

A silhouette of a person's head and shoulders is shown in profile, facing right. The person is looking at a bright, glowing rectangular shape, likely a computer screen, which is the only source of light in the dark room. The lighting creates a strong contrast between the dark silhouette and the bright screen.

The Psychological Harms of a Digital Incident

Introduction

Much research has been undertaken on the monetary effects of a harmful digital incidents on organizations. This research has shown that a negative incident can have a lasting impact on these organizations. According to the National Cyber Security Alliance, 60% of small and mid-sized businesses that are hacked go out of business within six months.

There is also a growing body of research on the psychological impacts of a digital incident on employees and individuals. This growing body of research is showing that these incidents can have long-term damaging impacts on those who must suffer through them.

Dr. Maria Bada, a research associate at the Cambridge Cybercrime Centre at the University of Cambridge says, "The psychological effects of cyberattacks may even rival those of traditional terrorism."¹

According to a recent survey by the nonprofit Identity Theft Resource Center, 86% of victims of identity theft reported feeling worried, angry, and frustrated.

Nearly 70% of victims felt they could not trust others and they felt unsafe. More than two-thirds reported feelings of powerlessness or helplessness. Sadness or depression afflicted 59%. Half of the victims reported losing interest in activities or hobbies they once enjoyed.

These negative emotions can have physical repercussions. Nearly 85% reported disturbances in their sleep habits, 77% reported increased stress levels and nearly 64% said they had trouble concentrating. Aches, pains, headaches, and cramps were symptoms for nearly 57%.²

¹ Guynn, Jessica, Anxiety, depression and PTSD: The hidden epidemic of data breaches and cyber crimes, USA Today, (Feb. 21, 2020), <https://www.usatoday.com/story/tech/conferences/2020/02/21/data-breach-tips-mental-health-toll-depression-anxiety/4763823002/>

² Guynn, Jessica, Anxiety, depression and PTSD: The hidden epidemic of data breaches and cyber crimes, USA Today, (Feb. 21, 2020),

Elias Aboujaoude, a Stanford professor of psychiatry and behavioral sciences published an academic paper where he found that personal data exposure can cause anxiety, depression, and PTSD in people whose data had been compromised.³

Dr. Ryan Louie, during a talk at the RSA Conference in 2020 recognized that cybersecurity events may cause a plethora of mental health conditions such as “depression, anxiety, PTSD-like symptoms, paranoia, and other issues.”⁴

Other studies have equated the psychological consequences of data breach victims to the psychological consequences of those experienced by trauma survivors or the victims of home invasion or assault.⁵

Legal scholars have proposed that the definition of harm should include psychological damages in the cases of harmful digital incidents that impact individuals. In their article, Risk and Anxiety, Professors Daniel Solove and Danielle Citron make a compelling argument that courts ought to recognize these psychological harms, such as the harm of anxiety.⁶

George Aschenmacher in “Indignity: Redefining Harm Caused by Data Breaches,” has argued that data breach victims suffer a violation of their dignity, even when no financial harm or actual misuse of the breached information occurs.⁷ In this way, even the perception that a digital incident has impacted an individual can cause psychological harm, even if the incident never actually occurred.

<https://www.usatoday.com/story/tech/conferences/2020/02/21/data-breach-tips-mental-health-toll-depression-anxiety/4763823002/>

³ Elias Aboujaoude, Protecting Privacy to Protect Mental Health: The New Ethical Imperative, 45 J. MED. ETHICS 604, 606 (2019), <https://jme.bmj.com/content/45/9/604.full> [<https://perma.cc/F3DL-M78P>].

⁴ Ryan Louie, MD, PhD, Quick Look: #Psybersecurity: Mental Health Impact of Cyberattacks, YOUTUBE (Feb. 17, 2020), https://youtu.be/JxGar7_2KLA [<https://perma.cc/M4RJ-UTSW>].

⁵ EQUIFAX, A LASTING IMPACT: THE EMOTIONAL TOLL OF IDENTITY THEFT (2015).

