



## THE EFFECT OF DATA COMPROMISES ON INTERNET USERS: A REVIEW ON FINANCIAL IMPLICATION OF THE ELDERLY IN THE UNITED STATES

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### Cite this article:

Alade O., Oluwatobi A.A. (2024), The Effect of Data Compromises on Internet Users: A Review on Financial Implication of the Elderly in the United States. African Journal of Social Sciences and Humanities Research 7(1), 28-37. DOI: 10.52589/AJSSHR-OKHMXSPY

### Manuscript History

Received: 20 Oct 2023

Accepted: 12 Dec 2023

Published: 7 Jan 2024

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**ABSTRACT:** *Data compromises, specifically personal data breach, in recent years, have become one of the issues that have caught the attention of the government as well as the relevant agencies because of their negative impact on elderly people in the U.S. as regard the amount of finance lost yearly to internet crime activities. The inability to effectively curb the level of internet criminal activities in the country has also resulted in financial loss trending for a few years among elderly people who are also the primary victims. The objective of the article is to review the financial implications of data compromises on elderly people concerning personal data breaches as well as to make a few recommendations to relevant bodies. The article adopted a descriptive-analytical method in the study to review data compromises while focusing on personal data breaches among elderly people. Data was collected through secondary means that focused on personal data breaches and financial loss between the years 2018 and 2022. The study review found that personal data breaches have become a trend among elderly people through which internet criminal activities were common in the U.S. The trended outcome of the data compromises have resulted in the financial loss among elderly people in the country. The article suggested a few recommendations to government and concerned agencies on the measures they could take to protect elderly people against falling victim to personal data breaches that prey on their finances.*

**KEYWORDS:** Data compromise, Personal Data Breach, Elderly People, Financial Loss.



## INTRODUCTION

The world has witnessed a series of phenomenal advancements in information and communication technology (ICT) in which people can connect and relate with one another easily and globally. The technology employs many resources that enable people to manage their information in different ways either to create, transmit, share, or store them for any other purpose. In that instance, people have employed different ways through which they save or store their data and information such as mobile phones, laptops, or traditional computer systems.

Different application software and programs have demanded many internet users to submit or disclose their identities and personal information at the moment they want to use such an application. The requested information and data of users are meant to be collected and confidentially kept for private data compilation, record, and usage aimed at improving the software package and many other useful purposes. Many internet users have been technically forced to input their data and confidential records on the verge of logging in or signing in to the application website. This is virtually common in many known applications and social media packages such as Facebook, Twitter, Google, Zoom, and several others. It does not end there. The declaration of information by users is also used by organizations, businesses, and institutions to allow consumers, employees, and employers to gain access to and benefit from certain application websites and packages.

In the same vein, private and public-owned organizations, institutions, and several other businesses have requested personal information and data from users before they could be allowed to use and enjoy their application websites or mediums. This is supposedly aimed by such institutions or organizations to authenticate users' ability to such websites through the registered data and code given by them. Also, some data and information submitted are meant to be analyzed for future improvements on the software and to render a better communication interface by the internet user and the corresponding information website. There are, however, pockets of complaints that much information being intentionally disclosed and submitted by internet users has found its way into the hands of hackers and internet fraudsters who used or deployed such retrieved data for selfish satisfaction, financial gain, or personal interest. These untoward incidents do not exempt the young and old people, the poor, or the rich in society. Since internet connectivity is a modern technological use to access information and data in modern years, the developed and developing countries with internet users are likewise caught in the web of data compromises. Veritas (2023) opined that data compromises could occur through ransomware, guessing of users' passwords, stealing of users' information, phishing, and generating viruses on users' application pages among several others.

Data compromises in some quarters are referred to as data leakage, data breaches, or unintentional disclosure of information by parties other than the user which can also cause personal data breach (VanDam et al., 2017). On several occasions, data compromise occurred as a result of inexperienced disclosure of data by internet users (Adams & Sasse, 1999), while using the specified website or as a result of security breach that affected users' data. It has led to the manipulation of users' data by hackers or any unauthorized person (Pecchia et al., 2011), who usually uses it for political threats, unsolicited dissemination of information, fraudulent monetization practices, or the spread of unconfirmed information about the original users. Globally, many internet users have reported cases of data compromises from certain unknown application websites where users' confidential information was exposed and poorly managed.



In many instances, it has led to users' diversion of finance to the wrong hands and by extension has also affected the country at large. For instance, France, Germany, Canada, and the U.S. among other developed countries have witnessed data compromises that have impacted the country's economic growth and development by losing out on financial estimation to unauthorized impostors and hackers. In the United States (U.S.), many internet users have been affected in various ways as a result of data compromises which ordinarily put them in a perpetual state of psychological trauma and health imbalance as a result of internet scams, and threats, as well as information blackmails.

