

Research article

The impact of third-person effect on social networking sites privacy risks and protective measures adoption among Yemeni students in Malaysia[☆]

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ABSTRACT

This investigation utilized the Third-Person Effect (TPE) theory to comprehend how individuals perceive the impact of Social Networking Sites (SNS) privacy risks on themselves versus others. The TPE theory posits that individuals tend to believe that media messages, particularly negative ones, exert a diminished or negligible influence on themselves but wield a substantial impact on others. First introduced by Davison in 1983, this theory has historically been employed to examine perceived negative influences in media content, such as stereotyping and pornography. The current study focuses on the perceptions of individuals regarding the influence of SNS privacy risks, specifically among Yemeni students in Malaysia. The study aimed to achieve three primary objectives: Firstly, to investigate whether individuals perceive SNS privacy risks as affecting others more than themselves. Secondly, to examine the connection between the difference in perceived risk between oneself and others and the likelihood of recommending SNS privacy protective measures to others, and Thirdly, to evaluate the relationship between the difference in perceived risk between oneself and others and the likelihood of adopting SNS privacy protective measures for oneself. Through judgmental sampling, a total of 387 participants took part in the study, involving the distribution of an online questionnaire as the primary data collection instrument. The results of the study indicate a pronounced Third-Person Effect concerning SNS privacy risks among Yemeni students. Additionally, the study revealed that these students not only recommended privacy-protective measures to others but did not adopt the same measures for themselves. In summary, the findings support the validity of the Third-Person Effect (TPE) theory in the context of SNS privacy risks, suggesting that individuals tend to perceive the impact more on others than on themselves when experiencing fear.

1. Introduction

The importance of privacy in people's lives cannot be overstated. Nevertheless, managing personal information has become

[☆] Individuals adopt the protective measurements of social networking sites.

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progressively challenging in the era of digital platforms [1], where the use of various applications and platforms requires the disclosure of personal information. While users frequently express concerns about their privacy, they willingly share information on social networking sites [2].

Social networking platforms rely on the connections between strong and weak ties among friends, often facilitating easy accessibility to the online-shared data as readily as the platforms themselves [3]. Many people think to reduce SNS use [4] since disclosing more information elevates the danger. Privacy risk denotes the likelihood of relinquishing command over personal information, which may culminate in complications such as extortion.

Gross and Acquisti [5] contend that SNSs privacy designs and security are weak. Thus, SNS users are vulnerable to privacy-related risks. Privacy risks on SNS include spreading rumors or gossip, online physical stalking, harassment, identity theft and sharing data with third parties [6–10].

The risks can arise from various sources such as hackers, identity thieves, governments, or SNS companies that intend to gain from user privacy or cause harm to consumers for commercial purposes as an example, SNS users can be targeted by identity thieves who may extort money or harm their reputation [11]. In Malaysia, Cybersecurity Malaysia reports that the number of fraud cases, including identity theft, has increased, from 258 cases in December 2023 to 401 cases in January 2024 [12,13].

Additionally, RAMCI's consumer survey revealed that 14 % of participants had fallen victim to identity theft, while 26 % knew someone who had experienced it (RAMCI & Cybersecurity Malaysia, 2019). The latest statistics in Malaysia indicate that there were 3705 cases of cyber fraud in 2023 [12], suggesting that the problem of internet-based cyber fraud is growing in Malaysia alongside the increased use of technology.

Furthermore, companies allow the collection of users' personal information [4,14], and use SNS users' privacy without their permission for different purposes. The successive Facebook, Meta now, scandals related to privacy issues have proven that the problem is certain and existing [15]. For example, in July 2014, Facebook allowed psychological researchers to apply a scientific experiment on thousands of Facebook users by altering their news feeds to view more positive or negative posts to test how emotions could spread on social media without Facebook users' permission.

This incident wasn't the initial occurrence, as Facebook has faced privacy concerns on numerous occasions, starting as early as 2006 [15]. The recent controversy known as the Cambridge Analytica scandal has led to Australia's privacy regulator engaging in federal court proceedings with Facebook since 2020. This legal dispute revolves around the Cambridge Analytica breach, where the data of tens of millions of users was gathered through a personality quiz and subsequently utilized to support political campaigns, including that of Donald Trump's election [16].

Hence, the recurring allegations against Facebook regarding privacy concerns suggest that SNS are not completely secure and reliable. The privacy scandals involving Facebook, the owner of Instagram and WhatsApp, serve as just one instance of privacy breaches on SNS, implying that other platforms might face even more significant privacy risks. When users discover that sharing information deviates from established context-specific norms or become apprehensive about the risks associated with information sharing, they are less inclined to comfortably disclose their information [17]. This is evident in their attitudes and behaviors concerning privacy risks on social networking sites.

New study indicates that how users perceive security threats on SNS can impact their actions [18]. Consequently, the privacy risks associated with SNS use represent critical concerns, and users must be vigilant and comprehend these issues to mitigate potential dangers and threats to their well-being and future. Given that many users may underestimate or overlook the significance of privacy risks, gaining insight into their perceptions can provide valuable information about their behaviors when using SNS.

In this study, the Third Person Effect theory was employed to analyze individuals' perceptions and behaviors. As individuals regularly consume diverse media messages, Davison [19] characterizes the TPE hypothesis as the tendency for people to overestimate the impact of mass communications on the attitudes and behavior of others (p.3). Simultaneously, individuals tend to underestimate the influence of media messages on their own attitudes and behaviors. This implies that when exposed to media messages or communication, individuals believe that the messages have a greater effect on others than on themselves.

This theory assesses how individuals perceive the influence of media on themselves and others. Examining the variations in these perceptions helps in comprehending the attitudes and behaviors of the respondents. An illustration of this is evident in supporting media censorship, as it mirrors such perceptions [20]. Therefore, insights derived from Third Person Effect can aid in understanding the motivations of individuals or decision-makers to take action, such as imposing restrictions on harmful media content [21].

Using the TPE theory leads to an understanding of people's attitudes and behaviors by revealing the differences in perceiving SNS privacy risks on self and on others. Such self-others discrepancy of perceptions shows how individuals look at and feel toward SNS privacy risks. It is how they change their actions using SNS according to their attitude and feeling. The underlying psychological reasons behind the difference of perceptions on self and others explain their attitudes and behaviors. Therefore, TPE is a critical theory in interpreting people perceptions, attitudes and behaviors towards SNS privacy risks.

A comprehensive examination of previous studies has been conducted to explore the application of the Third Person Effect theory in evaluating the impact of mass media on its audience. Notably, TPE research typically focuses on contentious media messages, often of a negative nature [22]. These include topics such as fake news [23–26], pornography or media violence [27–29], and advertising [30, 31].

Given that privacy risks on SNS are viewed negatively, various studies on TPE have specifically addressed SNS privacy risks [32–35]. These investigations have validated that individuals using the Internet and SNS tend to believe that others are more affected by privacy risks than they are. This suggests that perceptions of privacy risks significantly influence the attitudes and behaviors of SNS users, both towards themselves and others.

The issue arises when individuals perceive others as more vulnerable to SNS privacy risks than themselves, leading them to neglect

using protective measures and downplay the potential risks of divulging their private information. This conduct inadvertently amplifies privacy risks and contributes to a rise in electronic crimes. Consequently, the surge in electronic crimes renders the cyber environment insecure and unreliable. Therefore, this research holds significant importance in raising awareness among Social Networking Site users about privacy risks, urging them to consider these risks as a crucial concern for both themselves and others.

