# Privacy, security, and awareness perceptions on the use of social media: a TikTok focus

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## Abstract

The rapid growth of TikTok and other social media platforms has raised significant concerns about user privacy, data security, and the potential exploitation of personal information. This paper aims to explore the security concerns users of TikTok and other social media have in the current media post-pandemic landscape. The study is limited to the academic environment, focusing on university employees. By examining recent developments and analyzing the evolving nature of privacy concerns, this study seeks to shed light on the complex interplay between social media usage, security challenges, and the wider societal implications. Through a comprehensive analysis, we aim to provide a nuanced understanding of the concerns users of these platforms have (or do not have) regarding security, privacy, and awareness allowing for informed discussions and potential recommendations in the ever-evolving realm of social media.

**Keywords**: social media, privacy, security, awareness, TikTok

## Introduction

Social media platforms have become an integral part of our daily lives, offering unprecedented opportunities for communication, information sharing, and entertainment. Among these platforms, TikTok has emerged as a cultural phenomenon, captivating millions of users worldwide with its short-form video content. However, the rapid growth of TikTok and other social media platforms has also raised significant concerns about user privacy, data security, and the potential exploitation of personal information. This paper aims to explore the security concerns users of TikTok and other social media have in the current media post-pandemic landscape. By examining recent developments and analyzing the evolving nature of privacy concerns, this study seeks to shed light on the complex interplay between social media usage, security challenges, and the wider societal implications. Through a comprehensive analysis, we aim to provide a nuanced understanding of the concerns users of these platforms have (or do not have) regarding security, privacy, and trust allowing for informed discussions and potential recommendations in the ever-evolving realm of social media.

## Literature Review

TikTok has come under scrutiny in the US and other countries due to its handling of personal data. TikTok is a video focused social network originally began as a U.S. based app called musical.ly, and in 2016 was bought by the Beijing-based Byte Dance Technology (Kaye, Chen & Zeng, 2021). It was originally released

under the name of Douyin as known in China and available worldwide after merging in 2018 to form TikTok. TikTok has become one of the most popular apps worldwide with over 2.6 billion downloads worldwide with over one billion monthly active users as of February 2021 (TikTok Statistics, 2023). TikTok's target audience is anyone between the ages of 13 and 60. The largest percentage of US users by age is 10-19 at 32.5% with the ages of 20-29 at 29.5% being close second place. The US has 80 million users with 60% female. Overall, 80% of US users are in the age range of 16-34 (TikTok Statistics, 2023).

The app allows the creation of short videos from 15-60 seconds long and live stream video. Recent updates now allow videos up to three minutes for verified users (TikTok Newsroom, 2021). TikTok has had numerous security and privacy concerns and has caught the attention of officials nationally and internationally in the US and the EU. In an analysis of the app, it was revealed extensive user tracking to include fingerprinting, facial recognition prints, and other personal data from the user's cell phone. Concerns were that Byte Dance is collecting TikTok users' personal information and storing on databases in China in compliance with CCP policies, as well as violations of Federal Trade Commission (FTC) regulations. FTC fined Byte Dance 5.7 million because musical.ly had collected information from minors under the age of 13 in violation of the Children's Online Privacy Protection Act (FTC, 2019).

TikTok has been criticized for its low privacy standards, but little is known about how its adolescent users protect their privacy. Based on interviews with 54 adolescents in Switzerland, researchers suggested that adolescents are aware of privacy related to their online social connections and privacy and perform conscious privacy management but identified that TikTok's special algorithm with the popularity of the app among their peers could easily put them at risk. They also found the participants found other means to share TikTok's on private channels such as Snap Chat to manage who could see their posts and avoid identification (Ebert, et al., 2023, p. 1). An additional finding of this research found that the users were using multiple accounts with different privacy settings to manage their privacy content (Ebert, et al., 2023, p.1).

For social media users, "their privacy is not violated as long as they achieve something they want in return"; if they get social recognition, social media users are willing to release personal data (Fandia, 2019, p. 217). Privacy policies, which "contain information related to people's privacy and what parts of their personal data can be shared" (Ibdah, et.al., 2021, p. 1) are typically ignored and accepted without reading its content. Also, social media users are exposed to security issues like phishing, hijacking, and malware attacks and are potential risks for them (Kumar & Somani, 2018).