⁶ Solove & Citron, Risk and Anxiety: A Theory of Data Breach Harms, Texas Law Review [Vol. 96:737], <https://texaslawreview.org/wp-content/uploads/2018/03/Solove.pdf>

⁷ George Ashenmacher, Indignity: Redefining the Harm Caused by Data Breaches, 51 WAKE FOREST L. REV. 1, 7 (2016)

Not only can psychological damage occur to those who are the victims of data breaches, but also on employees who are forced to endure the response to a cyber incident.

Professor Mark Button, director of the Centre for Counter Fraud Studies at the University of Portsmouth found that victims feel as violated by the digital attack as they would a physical attack reporting psychological impacts such as anger, anxiety, fear, isolation, and embarrassment. One small business employee who was interviewed for the report, said, "It is stressful, it is frightening in a lot of ways. And it's very distressing that something you could work on for two years, can just, in a heartbeat, disappear."

Another employee in the report, said, "That was probably the most stressful four hours of my career. And I came in, in the morning, fully expecting to get sacked because at the end of the day it's my web server, it's my responsibility to ensure that this, you know, doesn't happen."⁸

Aboujaoude says that even the memory of a digital incident can be traumatic. "With every exposure you have to it, with every reminder, you get retraumatized."

⁸ Ranger, Steve, 'The most stressful four hours of my career:' How it feels to the victim of a hacking attack, ZDNet (Jun. 26, 2020) <https://www.zdnet.com/article/it-is-stressful-it-is-frightening-what-its-like-to-be-a-victim-of-hacking-and-ransomware/>

Guynn, Jessica, Anxiety, depression and PTSD: The hidden epidemic of data breaches and cyber crimes, USA Today, (Feb. 21, 2020), <https://www.usatoday.com/story/tech/conferences/2020/02/21/data-breach-tips-mental-health-toll-depression-anxiety/4763823002/>

The Psychological Harms Caused by a Digital Incident to Employees

In their paper published in the *Journal of Cybersecurity*⁹, Agrafiotis et al classify the psychological effects that arise from cyber-harm. These effects include:

- **Confusion:** Disarray experienced by the organization's stakeholders
- **Discomfort:** Uneasiness experienced by the organization's stakeholders
- **Frustration:** Dissatisfaction experienced by the organization's stakeholders
- **Worry or anxiety:** Nervousness experienced by the organization's stakeholders
- **Feeling upset:** Anger experienced by the organization's stakeholders
- **Depressed:** Nervousness experienced by the organization's stakeholders
- **Embarrassed:** Humiliation experienced by the organization's stakeholders
- **Shameful:** Disgracefulness experienced by the organization's stakeholders
- **Guilty:** Regret or remorsefulness experienced by the organization's stakeholders
- **Loss of self-confidence:** Lack of courage or certainty experienced by the organization's stakeholders
- **Low satisfaction:** Lack of contentment experienced by the organization's stakeholders
- **Negative changes in perception:** An adverse change in how stakeholders regard a stakeholder

While these are often felt by the victims of digital incidents, these traumas can also impact the employees of an organization going through an incident.

In the second quarter of 2019, Kaspersky¹⁰ conducted a comprehensive study of nearly 5,000 people across 23 countries and their feelings around their organizational