Moreover, prior research on SNS privacy risks and the Third Person Effect (TPE) has been carried out in various countries, including the United States [33,34]. However, in Malaysia, there is a scarcity of studies focused on undesirable persuasive messages from a digital standpoint, particularly within the realm of SNS, and their perceived impact on others. Consequently, it is imperative to investigate SNS privacy risks in Malaysia through the lens of TPE to understand how individuals perceive the impact on both themselves and others in this context.

This research centers on Yemeni students residing in Malaysia. It is conceivable that these Yemeni students perceive themselves as less vulnerable to SNS privacy risks compared to others in general, especially when contrasted with the situation in Yemen. The robust technological infrastructure in Malaysia likely fosters a greater reliance on SNS usage among these students compared to their counterparts in Yemen.

Additionally, Yemeni culture places a strong emphasis on the values of social relationships, with individuals consistently connecting, assisting, and collaborating with one another. Hence, the use of SNS becomes an effective means for them to embody these values, particularly when they are abroad. Yemeni students studying in Malaysia might believe that they possess greater superiority, knowledge, and awareness regarding the risks associated with SNS compared to others.

Consequently, Yemeni students tend to perceive others as more vulnerable to these risks than themselves. This disparity in perceptions between self and others may deter them from implementing protective measures on SNS, unknowingly exposing themselves to potential risks. Hazards like identity theft or gossip on SNS can have adverse effects on Yemeni students and other international students in Malaysia, leading to feelings of insecurity, threat, and anxiety. Consequently, this can significantly hamper their academic achievements and overall performance.

This research adds to the current understanding and advancement of existing theories, specifically contributing to the development of the TPE theory. As a prominent theory in the field of communication that explores individuals' perceptions, this study seeks to broaden the scope of TPE theory by applying it to the context of SNS privacy risks, with a focus on Malaysia. Since the TPE theory is designed to analyze how negative or undesirable messages impact the self and others, and SNS privacy risks are perceived as negative, threatening, and undesirable, this investigation significantly contributes to the advancement of knowledge in further developing the TPE theory.

The majority of previous research on The TPE in Malaysia has concentrated on political campaigns [36–38]. In contrast, the present study is positioned as one of the pioneering investigations in TPE specifically addressing SNS privacy risks in Malaysia, particularly among Yemeni students.

Prior investigations have explored SNS privacy risks using the TPE paradigm [33–35]. These studies revealed that SNS users tend to believe that the impact of privacy risks on others is greater than on themselves. However, these studies did not delve into the implications of the perceptual gap between self and others on actual behavior. In contrast, Chen & Atkin [32] examined the influence of TPE on Internet privacy risks concerning behavioral intentions. This current research, on the other hand, investigates the effect of the self-other perceptual gap on SNS privacy risks and its impact on the real actions of the audience.

Researchers have employed various theories to investigate internet and SNS privacy, including CPM [39]. CPM has been applied by scholars such as Child and Westermann [18,40,41] to understand behaviors related to privacy disclosure. Communication privacy management theory, as defined by Petronio [42] p.218, explores how individuals manage their privacy boundaries and the disclosure of private information.

Other theories, such as Protection Motivation Theory (PMT) [3,43,44] and extended parallel process model (EPPM) [45,46], have also been utilized to study risks associated with internet and SNS privacy. The CPM theory consists of three fundamental principles: privacy ownership, privacy control, and privacy turbulence, as outlined by Ref. [47].

In contrast, PMT and EPPM were employed to investigate internet and SNS privacy risks based on existing fears. According to PMT, individuals, before engaging in risk-reduction behaviors, first cognitively analyze the threat and coping measures, thereby enhancing motivation for risk-reduction behaviors. Subsequently, users initiate behavioral changes, following the cognitive assessment, as proposed by Ref. [48].

The EPPM is characterized by individuals being inclined to engage in risk reduction behaviors when they perceive both high efficacy and high threat. Conversely, they are likely to disregard the danger in situations where efficacy and threat are not perceived as high, according to Ref. [49]. Notably, these theories, including CPM, PMT, and EPPM, have not explored the attribution of privacy risks to others. This potential limitation is addressed by the TPE theory, which assesses and encompasses such attributions. Additionally, CPM, PMT, and EPPM theories suggest that individuals assess risks after adopting protective behaviors.

The TPE stands out as a crucial theory in the realm of communication, particularly in understanding the perception of media impact, as proposed by Ref. [19]. TPE posits that individuals typically downplay the influence of media messages on themselves and exaggerate the impact on others. This disparity in perceptions regarding the media's effect on oneself and others arises from individuals viewing themselves as superior and knowledgeable, while perceiving others as more vulnerable and less resilient.

By comprehending the distinctions in how individuals perceive the impact of media messages on themselves versus others, researchers can infer the attitudes and behaviors of media consumers toward diverse content. Consequently, this study underscores the perceived influence of SNS privacy risks on oneself and others, specifically among Yemeni students in Malaysia. When these students view SNS privacy risks as undesirable, there is a likelihood that they perceive others as being more vulnerable to such risks than themselves.

The study's aims and the design of the questionnaire are grounded in the robust and intriguing TPE theory within the realm of communication. Consequently, the results of the study play a crucial role in enhancing, affirming, and further evolving the theoretical framework. By aligning with the foundational principles of the TPE theory, this research not only reinforces its credibility but also provides valuable insights that contribute to its ongoing development and validation within the field of communication.

The research makes a contribution to the field of Social Networking Site studies by examining the TPE theory in the context of SNS privacy and investigating the link between TPE perceptions and behavioral components that can help to explain why individuals might fail to adopt and recommend privacy protective measures. The study's findings could provide insights into reducing TPE perceptions and increasing adoption rates of privacy protection measures.

The study explains that this optimistic perception of privacy risks, known as the Third-Person Effect, can hinder SNS users from adopting protective measures. In the meantime, it can encourage them to recommend adopting the SNS protective measures to others. As a result of showing optimistic bias and self-enhancement.

1.1. Perceptual component of TPE on SNS privacy risks

The aim of the research is to investigate how Third Person Effects theory applies to social networking sites and privacy risks. TPE theory proposes that individuals often perceive that media messages have a more significant influence on other people than themselves. Earlier studies on conventional mass media have validated the perceptual aspect of TPE by demonstrating that individuals typically overestimate the impact of media messages on others but underestimate their own influence [19].

The initial exploration of the Third Person Effect theory was conducted by Davison in 1983. In his study, he inquired with journalists about their perceptions of how much influence their editorials had on their readers. A notable finding was that most journalists believed their editorials had a more significant impact on readers than on themselves. Subsequent to this pioneering work, numerous studies on TPE have been undertaken by various scholars, covering diverse topics and media formats. These scholars include [50–54], and [55].

The TPE consists of two primary components: the perceptual component and the behavioral component. The perceptual component centers on disparities in perception concerning the extent of influence media content might have on oneself compared to others, while the behavioral component concentrates on the actual consequences that may arise from these perception gaps. Studies on the perceptual component of TPE consistently suggest that the social desirability of media messages can influence both the strength and direction of third-person perception gaps, as indicated by research conducted by Refs. [52,53].

In essence, individuals tend to evaluate the impact of socially undesirable media content, such as pornography [50] and violence [54], differently from how they assess socially desirable media content, such as public service announcements [51]. The perception of socially desirable media messages results in a reversed Third Person Effect, which is termed the First-person effect. This term is used to describe the perception that the media's effects on oneself are greater than on others, as denoted by authors like [30,56], and [57].

