

Social Media Exposure, Personal Risk Perception, and Protection Behavior toward Phone Scams

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Abstract:

The objective of this study was to compare personal risk perception and protection behavior between generations and determine the relationship between social media exposure, personal risk perception, and protection behavior toward scam phone calls and texts. This study used a survey research method. The sample was random from 625 Thai people. Data were collected using an online questionnaire. Independent ANOVA procedures and the Pearson correlation were used to analyze the study data. The survey revealed that most respondents reported being most exposed to Facebook, while they had a high level of exposure to information about phone scams. The overall perception of personal risk and self-protective behavior were rated at the highest levels. Furthermore, an analysis of personal risk perception and sociodemographic factors indicated that age was significantly related to personal risk perception. In addition, respondents' protective behavior showed significant associations with gender, education, and occupation at a significance level of 0.05. Moreover, the study found a significant positive correlation between social media exposure, personal risk perception, and protective behavior. Among the Thai people, regardless of generation, there was no difference in personal risk perception and self-protection behavior. This is because people of all age groups have a high level of exposure to news about phone scams. As a result, people of all ages are aware of the dangers this time as well and take care of themselves to be safe from their own property and life, which is the instinct of every human being. A relationship was observed between social media exposure, personal risk perception, and protective behavior.

Keywords: social media exposure, risk perception, protection behavior.

社交媒体曝光、个人风险认知和针对电话诈骗的保护行为

摘要:

本研究的目的是比较几代人之间的个人风险认知和保护行为，并确定社交媒体曝光、个人风险认知和针对诈骗电话和短信的保护行为之间的关系。本研究采用调查研究方法。该样本是从625名泰国人中随机抽取的。使用在线问卷收集数据。使用独立方差分析程序和皮尔逊相关性来分析研究数据。调查显示，大多数受

访者表示最常接触Facebook，同时也较高程度地接触有关电话诈骗的信息。对个人风险和自我保护行为的总体认知被评为最高水平。此外，对个人风险认知和社会人口因素的分析表明，年龄与个人风险认知显著相关。此外，受访者的保护行为与性别、教育和职业显著相关，显著性水平为0.05。此外，研究发现社交媒体接触、个人风险认知和保护行为之间存在显著的正相关关系。泰国民众中，无论代际，个人风险认知和自我保护行为没有差异。这是因为所有年龄段的人都对有关电话诈骗的新闻有很高的接触率。因此，各个年龄段的人们也意识到了这次的危险，并照顾好自己，保护自己的财产和生命安全，这是每个人的本能。观察到社交媒体曝光、个人风险认知和保护行为之间存在关系。

关键词：社交媒体曝光、风险认知、保护行为。

1. Introduction

Phone scams pose a significant threat in the digital age and are perpetrated primarily by call fraud or call center gangs. These criminal activities not only result in financial harm to numerous victims but also have far-reaching consequences on the overall economy at both national and international levels (Sukto, 2021). Recognizing the severity of the issue, the United States has enacted stringent laws to combat call center gangs. In 2021, 59.5 million Americans became victims of such scams, with each person suffering an average loss of \$502, totaling over \$29.8 billion (Digital Economy Promotion Agency, 2022). Thailand has also been significantly impacted by the proliferation of call center gangs, with reported damages exceeding 260 million baht. These figures have been officially reported for prosecution.

In addition to its economic ramifications, this criminal activity exacerbates societal stress among victims and contributes to various social problems (TSRI, 2021). The Bank of Thailand (2021) underscores the severity of the situation, highlighting scammers' use of various tactics to extract funds from victims' accounts. Despite having legislation in place to address phone scams, Thailand continues to grapple with this persistent transnational crime, which presents as a serious and complex issue, causing widespread harm to individuals and society as a whole (Kangwansophon, 2022).

Acknowledging the gravity of the situation, the Ministry of Digital Economy and Society in Thailand prioritized this issue on the national agenda, collaborating with relevant agencies such as the Royal Thai Police, Bank of Thailand, Thai Bankers Association, Ministry of Interior, Department of Provincial Administration, Office of the Council of State, Public Relations Department, and telecommunication operators (ISRA News Agency, 2022). Public and private entities have also joined forces to disseminate information and raise awareness about the threats posed by call center gangs through various social media platforms (Ministry of Digital Economy and Society, 2022).

Research investigating media exposure, personal risk perception, and self-protection behaviors has

established a link between these factors (Liu et al., 2020). Alrasheed et al. (2022) and Van Schaik et al. (2017) demonstrate the influence of media exposure and personal risk perception on individuals' adoption of self-defense measures.

Consequently, the provision of accurate, concise, and relevant information is crucial to enable the public to safeguard themselves against potential harm to their lives and assets resulting from fraudulent phone calls. National agencies can leverage research findings to develop effective communication and public relations strategies, equipping individuals with knowledge, understanding, risk awareness, and self-protection measures. Such efforts will contribute to the protection of individuals, families, and society as a whole.

1.1. Objectives

1. To compare personal risk perception and protection behavior between generations;
2. To study the relationship among social media exposure, personal risk perception, and protection behavior toward scam phone calls and texts.

2. Literature Review

Risk perception and self-protection behaviors are "people's beliefs, attitudes, judgements, emotions, and broader social or cultural values and dispositions toward hazards and their benefits" (Pidgeon, 2012) that have often been investigated in the context of health issues, with a particular focus on studies related to health concerns. Nevertheless, this study extends the application of these concepts and findings to a different research context.