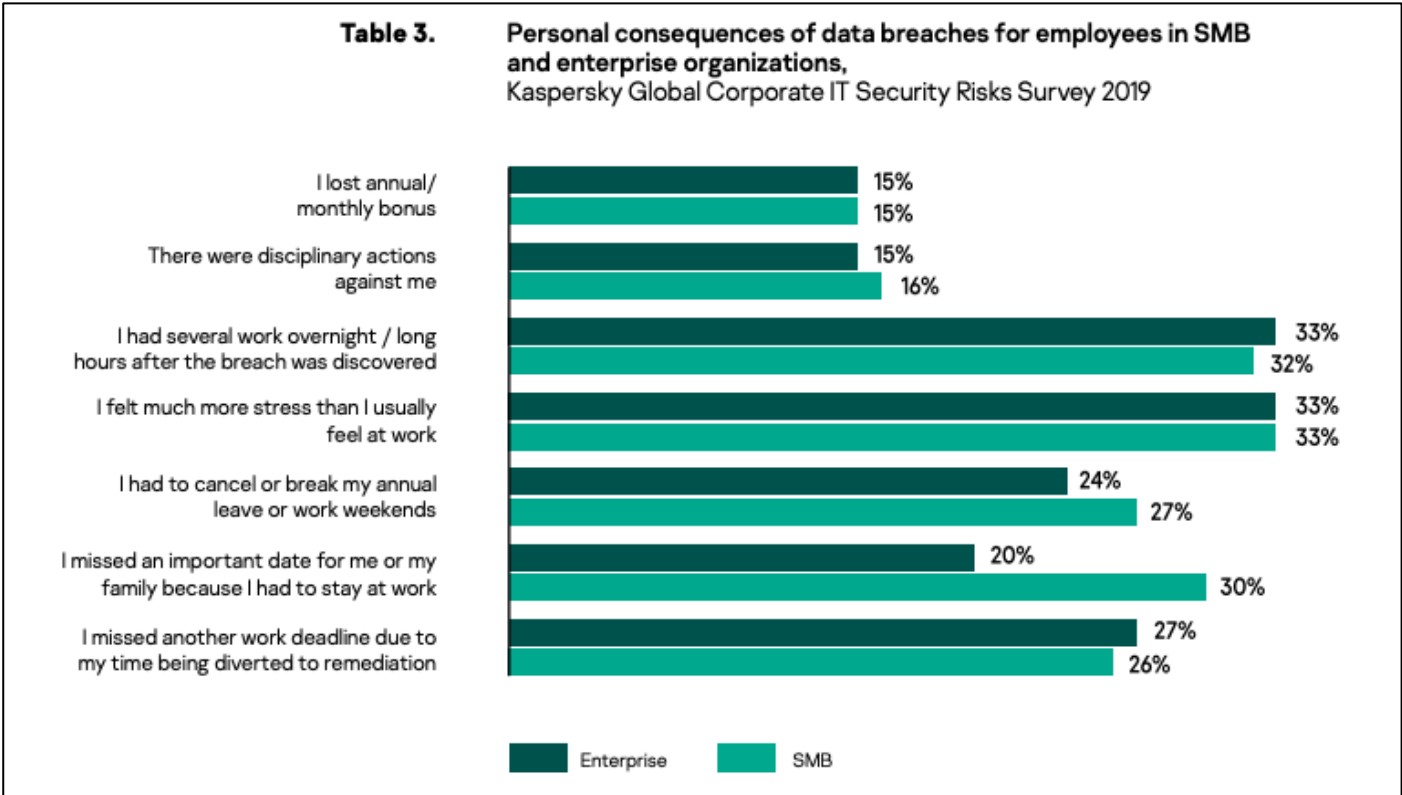
⁹ Agrafiotis et al, A taxonomy of cyber-harms: Defining the impacts of cyber-attacks and understanding how they propagate, *Journal of Cybersecurity* Volume 4 Issue 1 (Oct. 16, 2018), <https://academic.oup.com/cybersecurity/article/4/1/tyy006/5133288?login=false>

¹⁰ Kaspersky Global Corporate IT Security Risks Survey (ITSRS), (2019), https://media.kasperskydaily.com/wp-content/uploads/sites/92/2020/04/20043942/Kaspersky-2020_Report_Human_angle_FINAL.pdf

IT security. The report found that 47% of organizations had experienced data breaches in 2019 and 66% of employees were involved in a clean-up process following a breach.