[55] discovered that contingent factors, such as age and education, influence self-other perceptual gap. Studies focused on the perceptual component consistently reveal that individuals tend to perceive others as more susceptible to the influence of socially undesirable media content than they perceive themselves. This perceptual gap signifies the classic Third Person Perception (TPP), a phenomenon extensively investigated by scholars. Various psychological mechanisms have been proposed to explain TPP, with ego enhancement [58] and biased optimism [59] being the most commonly employed.

Another study has proposed an extension of the perceived gaps in media effects to a second-person effect, where both oneself and others are influenced [60]. In the last two decades, scholars have broadened their examination of the TPE from the perceptual component to the behavioral component. Research indicates that individuals are inclined to take action based on third-person perceptual gaps. The majority of studies assessing the behavioral outcomes of TPP have primarily focused on areas such as support for media censorship [61] and endorsement of government regulation [62,63].

Various studies have identified TPE in traditional media forms such as radio [60], newspapers [64], and television [65]. With the advent of the Internet and new media, scholars have conducted extensive research on TPE, encompassing areas like the Internet [25, 66,67], video games [68], and pornography [27,28,69,70].

The emergence of new media, including websites and Social Networking Sites, has brought about a significant concern in recent decades: privacy risks. Studies on TPE and privacy risks on the internet have observed that individuals tend to perceive a more negative influence of Internet privacy risks [32,33] on others than on themselves. The importance of this study lies in its creative application of the Third Person Effect theory within the realm of privacy on SNS.

The self-other perceptual gap mirrors the concept of TPE perception. When individuals believe that others are more impacted by media than themselves, a self-other perceptual gap emerges. Various research studies have employed the TPE theory to explore the self-other perceptual gap related to SNS privacy risks. These studies consistently revealed that users tend to perceive others as more vulnerable to privacy risks than themselves.

For instance, in a study conducted by Ref. [33], an online questionnaire was administered to 119 college undergraduates at a university in the Midwestern United States to investigate their TPE perceptions regarding privacy risks on Facebook. The findings indicated that participants attributed privacy risks more to others than to themselves. This suggests that Facebook users might experience fear and adopt a defensive stance, employing biased comparisons for self-protection.

Similarly [35], investigated the perspectives of 357 undergraduates from the Northeastern region regarding the negative consequences of using Facebook, considering both themselves and others. The study focused on three dimensions: (1) personal relationships, (2) future employment opportunities, and (3) privacy. Results indicated that participants perceived a lower likelihood of their own privacy being negatively impacted by Facebook compared to others. Furthermore, Paradise and Sullivan (2012) examined two

additional issues beyond privacy on Facebook and observed a consistent inclination toward biased comparisons.

In a same manner [34], investigated the perceptions of users, comprising 237 students from a university in the northeastern United States, regarding the potential negative privacy issues on Facebook, including contact with dangerous individuals, cyberbullying, and scams. Their findings indicated that respondents perceived themselves to have a lower likelihood of encountering these risks.

[71] conducted an investigation involving 188 students at the University of South Australia, employing online surveys and interviews. The study revealed that users of SNS perceived others to be more susceptible to the adverse consequences of privacy and usage risks on SNS compared to themselves. This tendency towards biased comparison emerges particularly when individuals do not feel secure and anticipate negative outcomes. These findings highlight the presence of the TPE in the realm of privacy risks associated with SNS usage, emphasizing the negative aspects.

Recent research on TPE and internet privacy risks, which includes SNS privacy risks, has reaffirmed the outcomes observed in previous studies regarding the self-other perceptual gap [32]. Prior research has investigated TPE perceptions of SNS privacy risks, but these studies had drawbacks such as small sample sizes and insufficient research methods. For example [72], relied on interviews, and [71] utilized online surveys, but neither study thoroughly examined TPE.

On the other hand [34], primarily focused on measuring optimistic bias, and did not specifically investigate SNS privacy risks and evaluated adverse social incidents in a broad sense, without explicitly focusing on privacy risks related to social networking sites (SNS). This study aims to accurately assess TPE perceptions in relation to SNS privacy by asking respondents to rate the likelihood of privacy risks occurring to themselves and others.

As per the TPE theory, individuals are expected to hold the belief that other people are more vulnerable to privacy risks on social networking sites than themselves. The first hypothesis of the study anticipates that participants will perceive a higher level of SNS privacy risks for others compared to themselves.

H1. There is a perceived effect of SNS privacy risks on others more than on self among Yemeni students in Malaysia.

1.2. Behavioral component of TPE on SNS privacy risks

The difference between how individuals perceive themselves and others is responsible for the behavioral aspect of TPE. According to Ref. [19], people tend to think they can resist negative media influences while others cannot. This behavior can be observed through the censorship of harmful media content to limit its impact. Previous studies have shown that TPE can lead to behaviors such as endorsing protective measures and censoring SNS materials in the context of social networking sites and the internet.

An example of research supporting TPE with regard to SNS risks such as cyberbullying and scams and advocating for protective measures was conducted by Refs. [34,71]. Such actions are an indication of the desire for self-enhancement and a sense of superiority, which is known as paternalism when people seek to direct or control others to protect them or restrict their freedom.

[32] also discovered that TPE concerning internet privacy risks reduces an individual's willingness to adopt online privacy protections, even though protective measures for SNS privacy are simple, such as modifying settings, avoiding suspicious friends and pages, or changing passwords [32]. suggested that users' decisions about adopting internet privacy protections may not be logical or straightforward. They proposed that the perceived relevance of privacy risks is a significant factor in reducing the willingness to adopt protective measures.

Therefore, the TPE theory can account for why certain SNS users may not take precautions against privacy risks, as they believe that they are not susceptible to these risks and have a sense of superiority and self-enhancement. This study aims to examine whether the hypothesis that TPE perceptions of SNS privacy risks have a positive association with the behavior of recommending privacy protective measures to others, but a negative relationship with the adoption of protective measures for oneself, is valid.

H2. There is a positive association between the self-other perceptual gap of SNS privacy risks and recommending the SNS privacy protective measures to others.

H3. There is a negative association between the self-other perceptual gap of SNS privacy risks and adopting SNS privacy protective measures by oneself.

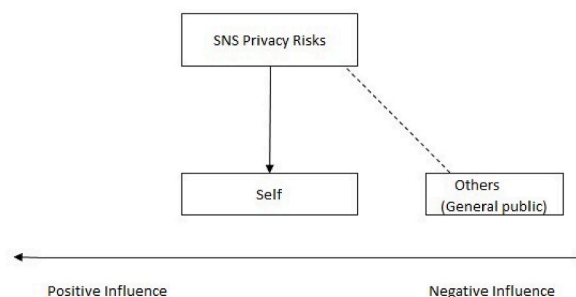


Fig. 1. Conceptual Framework of the Self-other Perceptual Gap or TPE on SNS Privacy Risks [73] p.3.

1.3. Theoretical framework

In the previous section, the literature review established the theoretical foundations for this study, which are presented in the following conceptual frameworks as depicted in Figs. 1 and 2.

Fig. 1 presents a model depicting the impact of undesirable messages, specifically SNS privacy risks, on individuals [73]. provided an explanation of the graph, where the solid line represents an individual’s self-report on the impact of harmful messages, ranging from positive to negative effects. The self is located at the center of the line and perceives little impact of the message on themselves.

