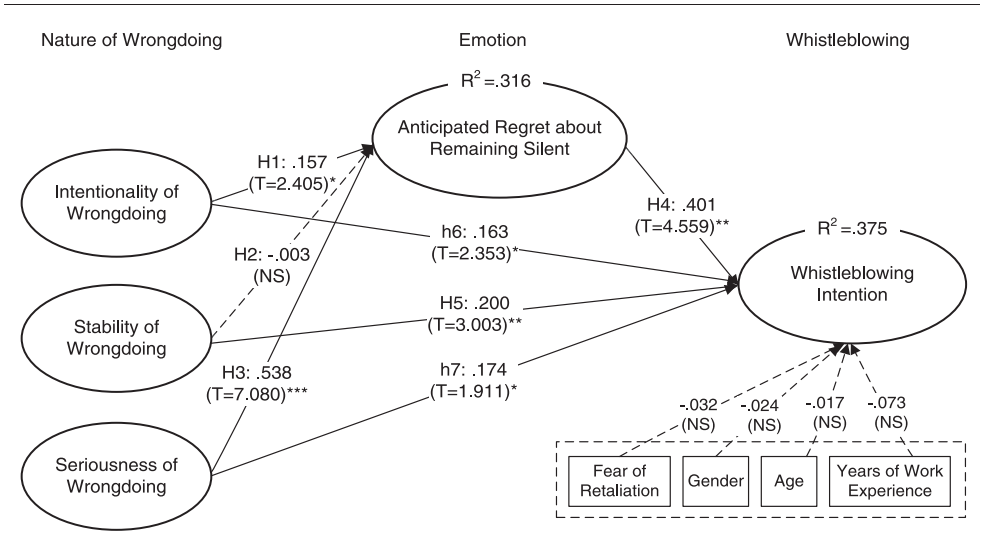
Construct	Item	1	2	3	4	5	6	7
1. Seriousness of wrongdoing	Swrong1	**0.926**	0.495	0.344	0.121	−0.200	0.013	−0.055
	Swrong2	**0.934**	0.508	0.385	0.256	−0.217	−0.019	−0.088
2. Anticipated regret about remaining silent	RegS1	0.544	**0.965**	0.509	0.045	−0.127	−0.038	−0.109
	RegS2	0.513	**0.959**	0.473	0.060	−0.117	−0.053	−0.099
	RegS3	0.496	**0.954**	0.543	0.081	−0.108	−0.077	−0.143
3. Whistle-blowing intention	Dc1	0.327	0.473	**0.924**	0.085	−0.041	−0.108	−0.176
	Dc2	0.401	0.514	**0.937**	0.046	−0.120	−0.116	−0.134
4. Fear of retaliation	Fear1	0.178	0.057	0.049	**0.923**	0.087	−0.085	0.010
	Fear2	0.198	0.071	0.052	**0.957**	0.103	−0.082	−0.003
	Fear3	0.200	0.058	0.085	**0.955**	0.052	−0.057	0.012
5. Gender	Gender	−0.224	−0.123	−0.089	0.080	**1.000**	0.089	0.022
6. Age	Age	−0.004	−0.058	−0.121	−0.075	0.089	**1.000**	0.749
7. Years of work experience	Exp	−0.077	−0.123	−0.165	0.008	0.022	0.749	**1.000**

TABLE 10 AVEs versus square of correlations between constructs of study 3

Construct	AVE	1	2	3	4
1. Seriousness of wrongdoing	0.864	-			
2. Anticipated regret about remaining silent	0.920	0.291	-		
3. Whistle-blowing intention	0.866	0.154	0.282	-	
4. Fear of retaliation	0.893	0.042	0.004	0.005	-

Structural model assessment

The model (see Figure 4) accounts for 37.5% of the variance in whistle-blowing intentions and 31.6% of the variance in anticipated regret about remaining silent.