In 2020, the United States government raised national security concerns due to TikTok's Chinese ownership, leading to discussions about a potential ban. TikTok has taken steps to address these concerns by increasing transparency and implementing security measures. However, 34 out of 50 US state governments and the US federal government has banned the app for use by federal and state employees, on government furnished equipment, including universities and schools (Chan, 2023). Other countries have also taken steps to ban the social media app (Chan, 2023). In Academia, and because of the protection of sensitive data, some universities in the country have banned the use of TikTok because of security concerns.

**TikTok and data collection**

According to the Center for Internet Security, TikTok has gained an edge by collecting sensitive information and data about its users, even if they have not shared nor saved any content. (CISEsecurity.org, 2023). In Feb 2023, there was growing pressure for regulation or banning the app altogether in the US.

TikTok as a response, announced a project for transparency, called Project Texas" in July 2022. According to the Pew Research Center, 'approximately 10% of Americans reported they regularly watch the news on TikTok (Matsa, 2022, pg 1). 26% of US adults under 30 state the access news through the app.

According to TikTok's policies, data that can be collected or accessed are user names, ages, phone numbers, email address, details about the devices and mobile network being use, keystrokes, messages on the app and biometric information such as facial recognition prints and voice prints according to the apps privacy policy (TikTok). TikTok's algorithm can also track the videos watched and how much time is spent on the video to track patterns and behavior so it can tailor content. TikTok's privacy policy was updated on May 22, 2023 (TikTok Privacy Policy, 2023).

FBI Director Christopher Wray highlighted concerns that the app can be used to manipulate the American public creating security concerns for the United States, since TikTok has a legal obligation to support the CCP security and intelligence initiatives and do not have to comply with US regulations. In other words, they do not have the oversight and accountability that their US equivalents do. Meaning, China can harvest and exploit data (CISEsecurity.org, 2023). Not only does TikTok harvest personal data, it also can use censorship to distort user's perceptions that only shows content that comply with CCP values (Iyengar, 2023).

Recently, there's a call to ban TikTok in the U.S. because of the data privacy and national security. The White House has called on Byte Dance to sell the app or face a possible ban in the US. Currently there is draft legislation in the House of Representatives that allows the federal government to regulate or ban technology produced in foreign countries. In the meantime, the federal government and multiple states have already banned the app on government furnished devices (Silver & Clancy, 2023).

## Purpose of the Study

The aim of this study was to explore the subjective perspectives, attitudes, and experiences of university staff and faculty members regarding privacy, awareness, and security issues specific to their personal information and digital activities. It provides an opportunity to delve into their perceptions, concerns, and experiences within the context of their professional roles and the university setting. Consistent with the purpose of the study, the following research question is stated:

**RQ**: *What are the perceptions and experiences of university staff and faculty members regarding privacy, awareness, and security concerns related to their personal information?*

## Methodology

In this mixed-methods research, a convenience sample of participants from a university located in the Southeastern of the United States was utilized. Participants consisted of faculty and staff members from the university's academic units. There was a total of nineteen participants responding to the questions in the instrument. The age range of the majority of the population falls between 26 and 55 years old. From the sample (N=19), 78.95% were identified as female (N=15), and 21.05% were identified as male (N=4). Also, 10.53% of the participants were faculty (N=2) and 89.47% were staff members (N=17). Participant's descriptive statistics are shown in Table 1.

**Table 1: Participant's Descriptive Statistics**

| Characteristics | n | % |
|---|---|---|
| **Gender** | | |
| Female | 15 | 21.05 |
| Male | 4 | 78.95 |
| **Employment Status** | | |
| Faculty | 2 | 10.53 |
| Staff | 17 | 89.47 |
| **Age** | | |
| 26-35 | 8 | 42.11 |
| 36-45 | 5 | 26.32 |
| 46-55 | 5 | 26.32 |
| 56-65 | 1 | 5.26 |

## Instrumentation

This study is based on an instrument developed by Koohang, et al. (2021). It consists of 4 constructs: (1) privacy concerns, (2) security concerns, (3) trust, and (4) awareness on the use of social media platforms. A survey with a total of 25 questions was administered to the participants. Questions 1 to 4 were used to collect demographic data, such as gender, age, employment status, social media platforms used. A summary of the social media platforms used by the participants is shown in Table 2.