In the U.S among the most affected people who have witnessed and reported cases of data compromises are elderly citizens (Wollacott, 2021) either as data breach or personal data breach. They are seen as the vulnerable age group (Millman, 2021) in a society whose socio-demographic characteristics have placed them as the primary target of data compromises (Meyers, n.d) perpetuated by the impostors and the third party. The reasons for the elderly vulnerability to data compromises are associated with their health status, state of isolation, and low knowledge of technological skill in the use of digital applications, among others (Meyers, n.d). On several occasions, the under-reported cases of data compromises among elderly people have put them at the losing end because it does not only affect their health; it also drains their finances which indirectly makes the country lose out financially. The growing trend of data compromises among elderly people in the U.S. calls for concerns that the government and people in society must brace up to address. In this article, the objective is to review the reported cases of data compromises through personal data breach and the financial implications on elderly people who also constitute part of internet users in the United States (US), and to make viable recommendations to relevant agencies to minimize or eradicate the growing trend of personal data breaches among the age group.

## LITERATURE REVIEW

### **Data Compromises: The Causes among the Elderly**

Data compromises do not just occur as the case may be in society. It is mostly associated with certain causes that could be traced to the users, more so, among the elderly. Now that the world has witnessed much advancement in information technology and is so engulfed by it, people have been technically sensitized to using Internet services to access various forms of information. The elderly are already caught up in this era of information technology. However, the underlying cause of data compromise among the elderly emanates from weak and liberal codes or passwords used by older people in the process of registering their particulars on any application. Adams and Sasse (1999) opined that the inability of internet users to input strong codes and passwords has given room for data compromises. This is mostly associated with elderly people in society. They tend to minimize and use weak codes and passwords on application websites so that they can easily remember them owing to their age and memory capability. The inability to use strong codes thereafter gives room for syndicates to access the information supplied by elderly people to prey on their resources. In that way, Millman (2021) revealed that hackers act on information given by users during their interface on any application. This means that when there is enough information for an internet syndicate to gain access to, the higher the risk an internet user becomes. This is why the elderly are majorly affected by data compromises because much data about their privacy is accessible through



some loose channels. The elderly people usually fall victim to syndicates easily because hackers or third-party impostors are sometimes able to gain access to their private data through medical channels and some loose government agencies' websites in the U.S (Boise et al., 2013). Meyers ( n. d) revealed that there were some additional ways in which elderly people are liable for exposure to data compromises. Meyers presented that data compromises occurred among the elderly because they are mostly associated with isolated lifestyles due to old age, attractive retirement savings, under-reporting data compromises by elderly people, and crime related alerts, low knowledge about information communication and technology (ICT), and the exposure of these elderly people to families or caregivers relatives who can easily access their data. These mediums are channels and causes of data compromises which usually occur among the elderly.

### **Data Compromises: The Common Sources of Occurrences.**

There are sources through which data compromises on elderly people in society are carried out. Internet hackers and syndicates act as either a government agency or a financial institution service to impersonate elderly people by claiming certain financial benefits that the victim never bargained for (Meyers, n.d). Criminals act to claim several benefits the elderly are due for.

Data compromises are mostly perpetuated by close family members and caregivers who are usually available to take care of and support elderly people in their homes. They presented themselves as a helper to elderly people by helping them out in buying some groceries for them through which some vital information about the aged person is easily revealed. Also, data compromises occur, mostly among the elderly because of their assumed place of data confidentiality, which is susceptible to constant attack by internet syndicates and hackers. This is usually done through the information submitted at medical centers and health facility centers. Gaivin (2023) stated that millions of people, including elderly and the disabled, were affected by data breach through the information and data submitted to healthcare services. It signified that certain information submitted for administrative purposes in medical centers were compromised as a result of security breaches that lose out to internet criminals to gain access into.

### **Data Compromises: Overcoming The Trend Among Elderly People**

The rising trend of data compromises can be reduced and minimized if workable measures are employed so that elderly people can be safeguarded and protected from being victims during their interface with the internet. Meyers (n.d) opined that elderly people can receive protection from frequent data compromises through the following:

\*Advising elderly people to use strong and unique passwords whenever they are requested to do so on a lawful website

\*Sensitizing elderly people to be watchful of internet scams

\*Elderly people should avoid strange communications

\*They should maintain strict security on their documents

\*Elderly people should check for credit reports.



## METHODOLOGY

The article adopted an analytical and descriptive approach to review data compromises among internet users in the U.S. The study review focused on elderly people in the U.S. The reason for focusing on the elderly was because there were more reported cases of data compromises among the age group than other age groups which specifically affected their personal data in the country. They are also regarded as one of the vulnerable age groups in society that unwillingly fall victim to data compromise criminals. A secondary source of data collection was employed in the study to descriptively analyze the documented data on the age group, personal data breach and the financial loss in the examined year. The secondary source of data collection that was used were journal articles, online statistical data, records, and publications. Descriptive statistics was used to present, interpret, and analyze a few tables showcasing the frequencies of the trend among the elderly age group in the U.S. Qualitative method was used to descriptively discuss the reported cases from the analysis presented on personal data breach and the financial impact on elderly people in the U.S.