Note. (1) NS: path coefficient is not significant; (2) Solid lines indicate significant paths and dashed lines indicate non-significant paths; (3) * p < .05, ** p < .01, *** p < .001 (one-tailed test)

FIGURE 4 Structural model of study 3

As expected, intentionality had a positive effect on anticipated regret about remaining silent (β = 0.157, P < .05), thus supporting Hypothesis 1. Consistent with study 2 that used the same scenario B, stability was not found to have a significant effect on anticipated regret about remaining silent. Therefore, Hypothesis 2 was not supported.

Consistent with studies 1 and 2, the seriousness of the wrongdoing had a significant positive effect on anticipated regret about remaining silent (β = 0.538, P < .001), thus supporting Hypothesis 3. Anticipated regret about remaining silent also had a significant positive effect on whistle-blowing intentions (β = 0.401, P < .01), thus supporting Hypothesis 4. Moreover, consistent with study 2, stability had a significant positive effect on whistle-blowing intentions (β = 0.200, P < .01), thus supporting Hypothesis 5. Consistent with prior research and studies 1 and 2, the direct effects of the intentionality and the seriousness of the wrongdoing on whistle-blowing intentions were found to be significant (β = 0.163, P < .05, and β = 0.174, P < .05, respectively), thus supporting Hypotheses 6 and 7.

Post hoc analysis

Mediation testing using bootstrapping (Hayes, 2013; Preacher & Hayes, 2004) was also conducted. We found that anticipated regret fully mediates the relationship between the seriousness of the wrongdoing and whistle-blowing. The seriousness of the wrongdoing is positively related to whistle-blowing intentions (β = .43, t(141) = 4.19, P < .001) and also positively influences anticipated regret about remaining silent (β = .62, t(141) = 7.59, P < .001). When we tested whether the seriousness of the wrongdoing and anticipated regret together predict whistle-blowing intentions, the relationship between anticipated regret and whistle-blowing intentions was significant (β = .47, t(140) = 4.71, P < .001), but the relationship between the seriousness of the wrongdoing and whistle-blowing intentions was not significant (β = .14, t(140) = 1.25, P = .21), suggesting that anticipated regret about remaining silent fully mediates the effect of the seriousness of the wrongdoing on whistle-blowing intentions. Anticipated regret was not found to mediate the effects of intentionality or stability on whistle-blowing intentions.

Overall, consistent with study 2, 6 hypothesized paths (H1, H3, H4, H5, h6, and h7) were found to be significant in study 3. The results indicate that the research model is capable of explaining a substantial amount of the variance in what is generally acknowledged to be a complex decision context (ie, whistle-blowing). Table 11 summarizes the results of the hypothesis testing and post hoc analysis. Next, we discuss the implications of our research, its limitations, and directions for future research.

5 | DISCUSSION AND IMPLICATIONS

Drawing on constructs from attribution theory, our research investigates how attributions of intentionality and stability along with the perceived seriousness of wrongdoings and emotions (ie, anticipated regret about remaining silent) can influence whistle-blowing intentions in the context of health information privacy violations. We conducted 3 experiments involving different scenarios, different manipulations, and different subjects (see Table 1) and obtained very similar results (see Table 11), thus adding to the robustness of our findings.

This study contributes to both the health information technology literature and the whistle-blowing literature in several important ways and represents the first attempt to investigate (1) how causal attributions of wrongdoings (intentionality, stability) affect anticipated regret about remaining silent and whistle-blowing intentions and (2) how an important emotion (anticipated regret about remaining silent) influences whistle-blowing intentions. Our study also confirms the direct effect of the seriousness of wrongdoings on whistle-blowing intentions. Finally, our study is the first to systematically investigate whistle-blowing within the context of health information privacy violations.