**Table 2: Social Media Usage by Participants using TikTok**

| Social Media Platform | n | % |
|---|---|---|
| TikTok | 19 | 100 |
| Facebook | 17 | 89.47 |
| Instagram | 15 | 78.95 |
| LinkedIn | 14 | 73.68 |
| Pinterest | 14 | 73.68 |
| Twitter | 13 | 68.42 |
| Reddit | 7 | 36.84 |
| SnapChat | 5 | 26.32 |
| Tumblr | 5 | 26.32 |
| Vine | 1 | 5.26 |
| Flickr | 1 | 5.26 |
| Other | 1 | 5.26 |
| None | 0 | 0 |

Questions 5 to 19 utilized a 7-point Likert scale which ranged from (1) "completely disagree" to (7) "completely agree" to measure participants perceptions on the use of social media platforms. This set of questions was utilized to collect participants' perceptions related to privacy, security, trust, and awareness on the use of social media platforms in general. Questions 5 to 8 pertain to the Privacy Concerns construct; questions 9 to 13 pertain to the Security Concerns construct; questions 14 to 16 pertain to the Trust construct; and questions 17 to 19 pertain to the Awareness construct. A summary of the weighted average (out of 7) is shown in Table 3.

**Table 3: Likert-scale questions and weighted average**

| # | Questions | Weighted Average |
|---|---|---|
| 5 | I am concerned that social media sites are collecting my personal information | 5.53 |
| 6 | I am concerned that social media sites share/sell my stored personal information in their databases to other companies. | 5.95 |
| 7 | I am concerned that social media sites do not devote enough time and effort to preventing unauthorized access to my personal information. | 5.53 |
| 8 | It bothers me when I do not have control or autonomy over decisions about how my personal information is collected, used, and shared by social media sites. | 6.05 |
| 9 | When I am on social media sites, I am concerned about - Identity theft. | 4.56 |
| 10 | When I am on social media sites, I am concerned about - Impersonation/Social phishing. | 4.95 |
| 11 | When I am on social media sites, I am concerned about - Hijacking. | 4.68 |
| 12 | When I am on social media sites, I am concerned about - Image retrieval and analysis. | 4.42 |
| 13 | When I am on social media sites, I am concerned about - Malware Attacks. | 4.42 |
| 14 | When it comes to privacy and security, the social media sites I belong to are trustworthy. | 3.84 |
| 15 | When it comes to privacy and security, the social media sites I belong to keep my best interests and well-being in mind. | 3.05 |
| 16 | When it comes to privacy and security, the social media sites I belong to are competent in protecting and safeguarding my personal information. | 3.42 |
| 17 | When using social media sites, I am aware of the potential security threats and risks and their negative consequences. | 6.16 |
| 18 | When using social media sites, I am aware potential privacy threats and risks and their negative consequences. | 6.00 |
| 19 | When using social media sites, I am aware that there is potential for harm/loss associated with my security and privacy. | 6.11 |

Finally, six more questions were added to the survey related exclusively to the social media platform TikTok: three questions (questions 20 to 22) address the use of TikTok (see Table 4) and three are open-ended questions (questions 23 to 25) addressing participants' perceptions on the use of this social media platform.

This set of questions was utilized to analyze not only perceptions but also experiences while using TikTok in relation to privacy, security, trust, and awareness.

**Table 4: Questions related to the use of TikTok**

| # | Questions | Responses | % |
|---|-----------|-----------|---|
| 20 | Since the use of TikTok has been banned/restricted in some government devices/areas, is security and privacy a concern for you when using TikTok on your personal devices? | Yes, I'm concerned, and I do not use TikTok on a personal device | 5.26 |
| | | Yes, I'm concerned, but I use TikTok on a personal device | 47.37 |
| | | No, I'm not concerned, and I do not use TikTok on a personal device | 0.00 |
| | | No, I'm not concerned, and I use TikTok on a personal device | 47.37 |
| 21 | If you use TikTok, do privacy concerns influence the way you interact with this platform? | Yes | 63.16 |
| | | No | 36.84 |
| 22 | If you use TikTok, do security concerns influence the way you interact with this platform? | Yes | 63.16 |
| | | No | 36.84 |

## Procedures

Data were collected through a survey distributed using Survey Monkey. Once institutional IRB approved this research, the data collection link was distributed to the participants via email. The data link was open to collect responses for two weeks. A total of 19 participants completed the survey, and the data were analyzed using descriptive statistics and narrative analysis. By employing narrative analysis, the nuances and complexities of the qualitative information provided in the survey responses provided a deeper insight into the individuals' experiences with various social media platforms. A systematic coding process was used to identify recurring themes and meaningful patterns within the responses. Labels and codes were created and applied to segments of text that represented specific concepts or ideas. This process helped in organizing and categorizing the data and grouping similar codes into themes. Themes captured the underlying ideas, emotions, and experiences reflected in the responses. The identified themes were analyzed in-depth, exploring how the themes related to the research question.