### Ethical Consideration

The article was based on a secondary source of data which does not require ethical consent or approval from any committee or respondents. The author declared that there was no conflict of interest to determine the status of the article.

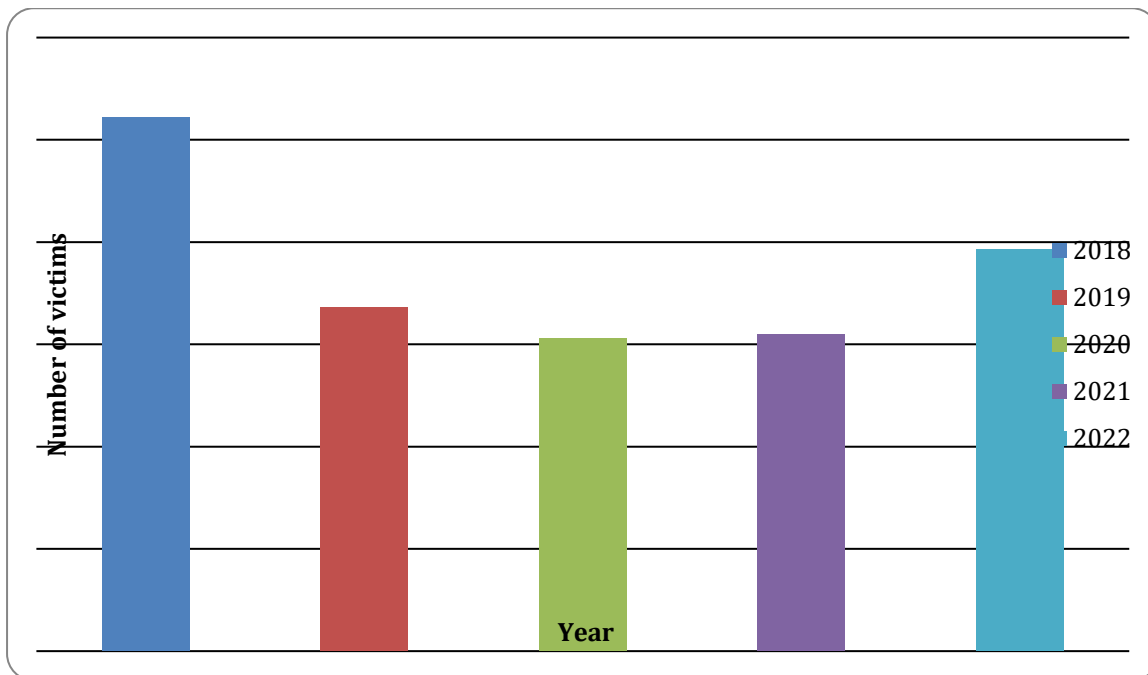
### Data Interpretation and Analysis

**Table 1: Elderly People Affected by Personal Data breach and the Amount of Financial Loss, 2018 -2022 in the US**

Year	Number of victims 60 years above	Financial loss in US Dollars
2018	10439	24,779,324
2019	6725	28,470,827
2020	6121	24,641,539
2021	6189	103,688,489
2022	7849	127,736,607
<b>Total</b>	<b>37323</b>	<b>309,316,786</b>

*Note.* Adapted from Internet Crime Complaint Center [IC3] report 2018-2023. Copyright 2023 by study reviewer.

Table 1 shows the number of elderly people affected by personal data breach and the corresponding financial loss the incident posed to the country at large. It was discovered that personal data breaches have had a sway on the elderly long ago. In the year 2018, it was revealed that 10,439 elderly people reported a case of data compromise in the US with a calculated financial loss of \$24,779,324 to unauthorized criminals or hackers. It was indicated in Table 1 that the amount of financial loss by elderly people in 2018 was not as much as the financial loss recorded in the years 2021 and 2022 with a few numbers of victims in the particular year. It was shown that although there were a more recorded number of victims in 2018, other years have recorded a higher number of financial losses.



**Figure 1: Trends of personal data breaches on elderly people**

*Note.* The number of elderly people who were victims of personal data breach in the US is shown with the trends for both the highest and lowest in the given years. Adapted from *IC3 report*, by International Crime Complaint Center, 2018-2022. Copyright 2023 by study reviewer

Figure 1 shows that there was a trend in the number of elderly people who were victims of personal data breach between the years 2018 and 2022. Figure 1 shows that there was an increase in the number of victims reported in the year 2018 and 2022. The year 2019 has had a decrease in the number of victims reported as against the year 2018 with more than six thousand elderly people, it has recorded more victims than the year 2020 and 2021. Notably, the year 2018 has recorded more victims of personal data breach among elderly people while other years except the year 2022 maintained some victims below seven thousand in complaints.