5.1 | Implications for research

Various regulations in different countries provide whistle-blowing channels and protections for whistle-blowers (see Appendix A) with the aim of making it easier for organizational insiders to blow the whistle when they observe

TABLE 11 Summary of results of hypothesis testing and post hoc analysis

Hypothesis testing Scenario used (see Appendix B) Key difference in method		Study 1 Scenario A Student subjects; single-item measure for anticipated regret	Study 2 Scenario B Student subjects; multi-item measure for anticipated regret	Study 3 Scenario B Subjects were health care professionals; multi-item measure for anticipated regret
H1	Intentionality → anticipated regret	$\beta = 0.15$, $P < .05$	$\beta = 0.19$, $P < .01$	$\beta = 0.16$, $P < .05$
H2	Stability → anticipated regret	$\beta = 0.16$, $P < .05$	NS	NS
H3	Seriousness → anticipated regret	$\beta = 0.35$, $P < .01$	$\beta = 0.66$, $P < .001$	$\beta = 0.54$, $P < .001$
H4	Anticipated regret → WB intention	$\beta = 0.28$, $P < .01$	$\beta = 0.31$, $P < .01$	$\beta = 0.40$, $P < .01$
H5	Stability → WB intention	NS	$\beta = 0.12$, $P < .05$	$\beta = 0.20$, $P < .01$
h6	Intentionality → WB intention	$\beta = 0.18$, $P < .05$	$\beta = 0.21$, $P < .01$	$\beta = 0.16$, $P < .05$
h7	Seriousness → WB intention	$\beta = 0.21$, $P < .05$	$\beta = 0.43$, $P < .01$	$\beta = 0.17$, $P < .05$
Post hoc analysis	Intentionality → anticipated regret → WB intention	NS	$\beta = 0.70$, $P < .001$ (Partial mediation)	NS
	Stability → anticipated regret → WB intention	NS	NS	NS
	Seriousness → anticipated regret → WB intention	$\beta = 0.29$, $P < .01$ (full mediation)	$\beta = 0.44$, $P < .001$ (Partial mediation)	$\beta = 0.47$, $P < .001$ (Full mediation)

wrongdoings within an organization (UHealth, 2005a). However, our understanding of what factors influence whistle-blowing intentions remains limited. Prior studies focused primarily on the individual characteristics of potential whistle-blowers (eg, Miceli, Near, & Schwenk, 1991; Miethe & Rothschild, 1994; Milliken et al., 2003), organizational characteristics (eg, Miceli & Near, 1985; Near & Miceli, 1986), and the type of wrongdoing (Near et al., 2004). Here, we draw on constructs from attribution theory and literature on anticipated regret to extend the whistle-blowing literature while situating our work in the context of health information privacy violations, which is an area of growing concern with the digitization of health records.

While prior work suggests that constructs from attribution theory can be useful in understanding whistle-blowing decisions (Gundlach et al., 2003), there has been no attempt to study how such attributions influence emotions or whistle-blowing intentions in the context of health information privacy violations. We propose that in the health care context, violations of health information privacy, confidentiality, or security (Rindfleisch, 1997) may or may not be due to intentional or stable motives of health care organizations. We further theorize that the extent to which individuals attribute such violations to intentional or stable causes may very well shape how they respond emotionally and their willingness to engage in whistle-blowing.

The results of all 3 studies suggest that when health care organizations intentionally engage in wrongdoings, it will cause individuals to experience anticipated regret about remaining silent and can also increase their intention to blow the whistle. However, when health care organizations unintentionally engage in wrongdoings, potential whistle-blowers are less likely to experience anticipated regret about remaining silent, and their intention to blow the whistle is lower. One potentially interesting aspect of these findings is that individuals' attributions of causality and how they emotionally react to remaining silent in the face of wrongdoings is what drives whistle-blowing intentions and not necessarily the legality of the violation per se. In addition, as expected based on prior work, we found that the seriousness of a wrongdoing was an important factor influencing both anticipated regret about remaining silent and whistle-blowing intentions.