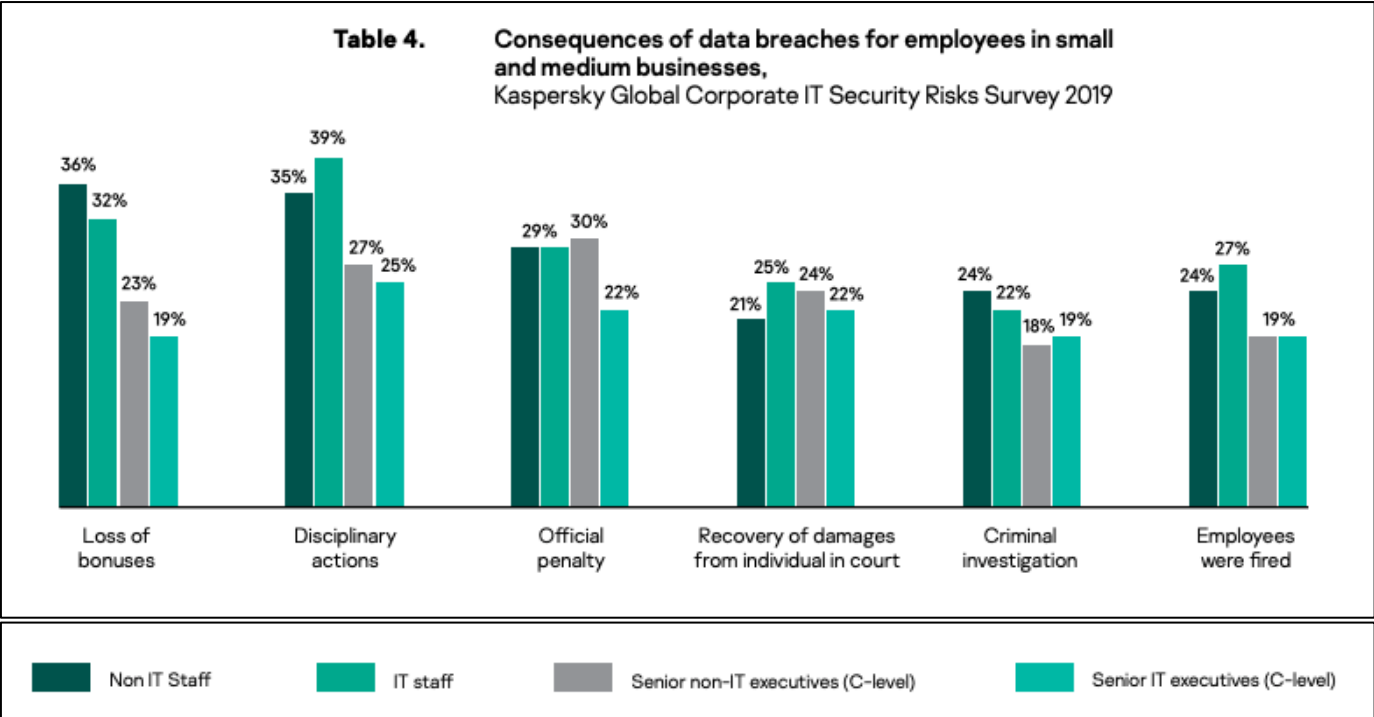
The report also found that:

- **33%** of staff felt much more stressed out at work because of a data breach
- **30%** of those working in large enterprises were forced to miss important personal or family dates because they had to stay at work late to sort out a data breach
- **27%** of enterprise staff have had their weekends or annual leave impacted by a data breach



The report found that 33% of respondents in both enterprises and small businesses felt much more stress at work than usual because of the incident. Nearly or over a quarter of respondents in both enterprises and small businesses had to cancel or

break annual leave or work weekends, missed an important family date, and missed a work deadline because of an incident. 15% lost a bonus because of an incident and faced disciplinary actions. At least 32% had to work long hours or overnight after an incident was discovered.



According to the report, around a quarter of employees were fired due to an incident and many faced a loss of bonuses, official penalties, or disciplinary actions. This includes not just IT staff but non-IT staff, and C-level executives, both IT and non-IT.

Case Study: Sony Pictures

One particularly noteworthy incident in which employees were dramatically affected by a digital incident occurred inside Sony Pictures.¹¹ On November 24th, 2014, Sony systems were impacted by a ransomware attack. The attack completely shuttered the organization’s network and employees were forced to scramble to do their jobs.