On the other hand, the third-person view of others is located on the far left of the line, indicating a perception of a significant impact of the message on them. This implies that undesirable messages have a minimal effect on the self but a more substantial impact on others, which supports the TPE theory hypothesis.

The diagram depicted in Fig. 2 elucidates the theoretical structure, delineating the variables under examination as follows:

The study’s independent variable is the self-other perceptual gap, also known as the Third Person Effect, which is linked to both the recommend of SNS privacy protective measures for others and the adoption of SNS privacy protective measures for oneself. The study’s dependent variables are the recommend of SNS privacy protective measures for others and the adoption of SNS privacy protective measures for oneself, which are both part of the behavioral component of the study.

2. Method

2.1. Research design

This study utilized a quantitative research approach to evaluate and compare individuals’ perceptions of how SNS privacy risks affect themselves and others. The research was conducted in the Klang Valley region of Malaysia between 2019 and 2020, focusing on four public universities that have a large population of international students, including those from Yemen. The study concentrated on the approximately 7000 Yemeni students enrolled in Malaysian universities, with 2705 attending public universities and the remainder attending private universities.

2.2. Sampling procedure and sample size

To select the respondents for the study, the researcher utilized non-probability sampling, specifically purposive or judgmental sampling, which involves purposely selecting units to obtain essential information to achieve research objectives. The Yemeni students were chosen based on their names, emails, and WhatsApp numbers obtained from Yemeni clubs and communities in Malaysian universities.

Yemeni students, a cohort of young individuals from Yemen who have come to Malaysia for educational pursuits in both public and private universities, constitute a noteworthy demographic that merits attention from academic researchers. As per the most recent statistics from Education Malaysia Global Services (EMGS) in 2018, the population of Yemeni students in Malaysia exceeded 7000. Despite the significance of this group, there is a discernible scarcity of resources addressing the broader issues faced by Yemeni students in Malaysia [74].

Previous inquiries into this community have delved into various facets such as social identity negotiation [74], foreign language reading anxiety levels and sources [75], utilization of Oral Communication Strategies [76], and academic oral communication challenges [77]. Notably, none of these studies have explored the realm of privacy risks on Social Networking Sites (SNS) through the lens of the Third-Person Effect (TPE).

This present study endeavors to fill this gap in the literature by specifically investigating the perceptions and behaviors of Yemeni students in Malaysia regarding privacy risks on SNS within the framework of the Third-Person Effect. Given that Yemeni students studying abroad are geographically distanced from their families and friends, they heavily rely on SNS for various purposes, including relationship maintenance, news consumption, and communication. This increased reliance on SNS renders them more susceptible to privacy risks compared to their counterparts.

The living environment and societal context in Malaysia differ significantly from their homeland, prompting Yemeni students to

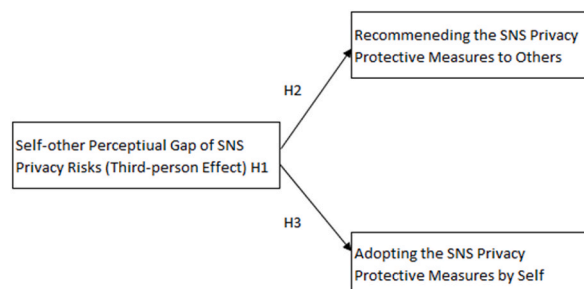


Fig. 2. Conceptual framework of the TPE theory on SNS privacy risks.

utilize SNS as a means of adapting to their new community, fostering new relationships, and staying connected with their original social network. Furthermore, SNS serves as a vital channel for them to stay informed about current events in Yemen, a region fraught with conflicts. The technological landscape in Malaysia offers a robust and affordable infrastructure, in stark contrast to Yemen's relatively weak and less accessible technology infrastructure.

Consequently, Yemeni students in Malaysia may engage with SNS more frequently, thereby increasing the likelihood of sharing private information online and, consequently, elevating their susceptibility to privacy risks. In this context, a noteworthy tendency may emerge among Yemeni students to perceive themselves as more technologically adept and superior to SNS users in Yemen. This perception could potentially lead to a disregard for adopting protective measures on SNS, further amplifying their vulnerability to privacy risks.

The sample size consisted of 387 Yemeni students, chosen through judgmental sampling, and an online questionnaire was used, translated into Arabic to ensure accurate comprehension. The researcher distributed 500 questionnaires and received 391 responses, but only 387 were considered suitable for analysis.

2.3. Research instrument

The researcher used two methods to distribute the self-administrated questionnaires: email and WhatsApp messages. The survey questions were closed-ended and consisted of three sections: (1) demographic information, (2) SNS use, (3) perceptual component of TPE on SNS privacy risks, and (4) behavioral component of TPE on SNS privacy risks.

Section 1: The demographic information section collected data on gender, age, educational level, and study year. As expected, the majority of respondents were male (84 %) due to the Yemeni society providing more opportunities for men in education and employment. More than half of the respondents were aged 30 or above, and around 66 % of them were postgraduate students. In terms of income, almost half of the respondents (46.5 %) had a household income between RM 2000 and RM 4000, while 39.3 % had less than RM 2000, and 14 % had RM 4000 and above (see Table 1).

Section 2; the study assesses Social Networking Site usage by examining respondents' engagement with Facebook, Twitter, WhatsApp, and Instagram, including the frequency of SNS use for specific purposes and the duration of time spent.

Section 3; the research focuses on measuring the perceptual component of the Third-Person Effect regarding SNS privacy risks. This measurement involves two items adapted from previous research: "To what extent do you believe SNS privacy is at risk for yourself?" and "To what extent do you believe SNS privacy is at risk for others?". Respondents rate these items on a five-point Likert scale, where 1 indicates no risk at all, 2 signifies no risk, 3 suggests slight risk, 4 denotes risk, and 5 represents great risk.

Section 4: the study assessed the behavioral component of the TPE regarding SNS privacy risks using two items adapted from prior research. These items were "Do you recommend SNS privacy protective measures to others?" and "Do you adopt SNS privacy protective measures by self?". Respondents provided ratings for these items using a five-point Likert scale, where 1 corresponds to strongly disagree, 2 indicates disagree, 3 suggests slightly agree, 4 denotes agree, and 5 represents strongly agree. The explanation of variables and sources is presented in Table 2.

In preparation for the main study and to ensure reliability, a pilot study was conducted from February 5th to February 29th, 2020. A

Table 1
Demographic characteristics of respondents.

Demographic Characteristics	Category	Frequency	%
Gender	Male	324	83.7
	Female	63	16.3
	Total	387	100.0
Age	20 and below	14	3.6
	21–23	68	17.6
	24–26	56	14.5
	27–29	40	10.3
	30 & above	209	54.0
	Total	387	100.0
Household Income	Less than RM 2000	152	39.3
	RM 2000 to RM 4000	180	46.5
	RM 4000 to RM 6000	32	8.3
	RM 6000 to RM 8000	10	2.6
	RM 8000 & above	13	3.4
	Total	387	100.0
University	IUM	122	31.5
	UM	107	27.6
	UPM	86	22.2
	UKM	72	18.6
	Total	387	100.0
Level of Study	Foundation	17	4.4
	Bachelor	116	30.0
	Master	97	25.1
	PhD	157	40.6
	Total	387	100.0

pilot study is instrumental in identifying any misunderstandings or unclear items on the scale. Items that may have been affected are typically removed or revised before the actual data collection process to enhance the survey's clarity and effectiveness [80]. In the present study, however, no items were removed or eliminated before distributing the actual survey because the pilot study confirmed that the survey was clear and easily understood by the respondents.