Regarding stability, the results of study 1 (which used scenario A) were somewhat different than the results of studies 2 and 3 (both of which used scenario B). In study 1, we observed that stability influenced anticipated regret about remaining silent but did not influence whistle-blowing intentions directly. In studies 2 and 3, we observed that stability did not influence anticipated regret about remaining silent but directly affected whistle-blowing intentions. We suspect that the differences we observed were the results of using two very different manipulations of stability. In study 1, our manipulation of stability was based on whether the organization had repeatedly engaged in the wrongdoing. In studies 2 and 3, our manipulation of stability was based on whether the redesigned work model that led to potential HIPAA violations had become a standardized practice. We suspect that in study 1, we saw a direct effect of stability on anticipated regret about remaining silent because the organization was portrayed as a "repeat offender." This was not the case in studies 2 and 3.

While prior work has shown that the seriousness of wrongdoings can influence whistle-blowing intentions (Miceli & Near, 1985, 1992; Miethe, 1999), our results indicate that the seriousness of wrongdoings can trigger individuals to experience anticipated regret about remaining silent, a comparison-based emotion (Zeelenberg & Pieters, 2007). That is, when potential whistle-blowers consider the wrongdoing serious, it can lead them to question their initially preferred alternative of remaining silent. The finding that the seriousness of a wrongdoing can help to explain the variance in anticipated regret about remaining silent represents a contribution to existing knowledge.

The literature on regret suggests when a decision is perceived to be a significant one and the situation is uncertain, people experience anticipated regret (eg, Reb, 2008; Zeelenberg & Pieters, 2007). In the health information privacy violation context, our results also suggest that when a whistle-blowing decision is perceived to be a significant one (ie, one that could have significant consequences) due to the seriousness of the wrongdoing or the presence of intentionality, individuals are more likely to experience anticipated regret about remaining silent.

As far as we can determine, our research is the first to empirically establish a link between anticipated regret about remaining silent and whistle-blowing intentions. Regret theorists (eg, Inman, 2007; Reb, 2008; Zeelenberg &

Pieters, 2007) suggest that people tend to be regret-averse and therefore people who experience anticipated regret about a particular decision tend to choose a regret-minimizing option. In the health information privacy violation context, our findings show that anticipated regret about remaining silent leads to greater whistle-blowing intentions. This finding is consistent with Edwards et al.'s (2009) theorizing on the relationship between anticipated regret and whistle-blowing intentions.

In all 3 studies, we conducted a post hoc analysis to explore the mediating role of anticipated regret about remaining silent. We found this variable plays a significant mediating role in the relationship between the seriousness of a wrongdoing and whistle-blowing intentions (Table 11). While prior studies (eg, Miceli & Near, 1985; Miceli & Near, 1992; Miethe, 1999) suggest that the seriousness of a wrongdoing has a positive impact on whistle-blowing intentions, the underlying mechanism associated with this has been largely neglected. Our results demonstrate that anticipated regret about remaining silent is an important intervening variable that either partially mediates (study 2) or fully mediates (studies 1 and 3) the relationship between the seriousness of a wrongdoing and whistle-blowing intentions. Further, in study 2 anticipated regret about remaining silent was found to partially mediate the relationship between intentionality and whistle-blowing intentions, but this was not the case in study 1 or study 3. However, we found no evidence across the 3 studies that anticipated regret mediates the relationship between stability and whistle-blowing intentions.

Surprisingly, the fear of retaliation, which has been shown to be important in prior studies (Edwards et al., 2009; Gundlach et al., 2003; Keenan, 1990; Milliken et al., 2003), was not found to be significant when we included it as a control variable. However, in our post hoc analysis, we did find that stability and the seriousness of a wrongdoing may explain some of the variance in fear of retaliation. This finding is consistent with the proposition of Gundlach et al. (2003) that when a wrongdoing is attributed to stable causes, individuals are more likely to experience fear. Further research is needed to explore this more fully.