**Figure 2: Trends of financial loss for elderly people**

*Note.* Adapted from Internet Crime Complaint Center [IC3] report. Copyright 2023 by study reviewer.

Figure 2 reveals the trending report of the financial loss that occurred between the years 2018 and 2022 among elderly people in the U.S. The review found that there was an initial increase in financial loss owing to personal data breach by elderly people in the year 2019 with over US\$28 million before the sharp increase in the year 2021 and 2022. Differently from that, the years 2018 and 2020 almost recorded a similar financial loss in the range of \$24 million as reported in crime by elderly people. The reported cases showed that personal data breach of elderly people that resulted in financial loss to them and the country will likely continue in the following years.

## DISCUSSION OF FINDINGS

The article has centered the review on elderly people in the U.S. who are usually vulnerable to data compromises especially in the area of personal data breach. The retrieved data on the reported cases of personal data breach among elderly people was based on the secondary records documented by the International Crime Complaint Center report between the year 2018 and 2022. The documented report was based on reported cases of data compromises that were recorded in all States in the U.S.

The review found out that personal data breach was one of the ways internet crime among the people was being perfected and carried out in the U.S. with elderly people more vulnerable to be affected by the crime activities. In the reviewed year that began in 2018, there were many victims of personal data breaches among elderly people as shown in table 1, the financial loss



accounted for in that year was lower than the number of financial loss recorded in other years as shown in figure 2, with a progression trend between year 2020 and 2022. The results showed that crime activities by unauthorized people in the initial year of review to swindle the elderly from their finances were not so pronounced as recorded in other years. The level of trending among victims of personal data breaches decreased in the other years as shown in figure 1, the crime activities as imprinted many cases among the victims-who were the elderly-in the other subsequent years with a twist that further shot up the case in the year 2022.

The study also found out that in the year 2020 when COVID-19 pandemic swept across many countries including the U.S., the number of victims among elderly people was minimal as well as the calculated financial loss. It showed that the year 2020 has allowed people including the elderly to focus more on their health status and how to overcome the pandemic. The restriction of movement and suspension of many public and private activities in the country reduced people's interface with the internet and to make any financial transaction. The very few elderly people that reported cases of personal data breaches might have been caught up in the crime attack while trying to place an order for some upkeeps or book appointments with medical personnels. In such instances, some elderly people could have used weak and fragile passwords and codes to submit their personal details (Pecchia, 2011). Some of such accounts were penetrated and compromised by hackers or third parties as opined in (Adams & Sasse, 1999; VanDam et al., 2017). That was why it was reported by Millman (2021) that details of over three million of senior citizens in the U.S. were exposed due to breaches. Gaivin (2023) revealed that breaches that occur in the healthcare sector affected many people including the elderly people.

In addition, the results showed that the trending financial loss among elderly people has impacted on the financial stability of the country with an amount more than US\$309 million which could have positively grown the economy if channeled rightly. The government on the other hand has more financial burden to shoulder in providing good health for the aging population in the country. In the study, it was notably discovered that elderly people are likely to witness more personal data breaches because of their vulnerability if not adequately addressed by the government in the following years.

The implications of these findings showed that elderly people remain the primary target of personal data breaches in the U.S. through which internet crime activities have become rampant. The personal data breaches that occurred has resulted in more financial loss to the country despite the fewer number of victims recorded among elderly people. When the financial loss among elderly people keeps on trending over the years, it can signal a serious threat to the security apparatus of the country at large while other public institutions are not secure as well. The study review was, however, unable to critically examine and probe further on elderly people and the circumstances surrounding their experiences about personal data breaches in the years under discourse. The review therefore suggests an empirical study into personal data breaches among elderly people and the implications on their health in the current year.





## CONCLUSION

Data compromise is one of the internet crimes that have had a negative impact on elderly people in the U.S. with regard to personal data breach. In addition to the fact that it results in health challenges among the elderly, it also affects their financial capability to meet up with some personal responsibilities. Indirectly, the outcomes of the breaches on elderly people are not borne alone, the government also felt the impact through illegal financial loss to internet criminals. The study review believed that if adequate precautionary measures were taken to protect elderly people from making errors in their interface with the internet, it would reduce the trend in the financial loss to hackers and minimize the number of victims among elderly people.

The study recommends that a viable sensitization from the government and relevant agencies is needed to awaken elderly people to the need to be mindful of unsolicited internet or mobile messages that demand personal information from them. Also, there is a need for elderly people to use strong passwords to secure their personal data and documents in any internet transactions especially on any healthcare application websites.

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