## Results

Participants were asked about security and privacy concerns when using TikTok on personal devices. A total of 47.37% (n=9) reported being concerned but still using TikTok on personal devices, while the same percentage of participants (47.37%; n=9) reported not being concerned and using TikTok. Only 5.26% (n=1) reported being concerned about and avoiding the use of TikTok on a personal device. However, despite similar groups reported being and not being concerned about privacy and security, there's a difference in terms of influence. It was reported that 63.16% (n=12) of the participants was influenced on the way they interact with TikTok based on privacy and security concerns, while only 36.84% (n=7) did not feel influenced by privacy and security concerns.

A qualitative approach allowed the elaboration of perceptions and views to emerge into patterns and themes instead of numerical data studies that would limit the study in strict boundaries or parameters. Qualitative research (narrative analysis) was used to focus on the participants' perspectives, their meanings, and

multiple views (Creswell, 2009, 2013). Inter-rater reliability was achieved with two researchers independently coding the qualitative data and then agreeing on the overall thematic analysis. "The coding strategy divided the narrative data into discrete units of analysis (quotes) relative to the themes embedded in the words of the participants" (Jethwani et al., 2017, p. 11). Coding began with the raw data, with codes sorted and grouped into categories and subcategories, From the categories, a general overarching theme emerged.

The following table (Table 5) highlights the main themes and examples obtained from the narrative analysis of the responses from the open-ended questions:

**Table 5: Themes obtained from narrative analysis**

| Question | Overall Theme | Examples |
|---|---|---|
| Q24. In general, what do you think about the use of TikTok and the concerns that exist related to Privacy? | Not concerned with TikTok's privacy policies or issues versus the privacy issues from other social media platforms. | *"I don't perceive TikTok as any more dangerous than most other social media sites"* <br> *"I feel like Facebook has been proven to have poor privacy, but I haven't seen anything proven against TikTok"* |
| Q25. In general, what do you think about the use of TikTok and the concerns that exist related to Security? | All social media platforms are equally unsecure (not just TikTok). | *"It's as safe as just about any other social media platform"* <br> *"There are concerns no greater of less than any other site"* <br> *"Same as every other social media"* |
| Q26. How knowledgeable are you about the potential risks associated with sharing data on or using TikTok? | Participants consider themselves knowledgeable regarding the risks of using TikTok and other social medial platforms. | *"Pretty knowledgeable. I don't upload, I only view"* <br> *"I have a basic understanding of the risks"* <br> *"I don't share my data on any social media site"* |

## Discussion

Although institutions have reported concerns related to privacy when using TikTok, and its use has been restricted or prohibited in government institutions, participants in this study reported minimal concerns related to privacy and safety. They tend to perceive the use of TikTok just as the use of any other social media platform. Participants reported being aware of the risks associated with the use of TikTok. Actually, they reported a neutral position regarding the trustworthiness on privacy and security on the social media sites they belong to.

In terms of privacy and security, participants somehow disagree that social media sites keep the user's best interests and well-being. Also, they reported a neutral position about social media sites competency in protecting and safeguarding personal information. These findings suggest that participants using TikTok have similar concerns regarding safety and security as they have when using any other social media platform. As Fandia (2019) suggests, users of social media tend to agree on the risks associated with security and privacy on social media as long as they receive social recognition or entertainment. If a government institution restricts the use of TikTok in institutional devices, people using TikTok do not perceive these concerns and are willing to use it on personal devices.

While this initial study was limited to a convenience sample of professional employees in an academic environment, the authors plan to use these findings to inform future research with a larger population and beyond academia. Given the constant evolution of social media platforms, cyber threats, and governmental concerns, it will be interesting to determine if users of Tik Tok continue to feel if the risks associated with trustworthiness, privacy and security are the same as those of other social media platforms.

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