5.2 | Implications for practice

This study offers important implications for practice. First, as concerns about violations of health information privacy increase, it is critical to understand how individuals perceive the nature of such violations and what motivates their whistle-blowing intentions. Our findings suggest that when health care organizations mistakenly engage in behaviour that may result in HIPAA violations, individuals' whistle-blowing intentions will be lower than when the organization's actions are attributed to intentional or stable causes. In other words, when the circumstances associated with the wrongdoing do not promote strong causal attributions of intentionality or stability, potential whistle-blowers will likely have a more lenient attitude toward the organization.

Organizations that handle protected health information have a duty to ensure that it is used only for the intended and allowable purposes for which it was collected. Exercising care in this area is the single most important thing that managers can do to prevent problems that would lead to whistle-blowing. Having said that, we expect violations of health information privacy will sometimes occur. From a practical standpoint, managers can implement both technological solutions as well as organizational changes to protect sensitive health information from being inappropriately used or shared. Technological measures include system controls that limit access to health information, password-protected computers that use encryption to store such information, screens that time out, go dark, and lock out unauthorized users after inactivity is detected, and screen guards that make it difficult for prying eyes to read a computer's display unless one is directly in front of it. Technological measures would also include tightening security procedures relating to the handling and storage of data. With cyber security threats growing, organizations must take steps to prevent hackers from obtaining access to sensitive health information.

While technological measures are important, organizational changes may be as or even more important in safeguarding health information. An important first step in this direction is to conduct an audit of the

organization's vulnerabilities in this area. Ideally, such an audit would also provide an accurate indication of whether the organization's current climate and culture are conducive to preventing the inappropriate use of health information and to encourage the prompt reporting of such behaviour if and when it is observed. Obviously, senior management should do everything possible to instill a culture that promotes internal reporting so that when any breaches of health information privacy do occur, they can be addressed quickly before becoming a bigger problem. Prior research has shown that by creating the right organizational climate and by signalling to employees that appropriate action will be taken to correct any reported problems, an organization can reduce the fear of retaliation that is often associated with whistle-blowing, thereby encouraging employees to report issues that are of concern.

5.3 | Limitations and directions for future research

All research has limitations, and ours is no exception. In study 1, we used a single-item measure for anticipated regret about remaining silent. While single-item measures for anticipated regret have been commonly used in prior research (eg, Lankton & Luft, 2008; Wong & Kwong, 2007; Zeelenberg, van Dijk, & Manstead, 1998), such an approach limits the ability to assess measurement reliability. Further, the single-item measure used in study 1 may have influenced the perceived seriousness of wrongdoings. To address these issues, in studies 2 and 3, we used a carefully constructed set of multiple measures for anticipated regret. The results regarding anticipated regret about remaining silent from studies 2 and 3 are consistent with those obtained in study 1.

In studies 1 and 2, we used student subjects. Some may question this for experiments such as ours on the grounds that students are a poor substitute for managers (because they lack knowledge and experience that might be gained in the working world). To address this issue, in study 3, we used professionals working in the health care sector as subjects. The relationships found to be significant in study 1 were largely replicated in study 3, and the relationships found to be significant in study 2 were fully replicated in study 3.

Some might question the use of laboratory experiments for research on whistle-blowing because the rich context of an organizational environment cannot be reproduced within the confines of a narrow laboratory experiment. However, given the nature of the phenomenon and the difficulty of studying it in the field, and our emphasis on internal validity to test causal relationships, we believe that our methodological choice was a reasonable one under the circumstances.

By necessity, we limited our study to a small number of variables, and it is possible that other factors could influence attribution in this context (eg, the controllability of the organization's wrongdoing and whether it was triggered by internal or external causes). There may also be other emotional variables besides anticipated regret that could be relevant in this context, such as guilt, anger, shame, or resentment (Gundlach et al., 2003).