A pilot study involving 50 participants was undertaken to assess the flow and content of the questions and identify any challenges faced by the respondents. Reliability tests were conducted on the entire set of items, with each question, along with its items, subjected to a Cronbach's alpha test with a threshold of 0.70 to assess the reliability of the variables. Table 3 verifies the internal cohesiveness and consistency of the research variables, demonstrating Cronbach alpha values that are both reliable and acceptable.

2.4. Data analysis

To explore the relationship between the self-other perceptual gap and various variables, a single variable incorporating the other-self perceptual gap was calculated using the Disparity in Media Effects (DME). Previous studies have employed different models to examine the correlation between the self-other perceptual gap, behavioral outcomes, and other factors.

These models include the Diamond model [60,81–83], the Influence of Presumed Media Influence (IPI) model [66,84–89], the Extended IPI model (Baek et al., 2019), and the DME model [27,39,90].

The Diamond model relies on the subtraction and addition of Perceived Media Effect on others (PME3) and Perceived Media Effect on self (PME1) (PME3–PME1 and PME3+PME1). This process is employed to derive the self-other perceptual gap as a new variable, which is then utilized to examine the relationship between the self-other perceptual gap and influential factors or behavioral outcomes.

The Influence of Presumed Media Influence (IPI) model relies solely on the outcome of Perceived Media Effect on others (PME3) to determine the connection between the self-other perceptual gap and other variables. In contrast, the Extended IPI model introduces the interaction term (PME3*PME1) to the original IPI model (comprising PME3 and PME1). This modification aims to derive the self-other perceptual gap as an additional variable, which is then utilized to assess the relationship between the self-other perceptual gap and influential variables.

The Disparity in Media Effects (DME) model relies on the subtraction of Perceived Media Effect on others (PME3) from Perceived Media Effect on self (PME1) (PME3–PME1) to derive the self-other perceptual gap. This model is then employed to analyze the relationship between the self-other perceptual gap and other variables.

This study employed the DME model for two main reasons. Firstly, the DME model allows for the examination of both PME3 and PME1. In contrast to the IPI model, which excludes the results of PME1, TPE encompasses both PME1 and PME3. Therefore, it is crucial to incorporate and consider both elements when assessing their relationship with other factors. Secondly, the self-other perceptual gap signifies the disparity in perceptions between oneself and others. Therefore, utilizing the subtraction term provides values for the self-other perceptual gap variables, which are logical and essential for analyzing relationships.

Thirdly, the DME model offers consistent outcomes. While the Extended IPI model incorporates both PME3 and PME1, it relies on the interaction term, which can yield inconsistent results when analyzing relationships through regression and Hayes's PROCESS macro. Moreover, the Diamond model employs both addition and subtraction terms, aligning with DME in using subtraction. However, the addition term in the Diamond model does not serve as conclusive evidence for supporting the Third-Person Effect (TPE) behavioral hypothesis [86].

Fourthly, the conceptual framework employed in this study closely resembles [39] conceptual framework [39]. utilized the subtraction model to create a novel variable representing the self-other perceptual gap for Internet privacy risks. Subsequently [39], employed this variable to examine the relationships between TPE and the behavioral component, as well as the correlation between antecedent factors and TPE. Given that the DME model supported most of [39] hypotheses, this study adopts the DME model as the most suitable approach for analyzing the relationships involving TPE on SNS privacy risks.

The self-other perceptual gap, serves as an independent variable in its association with recommending SNS privacy protective measures to others and adopting SNS privacy protective measures personally, both of which are dependent variables. In this study, the mean, frequency, One-way ANOVA, Crosstabs, and standard deviation for each relevant item were computed using a one-sample *t*-test.

Table 2
Explanation of variables and sources.

Variable	Source	No. of items	Scale type
1. Self-other perceptual gap of SNS privacy risks. How much do you think SNS privacy is at risk to. 1) Yourself 2) Others.	[72,78,79]	2	five-point Likert scale where 1 = no risk at all, 2 = no risk, 3 = slightly risk, 4 = risk, and 5 = great risk.
2. Behavioral component of TPE on SNS privacy risks. 1. - Do you recommend SNS privacy protective measures to others? 2. - Do you adopt SNS privacy protective measures by self?	[39]	2	five-point Likert scale where 1 = strongly disagree, 2 = disagree, 3 = slightly agree, 4 = agree, and 5 = strongly agree.

Table 3
Means, standard deviations and reliability of variables in the study.

Variable	M	SD	No. of Items	Reliability (Cronbach's α)	
				Pilot Study (N = 50)	Actual Study (N = 387)
Self-other perceptual gap of SNS privacy risks	7.093	0.617	2	0.720	0.728
Behavioral component of TPE on SNS privacy risks	6.855	2.487	2	0.870	0.708

Subsequently, the analysis of the self-other perceptual gap involved the use of a paired sample *t*-test method to assess the disparity between perceptions of oneself and others regarding SNS privacy risks. Lastly, ordinal regression analysis the relationships between the self-other perceptual gap with recommending the SNS privacy protection measures to others and adopting SNS privacy protection measures by self.

3. Results

3.1. SNS use

Given that the objectives of this study center around social networking use and privacy risks, participants were queried about the frequency of their weekly usage of SNS, as it may impact their privacy on these platforms. Respondents were specifically asked, "How many days in a week do you use SNS?" The findings presented in Table 4 reveal that a significant majority (61.2 %) of respondents use SNS platforms daily (seven days a week), with over one-third (34 %) utilizing them between three to six days a week. In contrast, only 4 % of participants rarely used the medium. It is evident that a substantial proportion of Yemeni students in Malaysia are frequent and consistent users of SNS platforms.

The findings indicate that there are no discernible differences between males and females in terms of the weekly frequency of Social Networking Site (SNS) usage, as determined through a One-Way ANOVA (Table 5). The influence of gender on the weekly SNS usage frequency is statistically non-significant, with $\eta^2 = 0.000439$, $F(1, 385) = 0.169$, and $p = .681$. This suggests that gender does not significantly impact SNS usage.

Table 7 presents the differences in SNS usage frequency and percentage among Yemeni students based on their academic levels, using Crosstabs. Foundation and Bachelor students exhibited the highest rates of constant SNS usage, with 76.5 % and 72.4 %, respectively. Postgraduate students, including Master (59.8 %) and Ph.D. (52.2 %), showed a slightly lower frequency of constant SNS usage.

Notably, around 6 % of foundation students occasionally used SNS (1–2 days), whereas postgraduate students, particularly at the Master level (21.6 %) and Ph.D. level (26.9 %), occasionally engaged with SNS. The evident disparities in percentages across academic levels confirm the noteworthy differences in SNS usage (Table 6). In summary, the findings highlight that foundation students exhibited a higher SNS usage compared to their counterparts, with Bachelor students following, and postgraduate students displaying the least percentage of consistent SNS use.

Table 8 provides an overview of the Social Networking Site (SNS) platforms utilized by Yemeni students in Malaysia. WhatsApp emerges as the predominant platform among Yemeni students, with a usage rate of 93.2 %, followed by YouTube at 69.6 %, and Facebook at 63.2 %. These platforms are particularly popular among Yemeni individuals. In contrast, Pinterest is the least utilized platform, with a usage rate of 2.3 %. It is worth noting that Yemeni students in Malaysia also engage with other platforms, such as LinkedIn, Telegram, and Imo, although these are not explicitly mentioned in the table.