¹¹ Hess, Amanda, Inside the Sony Hack, Slate (Nov. 22, 2015), http://www.slate.com/articles/technology/users/2015/11/sony_employees_on_the_hack_one_year_later.html

Staffers were at first told that Sony was “working on an IT issue” and that the systems would be returned to normal. Employees were told to unplug their computers. One worker told Slate “It was all the hysteria of not knowing.” Another employee said, “It was like a bomb went off. We looked around. We were still alive. So, we started doing triage.”

Employees were forced to bring old BlackBerry devices out of storage to help with communication. The organization found old check cutters so they could pay employees on paper. Thousands of computers were picked up for scanning and repair. Thirty to forty employees worked through the Thanksgiving weekend.

“It was an earth-shattering change,” an ex-employee told Slate. “There was no ability to reference anything else that happened before the hack.” A Sony contractor said when he failed to receive his regular check a month after the hack, he called the company and was asked, “Sorry, how much do we pay you?”

For some employees, the incident added hours a day to their workload. Some began working 12-15 hours a day, six or seven days a week. One employee compared working at Sony after the hack to a lab experiment on a mouse. “If you give the mouse an electric shock every 10 minutes he gets used to it. He knows what’s coming. He learns to deal. But if you start adding shocks at random, the mouse is like, F–k! When is the next thing happening?”

Weeks after the hack, grief turned to anger. At first, “everyone was pretty understanding and mellow for the most part. There was a spirit of togetherness, concern, and general comradery on the lot. People understood this was beyond the bounds of anything a company like this had ever seen before,” one ex-employee said. “The anger set in later.”

The attack would get worse for employees after it was discovered that the hackers had stolen huge caches of employee personal information. There were accounts of credentials being sold on the dark web, employees getting charged for stolen goods on Amazon, and even one instance of hackers draining an employee’s bank account.

Sony warned all employees to “assume” that their data “might” be in the hackers’ possession, but they did not comb through the leaked material and notify employees who had actually been compromised.

Internal emails were leaked as well, where employees gossiped about and sometimes trashed celebrities. These embarrassing private conversations between employees were now splashed across tabloids. Private information about celebrity salaries and movie deals became public information.

Civil suits began being filed by ex-employees. Staffers working 18 hour days, six days a week asked, “What does this mean for my family?” “What are you doing to protect me?” Some employees felt their bosses were more concerned with getting movies to theaters than they were the threats to their employee’s identities.

The aftermath of the hack continued for over a year, and employees became numb to its impacts. The Identity Theft Resource Center interviewed hundreds of victims about the emotional aftermath of the hack. Many testified to experiencing denial, frustration, rage, fear, betrayal, and powerlessness in the days, weeks, and years following the hack.

Conclusion

The evidence is clear that a digital incident can have enormous emotional and psychological impacts on victims and the employees who must navigate the remediation of the incident. These incidents force employees to work longer hours, miss important events, and often face termination. These incidents often end in employees losing bonuses or vacations and having to navigate criminal and internal investigations.

If the employee has also lost personal information in an incident, this is even more stark, because he or she has to both weather the internal remediation efforts and pick up the pieces after their sensitive information has become public.

These incidents can lead employees to face ongoing trauma that can be akin to terrorism. They face strong emotional responses including fear, anxiety, depression, and stress. Ongoing incidents can trigger these emotions as the incident and its aftermath unfolds. The emotions that employees can face after an incident can be even as strong as post traumatic stress disorder.

Because digital incidents are occurring with more and more frequency and their impacts are growing, it is important that we recognize the psychological impacts of digital incidents on both the victims of the digital incident and the employees who are forced to navigate the incident internally.

There is frequently a recognition of the physical damage that can be inflicted during a digital incident (e.g. a person has his credit card number stolen) and this damage is often recompensed in money or monitoring services.

However, it is time to recognize the enormous psychological damages that can occur during these incidents and recompensate for this damage as well, when it does occur.