Because of the particular nature of the health information privacy context, further studies must be conducted to understand the whistle-blowing behaviours of insiders in health care organizations. Prior literature on whistle-blowing behaviours (Mesmer-Magnus & Viswesvaran, 2005; Near et al., 2004) suggests potential variables that can influence whistle-blowing behaviours and retaliation against potential whistle-blowers in health care organizations: (1) the characteristics of whistle-blowers (eg, level of education and level of job position); (2) the types of decisions made or actions taken by (potential) whistle-blowers to blow the whistle about wrongdoings (eg, reporting wrongdoing via internal or external channels); (3) contextual or environmental factors associated with organizations (eg, a supervisor's support, size of organization, and organizational culture); and (4) the nature of the wrongdoing and potential consequences associated with it.

In addition, further research is needed to investigate mediators and moderators that can help us better understand the mechanisms governing whistle-blowing in this context and provide additional points of leverage for improving organizational practices. Our post hoc analysis provided very limited evidence that anticipated regret about remaining silent may play a mediating role between attributions and whistle-blowing intentions. Gundlach et al.

(2008) suggest that anger can play a mediating role in whistle-blowing situations, and Edwards et al. (2009) propose that other emotions (eg, guilt and shame) may also play a mediating role in this context. Further research is needed to investigate this, and additional research is warranted to determine whether personality characteristics or other interventions (eg, perspective taking) play an important moderating role in this context.

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APPENDIX A

HEALTH INFORMATION PRIVACY AND PROTECTION REGULATIONS AMONG NATIONS

Country	Relevant regulation	Health information privacy protection
Australia	• Privacy Act of 1988 and Privacy Amendment Act of 2012 • Personally Controlled Electronic Health Records Act of 2012 (PCEHRA) • Healthcare Identifiers Act of 2010 (HIA)	• The privacy act safeguards health information and sets up obligations regarding all private health service providers, including the collection of family medical histories, the disclosure of health information, and gaining consent (Croucher, 2008). • PCEHRA governs the collection, use, and disclosure of health information (eg, personal electronic health records). • HIA of 2010 regulates the use and disclosure of health care identifiers used in electronic health record systems (Clarke, 2015). • Australian states and territories also implement health information privacy protection based on their local legislation (eg, health records and the Information Privacy Act of 2002 in New South Wales and the Health Records Act of 2001 in Victoria; Croucher, 2008).
Canada	• Personal Information Protection and Electronic Documents Act (PIPEDA) • Provincial privacy laws	• PIPEDA is a federal law and establishes the ground rules for how the private sector collects, uses, or discloses personal information during commercial activities (Priv.gc.ca, 2014). • This law is similar in spirit to provincial laws such as the Personal Health Information Protection Act (2004) in Ontario and the Personal Health Information Privacy and Access Act (2009) in New Brunswick (Priv.gc.ca, 2014).
China	• No particular legislation	• China has no legislation that specifically addresses the collection, operation, and disclosure of personal information (Dong & He, 2015). It also has not signed any treaty with the EU or any nation (BakerHostetler, 2015). • However, China has established rules on processing medical records and pollution health information.
European Union (EU)	• Data Protection Directive 95/46/EC • Data directive on personal data and the protection of privacy (or Directive 2002/58/EC)	• Directive 95/46/EC establishes standards that the EU member countries should include in their national data privacy and security laws. It identifies health information as a "sensitive" category of individual information (Hiller, McMullen, Chumney, & Baumer, 2011). • Directive 2002/58/EC focuses on privacy protection in the e-communications sector (BakerHostetler, 2015). • This directive safeguard cross-border data transmissions by requiring foreign recipients of electronic health records to follow rules that are applicable in EU (Hiller et al., 2011).
EEU Belgium	• Law on protection of privacy in relation to the processing of the personal data (PPPP) • Patients' right law of 2002	• The EU Data Protection Directive was implemented by establishing the PPPP law. Article 7 of this law protects personal health information. Patient's right law protects the privacy of patient data (BakerHostetler, 2015).
Italy	• Legislative decree of June 30, 2003, no. 196 (the "code")	• The "code" enforces Directive 95/46/EC and Directive 2002/58/EC (BakerHostetler, 2015). It prescribes rules and security measures for collecting, processing, and disclosing personal information (including health information) (BakerHostetler, 2015).