The present study investigates the frequency of Social Networking Site usage across various activities. Six items were employed to assess the extent of SNS utilization in diverse tasks, including information sharing, information seeking, news consumption, shopping, chatting, and building and maintaining relationships. The frequency of SNS usage was measured through responses to six items, gauging how often participants engaged in information sharing, sought information, consumed news, shopped, chatted, and built or maintained relationships on SNS. The means for SNS usage are presented in Table 9.

The participants exhibited significant engagement in various activities on SNS. Notably, they extensively utilized SNS for chatting ($M = 4.246$, $SD = 0.890$) with a positive *t*-value of 27.533 ($p = 0.000$). Furthermore, participants demonstrated active involvement in consuming news on SNS ($M = 3.894$, $SD = 0.988$) with a *t*-value of 17.805 ($p = 0.000$), seeking information on SNS ($M = 3.390$, $SD = 1.063$) with a *t*-value of 7.222 ($p = 0.000$), and building and maintaining relationships on SNS ($M = 3.344$, $SD = 1.110$) with a *t*-value of 6.093 ($p = 0.000$). In contrast, participants occasionally used SNS for sharing information ($M = 2.612$, $SD = 0.930$) and shopping (M

Table 4
Frequency of SNS use weekly.

SNS use by days	Frequency	%
Always (7 days)	237	61.2
Often (5–6 days)	53	13.7
Sometimes (3–4 days)	81	20.9
Rarely (1–2 days)	16	4.1
Total	387	100.0

Table 5
One-way ANOVA for Frequency of SNS use by Gender.

	Sum of Squares	<i>Df</i>	Mean Square	<i>F</i>	<i>p</i>	η^2
Between Groups	0.150	1	0.150	0.169	0.681	0.000439
Within Groups	342.119	385	0.889			
Total	342.269	386				

Table 6
One-way ANOVA for Frequency of SNS use by Level of Study.

	Sum of Squares	<i>Df</i>	Mean Square	<i>F</i>	<i>p</i>	η^2
Between Groups	12.940	3	4.313	5.016	0.002	0.0378
Within Groups	329.328	383	0.860			
Total	342.269	386				

Table 7
Crosstabs for frequency of SNS use weekly by level of study.

		Frequency of SNS use weekly									
		Rarely (1–2 days)	%	Sometimes (3–4 days)	%	Often (5–6 days)	%	Always (7 days)	%	Total	%
Level of study	Foundation	1	5.9	1	5.9	2	11.8	13	76.5	17	100
	Bachelor	4	3.4	12	10.3	16	13.8	84	72.4	116	100
	Master	4	4.1	21	21.6	14	14.4	58	59.8	97	100
	PhD	7	4.5	47	29.9	21	13.4	82	52.2	157	100
Total		16	4.1	81	20.9	53	13.7	237	61.2	387	100

Table 8
SNS Platforms used.

Platform	No.	%
Facebook	245	63.2
Twitter	130	33.5
WhatsApp	360	93.2
Instagram	167	43.2
YouTube	269	69.6
Pinterest	9	2.3
SnapChat	87	22.5
Others	20	5.2

Table 9
One-sample *t*-test for SNS Use towards SNS Privacy Risks.

No.	Variable (N = 387)	<i>M</i> ^a	<i>SD</i>	%	<i>t</i> ^b	<i>df</i>	<i>P</i>
5	How often do you use SNS chatting?	4.246	0.890	84.910	27.533	386	0.000
3	How often do you consume news on SNS?	3.894	0.988	77.881	17.805	386	0.000
2	How often do you seek information on SNS?	3.390	1.063	67.804	7.222	386	0.000
6	How often do you use SNS for building and maintaining relationships?	3.344	1.110	66.873	6.093	386	0.000
1	How often do you share information on SNS?	2.612	0.930	52.248	−8.199	386	0.000
4	How often do you do shopping on SNS?	2.444	1.033	48.889	−10.584	386	0.000
	Overall score for SNS use	3.322	5.271	66.440	16.925	386	0.000

^a 5-point scale whereby where 1 = never (1–20 %), 2 = rarely (21–40 %), 3 = sometimes (41–60 %), 4 = often (61–80 %), and 5 = always (81–100 %).

^b Test value is 3.

= 2.444, *SD* = 1.033) as reflected by negative *t*-values of −8.199 (*p* = 0.000) and −10.584 (*p* = 0.000), respectively.

The comprehensive analysis of SNS use revealed a significant overall engagement (*t* = 16.925, *p* = 0.000), indicating that 66 % of participants (*M* = 3.322, *SD* = 5.271) frequently utilized SNS. Notably, chatting emerged as the predominant activity, with 85 % of respondents actively engaging in it. This underscores Yemeni students' inclination to foster connections and share information about their private lives comfortably through chat interactions. The openness to communicating with both familiar and unfamiliar individuals from diverse countries poses a potential vulnerability to privacy risks.

3.2. Perceptual component of TPE on SNS privacy risks

The results presented in Table 10 indicate that the students in the study believed that SNS privacy risks had an impact on both themselves and others. The respondents perceived that others were affected by SNS privacy risks to a significantly greater extent ($M = 3.636$, $SD = 0.899$) than they themselves were ($M = 3.457$, $SD = 0.925$), $t = -4.158$, $p = 0.000$. These findings support H1, which posits that people are more likely to perceive negative media effects to be stronger for others than for themselves, thus providing evidence for the classical TPE.

3.3. Behavioral component of TPE on SNS privacy risks

Table 11 displays the averages of the behavioral component of TPE in relation to privacy risks on social networking sites. The researchers used a statistical method called one-sample t -test to determine the level of the respondents' behavior towards privacy risks on SNS which are recommending others to use and adopt privacy protective measures on SNS and adopting such measures by self. The participants in the study agreed that they recommend privacy protective measures of SNS to others ($M = 3.615$, $SD = 1.436$) with positive and significant t -values (8.427), $p = 0.000$ and they, also, significantly and positively adopt for privacy protection on oneself ($M = 3.240$, $SD = 1.391$), $t = (3.399)$, $p = 0.000$. The second and third hypotheses of the study aimed to investigate the relationship between TPE perception and behavior.

Hypothesis 2. stated that there is a positive correlation between the self-other perceptual gap of SNS privacy risks and recommending SNS privacy protective measures for oneself. The study's results, presented in Table 12, showed that as the self-other perceptual gap of SNS privacy risks widens, respondents are more likely to recommend SNS privacy protective measures to others. The analysis showed a significant and positive correlation between the self-other perceptual gap and recommending SNS privacy protective measures to others (with a coefficient of $b = 0.231$ and a p -value of .003), which provides support for Hypothesis 2.

The third hypothesis of the study proposed a negative correlation between the self-other perceptual gap of SNS privacy risks and the adoption of SNS privacy protective measures. However, the results of the study did not support this hypothesis. Table 12 shows that an increase in the difference between how individuals perceive the effect of SNS privacy risks on themselves and others does not result in a decrease in the adoption of SNS privacy protective measures. Specifically, the analysis revealed a positive correlation between the self-other perceptual gap and the adoption of SNS privacy protective measures by oneself, but the correlation was not statistically significant (with a coefficient of $b = 0.150$ and a p -value of 0.052). Therefore, the study rejected Hypothesis 3.