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Country	Relevant regulation	Health information privacy protection
United	• Data Protection Act of 1998 • National Health Service Act (NHS) • Health and Social Care Act of 2008 (HSC)	• The UK also implements EU directives through the Data Protection Act. It protects an individual rights regarding health information and specifies data protection principles (Elgar, 2011). It also specifies restrictions on the use of health records by health care organizations (Legislation.gov.uk, 2005). • NHS prescribes rules for guaranteeing confidentiality in situations like research (Elgar, 2011). HSC provides the code of practice for managing and disclosing confidential personal information (Legislation.gov.uk, 2008).
Mexico	• Federal law on protection of personal data of 2010 (PPD)	• The PPD identifies sensitive data and prescribes rules for protecting personal data (including health data) in data collection, transmission, and processing (Dong & He, 2015).
New Zealand	• Health information privacy code (HIPC)	• The HIPC establishes rules for the collection, security, access, correction, and retention of health information (Shroff, 2008).
United States	• Health Insurance Portability and Accountability Act of 1996 (HIPAA) • Health Information Technology for Economic and Clinical Health Act (HITECH)	• HIPAA provides a broad framework for health information privacy and establishes standards for the privacy of individually health information. It also prevents the covered entities from retaliatory acts against those who identify and report problems (UHealth, 2005b). • HITECH strengthens HIPAA by establishing by expanding privacy regulations. It includes provisions related to protecting health records, health information exchanges, and personal health records and specifies stiffer monetary and civil penalties for violations. It also provides for the development of additional regulations and for rewarding whistle-blowers (IMedicor, 2014).

APPENDIX B

SCENARIOS USED IN THE EXPERIMENTS

Scenario A (used only in study 1)

You work for a drug company that has developed a web-based system for individuals to maintain their Electronic Health Records. You have recently learned that your company is mining the protected health information and is using it to market its drug products. This use of protected health information violates the federal Health Insurance Portability and Accountability Act (HIPAA) and could cause financial, reputational, or other harm should the information fall into the wrong hands. "The management is aware that the mining of health records and its use for marketing purposes is in violation of HIPAA." [However, the management team is new to the health care industry and is completely unaware that the mining of health records and its use for marketing purposes is in violation of HIPAA.] "This is not the first time your company has illegally mined health records and used them for marketing purposes." [This is the first time your company has illegally mined health records and used them for marketing purposes.]

Now, you are faced with the decision on whether or not to bring your company's actions to the attention of others outside the organization. If you decide to report your company's actions, you could lose your job. If you remain silent, however, one or more individuals could suffer financial, reputational, or other harm should their protected health information fall into the wrong hands.

Scenario B (used in studies 2 and 3)

You work for a company that owns a chain of retail pharmacy stores located throughout the country. "Two years ago, the company reorganized all its stores across the entire country in order to relocate the pharmacist's desk from a private space behind the counter (where prescriptions are filled) to a public space within the store itself. The redesigned work model has become a standardized practice across virtually all of the company's retail pharmacy stores." [This year, the company decided to try a brief experiment in one region of the country for 3 months in which they relocated the pharmacist's desk from a private space behind the counter (where prescriptions are filled) to a public space within the store itself. The redesigned work model is not a standardized practice across all of the company's retail pharmacy stores.] The objective behind the redesigned work model was to make pharmacists more accessible to patients so that they could better advise patients regarding their medications and provide additional services such as vaccinations. Under the redesigned work model, pharmacists sit at a desk in front of the pharmacy counter and work on a desktop computer with full access to patients' data. However, it was often observed that a patient's personal medical information was left unattended on the pharmacist's desk and visible to other customers, which was in direct violation of laws intended to protect patient privacy.

Some pharmacists within the company have voiced privacy concerns associated with the redesigned work model. "The company's top management, however, has intentionally required these pharmacists to follow the redesigned work model because it will help promote additional services such as vaccinations that could improve store revenues." [The company's top management has given these pharmacists the right not to participate in the redesigned work model.]