4. Discussion

This study aimed to explore how individuals perceive privacy risks associated with social networking sites (SNS) using the TPE analysis. As the popularity of SNSs continue to grow, users are increasingly vulnerable to privacy threats such as identity theft, stalking, and harassment. While there are ways to protect privacy, such as avoiding sensitive information, changing settings, and not interacting with suspicious users, users tend to underestimate the risks and refuse to adopt protective measures.

Thus, this study examined how users perceive privacy risks differently for themselves versus others and how TPE perceptions influence behavior regarding adopting and recommending privacy protective measures. The study starts by introducing the concept of TPE, which suggests that individuals tend to underestimate the impact of negative messages on themselves while overestimating the impact on others. As a result, the first hypothesis predicted that individuals would perceive privacy risks to be more significant for others than for themselves, and this hypothesis was confirmed by the study.

The findings of the study align with previous research on the TPE perspective on privacy risks on SNS [32,34,35,71,72] and provide additional support for this perspective. In addition to the above, the study revealed that people viewed privacy risk messages as negative, alarming, and undesirable, leading to a phenomenon known as the third-person effect. People had a tendency to use partial and skewed comparisons to demonstrate their own superiority and understanding, while confirming the vulnerability and inferiority of others.

SNS users typically engage in self-distancing behaviors, concurrently fostering a self-serving bias that involves self-enhancement concerning SNS privacy risks. This bias manifests as individuals maintaining a positive perception of themselves while holding a negative perception of others [91]. Consequently, Yemeni students in Malaysia seek to portray themselves as superior and impervious to the impact of SNS privacy risks, positioning themselves as less vulnerable and more superior than others.

The increased usage of SNS among Yemeni students in Malaysia, facilitated by affordable internet access and advanced technology, may contribute to a biased perspective, wherein they believe they possess greater awareness, experience, and knowledge in SNS usage

Table 10
Paired sample t -test for the perceived effect of SNS privacy risks on self and on others.

Variables	N	M^a	SD	r	p (two-tailed)	t	Df
Self	387	3.457	0.925	0.572	0.000	-4.158	386
General others	387	3.636	0.899				

^a 5-point scale whereby 1 = no risk at all (1–20 %), 2 = no risk (21–40 %), 3 = slightly risk (41–60 %), 4 = risk (61–80 %), 5 = great risk (81–100 %).

Table 11
One-sample *t*-test for Behavioral Component of TPE on SNS Privacy Risks.

No.	Variable (N = 387)	<i>M</i> ^a	<i>SD</i>	%	<i>t</i> ^b	<i>df</i>	<i>P</i>
1	Recommending the SNS privacy protection measures to others	3.615	1.436	72.300	8.427	386	0.000
2	Adopting the SNS privacy protection measures by oneself	3.240	1.391	64.806	3.399	386	0.000

^a 5-point scale whereby where 1 = strongly disagree (1–20 %), 2 = disagree (21–40 %), 3 = slightly agree (41–60 %), 4 = agree (61–80 %), 5 = strongly agree (81–100 %).

^b Test value is 3.

Table 12
Ordinal regression analysis for between self-other perceptual gap and recommending the SNS privacy protection measures to others.

Independent Variables	Model 1	Model 2
Self-other perceptual gap	0.231*	0.220*
Control variables		
Age	0.562	
Household income	−0.346	
Level of study	0.082	
Pseudo R2	0.027*	0.042
Independent Variables		
Self-other perceptual gap	0.150	0.158*
Control variables		
Age	0.562	
Household income	−0.346	
Level of study	0.082	
Pseudo R2	0.011	0.041

**p* < 0.05.

compared to others.

The research findings indicate that SNS users are strongly driven by a desire to boost their self-esteem and alleviate social anxiety. The expansive functionalities of SNS platform technologies create a perception that users exert comprehensive control over their personal information on these platforms. Consequently, respondents strive to elevate their self-esteem by showcasing their proficiency in safeguarding their information, surpassing others in this regard. This sense of mastery fosters a heightened feeling of security and comfort among users.

Another factor contributing to the perception of Yemeni students that others are more affected by SNS privacy risks is the tendency for individuals to present themselves as more adept in using SNS compared to others who might use these platforms in less proficient ways, rendering them more susceptible to privacy risks. This inclination to heighten the perception of privacy risks for others, while downplaying the same risks for oneself, serves as a defensive mechanism aimed at shielding the self from feelings of fear and insecurity associated with potential information loss or other risks.

As SNS usage becomes ingrained in people’s lives, there is a reluctance to acknowledge that the risks associated with these platforms are equal to or potentially greater than their benefits. Individuals often display optimism in assessing the threat versus the benefit of using a particular medium [67]. The tendency is to perceive others as more impacted by SNS privacy risks, while concurrently viewing oneself as less affected. Consequently, the study’s findings suggest that TPE perceptions of media influence endure even in the context of social networking sites, despite the distinctive characteristics of these platforms.

The findings of the study demonstrate that participants endorsed the recommendation for others to embrace protective measures for SNS privacy, aligning with the second hypothesis. Moreover, Yemeni students personally adopt such measures, supporting the third hypothesis. However, despite recognizing the vulnerability of others to privacy breaches on social networking sites, individuals did not consistently translate this awareness into taking protective measures themselves. The initial action involves advocating for others to adopt protective measures for SNS privacy.

[32] identified a positive correlation between Third Person Effect in internet privacy risks and the inclination to advocate protective measures against these risks, mirroring the current study’s outcomes. This outcome substantiates the behavioral facet of TPE, where the self-other perceptual gap translates into individuals safeguarding others from risks and harm. The findings suggest that individuals exhibit greater concern for privacy risks affecting others than for themselves, possibly influenced by self-serving bias and optimism. However, this bias did not consistently result in the adoption of protective measures.

The outcome of the third hypothesis stands in contrast to the findings of [32,92] investigations [92]. observed that participants refrained from implementing safer sex measures due to a lack of belief in the message’s impact on them. Conversely [32], reported a negative correlation between the TPE concerning Internet privacy risks and an individual’s readiness to embrace protective measures for themselves. In their study, respondents perceived themselves as more protected and secure than others while browsing the Internet, leading to reduced willingness to adopt protective measures against internet privacy risks.

While TPE perceptions prompted the respondents to advise others to safeguard their Internet privacy, they neglected to protect themselves. This was driven by the belief that others were more vulnerable to Internet privacy risks than they were. In the current

study, participants showed no interest in taking protective measures against Social Networking Site privacy risks. This suggests that the perceived risk on SNS did not translate into any proactive action, indicating a disregard for the associated message.

The students might not fully comprehend the extent to which SNS privacy risks can be harmful, leading them to not consider themselves at risk. Despite recognizing that others are susceptible to SNS privacy risks, individuals tend to overlook the possibility of being affected themselves, influenced by biased comparisons.

Moreover, individuals might perceive that the level of privacy risks associated with SNS is lower than that of Internet privacy risks. SNS platforms offer a broader array of privacy settings in comparison to traditional Internet websites. This perception arises from the belief that they are more secure on SNS due to the availability of privacy settings, granting users increased control over their personal information. On the contrary, Internet websites are seen as providing less control over privacy, potentially allowing owners to exploit users' information. Consequently, the disparity between these mediums contributes to variations in respondents' behaviors concerning the adoption of privacy measures.

In this study, the sample size employed is notably extensive in comparison to the overall population, thereby facilitating the extrapolation of findings to a broader context. However, it is important to acknowledge the potential presence of individual variations in the utilization of Social Networking Sites and their associated impacts. For example, age emerges as a critical determinant shaping SNS usage behaviors, with members of Generation Z often displaying a heightened inclination towards openness, leading to a blending of privacy and public spheres.

Conversely, older age groups typically demonstrate a more cautious approach, exercising greater discretion in the dissemination and consumption of information on these platforms. Moreover, it is imperative to recognize the significant influence of personality traits on SNS engagement; individuals characterized by extroversion or openness tend to interact with these platforms in distinct ways compared to their introverted counterparts. These individual differences can be explained in the future studies.

The research establishes a positive association between the perceptual gap, indicating the disparity in how students view the impact on themselves versus others, and their practical behavior regarding privacy protection. This implies that individuals perceiving a greater impact on others are more inclined to neglect adopting privacy-protective measures themselves but are likely to endorse these measures to their peers. This behavior stems from the students' perception of safety, which leads them to dismiss the need for adopting SNS privacy protective measures.

5. Limitations

The exploration of the Third-Person Effect in the context of SNS privacy risks among Yemeni students studying in Malaysia has unveiled valuable insights. As we interpret the current findings, it is crucial to consider the implications for foresight and potential avenues for future research. While the current study provides a snapshot of Yemeni students in Malaysia, future research should consider the role of cultural nuances in shaping perceptions of SNS privacy risks. Expanding the scope to encompass diverse cultural backgrounds could enhance the generalizability of the findings and offer a more comprehensive understanding of how cultural factors influence the Third Person Effect.

The present study provides a cross-sectional view of the participants' perceptions and behaviors. A longitudinal approach could offer a dynamic perspective, tracking changes in perception and behavior over time. This would enable researchers to identify trends, causation patterns, and potential shifts in awareness and protective measures over different stages of the students' academic journeys.

Complementing the quantitative data with qualitative insights could provide a richer understanding of the factors influencing the Third Person Effect. In-depth interviews or focus group discussions might unveil nuanced motivations, experiences, and societal influences that contribute to the observed perceptions and behaviors. Qualitative data could also help researchers explore the emotional and psychological dimensions associated with SNS privacy concerns.

Building on the positive correlation identified between the perception gap and privacy-protective behavior, future research could explore the effectiveness of targeted interventions. Investigating educational programs or awareness campaigns designed to bridge the perception gap and encourage proactive privacy protection measures could provide practical insights for educators, policymakers, and social media platform developers.

Extending the study to compare perceptions and behaviors across different demographic groups, such as age, gender, or academic disciplines, could reveal variations in the Third-Person Effect. Understanding how these factors interact with the perception gap may contribute to a more nuanced understanding of privacy concerns in the broader context of social networking sites.

Given the rapid evolution of technology and the emergence of new social media platforms, future research could explore the applicability of the Third-Person Effect theory in novel digital contexts. Investigating privacy perceptions and behaviors on evolving platforms or in response to emerging technologies would provide insights into the adaptability and relevance of the theory in an ever-changing digital landscape.

While the current study has laid a foundation for understanding the Third-Person Effect in the context of SNS privacy risks among Yemeni students in Malaysia, these foresight considerations suggest exciting possibilities for extending and refining our knowledge in this domain. By embracing these future directions, researchers can contribute to a more holistic understanding of how individuals navigate privacy concerns in the ever-evolving landscape of social media.

6. Conclusion

The theory of the Third-Person Effect posits that individuals tend to perceive negative media messages as having a more significant impact on others than on themselves. In this particular study, the focus is on understanding how Yemeni students, currently studying in

Malaysia, perceive privacy risks on SNS. The primary objective is to explore whether these students believe that privacy risks on SNS affect others more than they affect themselves.

Additionally, the study aims to investigate whether there is a correlation between this perception gap and the students' inclination to undertake privacy-protective measures, as well as their likelihood to recommend such measures to others. Through judgmental sampling, a total of 387 participants took part in the study, involving the distribution of an online questionnaire as the primary data collection instrument.

The findings of the study reveal a noteworthy Third-Person Effect among the Yemeni students concerning privacy risks on SNS. This implies that these students tend to believe that the impact of such risks is more pronounced for their peers than for themselves. This discrepancy in perceptions came from fear and unsafe feelings where people tend to deny the negative feeling on self and refer it to others.

Self-enhancement and self-serving interpret this phenomenon. Moreover, the study identifies a positive correlation between the perception gap reflecting the difference in how students perceive the impact on themselves versus others and their actual behavior concerning privacy protection. This suggests that individuals who perceive a larger impact on others are more likely to not engage in privacy-protective measures, but advocate for these measures among their peers. This is because of the students denied the feeling of unsafe which encourages them to disregard the adoption of SNS privacy protective measures.

Previous studies mostly focused on individuals' intentions to restrict harmful media messages in traditional media, but this study extended the concept to SNS privacy. The results indicated that people are more concerned about the privacy risks on others rather than themselves, which may be due to self-serving bias and optimism. However, this bias did not necessarily lead to adopting protective measures. People tend to underestimate the risks they face and may discard the threat on themselves while perceiving others as more vulnerable.

The current study added a new contribution to the knowledge of the behavioral component of TPE on SNS privacy risks by studying how the self-other perceptual gap affects SNS users' behavior in protecting themselves and others. When people feel fear, they perceive others to be more affected than themselves, and thus, advice others to have a protective action, but they do not adopt the action themselves.

How people understand the messages' effects and how they perceive the effect on self and on others play a critical role in TPE. Each discussed points in this study provides a significant contribution to our understanding of SNS privacy risks and TPE theory and great implications to develop their SNS security education.

The findings of the present study offer practical implications for users of SNS, specifically Yemeni students residing in Malaysia. These students tend to perceive others as more susceptible to SNS privacy risks compared to themselves, a phenomenon attributed to self-serving bias. This increased awareness has prompted them to reassess their own attitudes towards such risks, prompting caution in sharing personal information and navigating SNS platforms. Additionally, the study reveals that this gap in perception between self and others regarding SNS privacy risks leads them to advocate for protective measures to others, thereby raising awareness among SNS users and fostering effective adoption of these measures. As a result, Yemeni students in Malaysia are better equipped to avoid potential dangers on SNS such as identity theft or gossip, enhancing their sense of safety, security, and comfort in utilizing these platforms and reaping their benefits.

As a conclusion, the study emphasizes the importance of recognizing that people's perceptions of privacy risks on SNS may be influenced by the Third-Person Effect. The recommendation is made that individuals refrain from making judgments based solely on their own biased perceptions, as this might lead to an erroneous sense of superiority and a misjudgment of others' vulnerability. The implication is that individuals should be cautious about their attitudes and behaviors towards privacy risks, ensuring that they remain vigilant and proactive in adopting protective measures for themselves and advocating for similar practices among their peers.

Data availability statement

Data supporting this research is not accessible to the public as the researchers assured the participants that the data would be treated with privacy and confidentiality. Nevertheless, the data can be obtained upon request. For inquiries, please reach out to the research team at alabawazir@iium.edu.my

Ethics statement

Since the research does not address any sensitive issues or human experiments, approval from the ethics committee at the International Islamic University in Malaysia was not required. However, before conducting the survey, participants signed a consent form.

CRedit authorship contribution statement

Ala Bawazir: Writing – review & editing, Writing – original draft, Resources, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Syed Arabi Idid:** Visualization, Validation, Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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