Now, you are faced with the decision of whether or not to bring your company's actions to the attention of others outside the organization. If you decide to report your company's actions, you could lose your job. If you remain silent, however, one or more individuals could suffer financial, reputational, or other harm should their protected health information fall into the wrong hands.

APPENDIX C
CONSTRUCTS AND MEASUREMENT ITEMS FOR 3 STUDIES

Category	Construct	Construct Description	(Scale format) Measurement items	Informing Sources
Whistle-blowing	Whistle-blowing intention	A decision to disclose illegal, unethical, or illegitimate IT practices of a company, to persons or organizations that may be able to effect action.	[Study 1] (definitely not/definitely) (1–7 scale) 1. Would you report your company's actions with respect to HIPAA to an external auditor? 2. Would you tell an outside authority, like the Department of Health and Human Services (HHS), about your company's actions with respect to HIPAA? [Studies 2 & 3] (definitely not/definitely) (1–7 scale) 1. Would you report your company's actions to an external auditor?	(Gundlach, 2003; Miceli & Near, 1984, 1985)

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Category	Construct	Construct Description	(Scale format) Measurement items	Informing Sources
			2. Would you tell an outside authority, like the Department of Health and Human Services (HHS), about your company's actions?	
Nature of wrongdoing	Intentionality of wrongdoing	A type of causal attribution. It indicates whether one purposively or knowingly (intentional) brings out specific consequences or not purposively (unintentional).	[Study 1] The manipulation check asked whether the HIPAA violation of the company was intentional. [Studies 2 & 3] It asked whether the company intentionally required pharmacists to follow the redesigned work model, even after knowing that it could lead to potential violations of patient privacy.	(Betancourt & Blair, 1992; Weiner, 1985)
	Stability of wrongdoing	A type of causal attribution. It indicates whether one brings out specific consequences in constant/invariant effort (stable) or immediate/variant effort (unstable).	[Study 1] The manipulation check asked whether the illegal mining of health records was part of an ongoing pattern of behaviour. [Studies 2 & 3] It asked whether the redesigned work model was a standardized practice across virtually all of the company's stores that threatened to violate patient privacy.	(Gundlach, 2003; Weiner, 1985)
	Seriousness of wrongdoing	The extent to which a particular wrongful activity recurs or involves substantial consequences.	[Study 1] (not very serious/very serious) (1–7 scale) 1. How serious is the potential harm to individuals from HIPAA violations? (Not at all/very much)(1-7scale) 2. How much financial, reputational, or other harm could result from the use of protected health information for marketing purposes? [Studies 2 & 3] (not very serious/very serious) (1–7 scale) 1. How serious is the potential harm to individuals from the violation of patient privacy? 2. How much financial, reputational, or other harm could result from	(Gundlach, 2003; Miceli & Near, 1985, 1992)

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Category	Construct	Construct Description	(Scale format) Measurement items	Informing Sources
			the violation of patient privacy?	
Emotion	Anticipated regret about remaining silent	A comparison-based anticipated emotion. It occurs when individuals imagine that negative consequences may occur from a decision and that the most preferred option (remaining silent) is not superior to another option (whistle-blowing).	[Study 1] (no regret/ very much regret) (1–7 scale) If you decided to remain silent on your company's action and then later found out that an individual was fired because his confidential health records of depression and suicide attempts were used to send free samples of an antidepressant to his work address, to what extent would you regret your decision to remain silent? [Studies 2 & 3] (not at all/ quite a lot) (1–7 scale) 1. To what extent would you regret it if you had decided to remain silent? 2. To what extent would you feel sorry if you had decided to remain silent? 3. To what extent would you have a sinking feeling if you had decided to remain silent?	(Tsiros & Mittal, 2000; Wong, Yik, & Kwong, 2006; Zeelenberg, 1999; Zeelenberg et al., 1998; Zeelenberg et al., 2000)