As described by Slater (2004), media exposure pertains to the extent to which individuals have encountered specific messages or types of media content. This definition is succinct and straightforward, avoiding unnecessary intricacies. The concept of social media exposure encompasses both positive and negative outcomes. It enables individuals to cultivate their personal brand, broaden their connections, and enhance their visibility, ultimately boosting their influence. Furthermore, social media exposure facilitates engagement in social and political activism, serving as a platform for knowledge sharing and information

dissemination (Brake, 2014).

Ng et al. (2018) suggested that exposure to social media has a greater impact on society's risk perception than traditional media channels. While earlier studies focused mainly on conventional media sources, recent research has emphasized the importance of information obtained through social media, considering the prevalent trend of rapid information exchange. Social media is recognized as a widely accessible and cost-effective means of obtaining information readily available to the public. However, it is crucial to recognize that the effects and information conveyed by the media can influence individuals in diverse ways. Based on the social amplification of risk framework proposed by Kaspersen et al. (1988), social media can function as a "social amplification station," shaping the social experience of hazards and influencing the perception of risk within society. This amplification or reduction of public risk perception can occur through various mechanisms (Ali et al., 2019a; Kaspersen et al., 1988). Nyblom et al. (2020) indicate that exposure to news through online media platforms enhances individuals' ability to accurately perceive risks. Moreover, research suggests that risk perception, which is shaped by one's exposure to social media content, can serve as a significant predictor of self-protective actions against cyber fraud (Van Schaik et al., 2017).

3. Methodology

3.1. Population and Sample

The target population for this study comprised 248,963 Thai individuals aged between 18 and 70 (National Statistical Office, 2022). The sample size of 625 was determined based on the application of Yamane's (1973) finished sample size by $n = N / (1 + N(e)^2)$, with a confidence level of 96% and a margin of error of 4%.

3.2. Sampling

The study employed a stratified multi-stage sampling approach, which involved the following steps:

1. Determining the area for collecting data from all five regions of Thailand: the North, Central, East, Northeast, and South;
2. Randomly selecting one province per region;
3. Setting a quota: 125 people per province;
4. Sending the online questionnaire URL to all five provincial offices to disseminate the questionnaire on the official online platform created by the provincial office: website, LINE, and Facebook, which is random sampling.

3.3. Research Instrument

The research instrument is a close-ended questionnaire:

Section I: Respondent's background is the checklist items: gender, age, education, monthly income, and

occupation.

Section II: Social media exposure is the rating scale that social media platforms used for the scam phone information: Facebook, LINE, Instagram, YouTube, website, Twitter, and TikTok (5 - everyday, 4 - 3-5 times/week, 3 - 1-2 times/week, 2 - 3-5 times/week, 1 - 1-2 times/week) (Table 1).

Scam phone calls and texts (SPCT) information exposure on social media was assessed by asking three questions using a 5-point Likert scale (1 - not to all to 5 - to a great extent). The three questions are presented in Table 2.

Section III: Personal risk perception was developed by Alrasheed et al. (2022). Four questions on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The four questions are presented in Table 3.

Section IV: Protection behavior from SPCT was developed by KAP theory (Roger, 1995). Five questions on a 5-point scale ranging from 1 (never practiced) to 5 (regularly practice). The six questions are listed in Table 4.

3.4. Testing a Measuring Instrument

The content validity of the research tools was validated. I.O.C. = 0.80–1.00 by five academicians. The reliability of the questionnaire was determined using the formula of Cronbach's alpha with statistical significance at the level of 0.05 with the questionnaire's confidence value of 0.98.

3.5. Data Collection

An online questionnaire was used to gather data from respondents. The questionnaire will include targeted screening questions to inform respondents about the issue of call fraud. The researcher distributed the URL of a Google Forms questionnaire to the sample groups in all five regions by requesting cooperation with provincial government agencies in placing the URL of the questionnaire on the website, Facebook, and LINE. The data collection period was from June to December 2022.

3.6. Data Analysis

Sociodemographic data were analyzed by frequency. Social media exposure, personal risk perception, and protection behavior were analyzed by means and standard deviations. The comparison test used one-way ANOVA (LSD method), and the relationships were determined using the Pearson product-moment correlation statistical test.

3.7. Conceptual Framework

The theory of prevention motivation is predicated on the belief that communication induces fear and influences thoughts and behaviors, which is a concept of human adaptation when threatened. When an individual is exposed to negative and harmful information, he or she responds to the threat and

experiences difficulties (Bandura, 1977). The conceptual framework is shown in Figure 1.

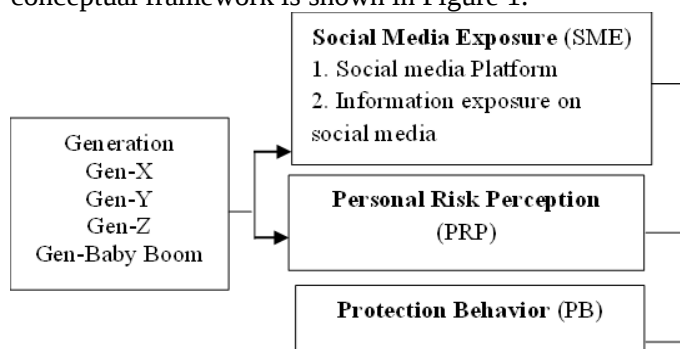


Figure 1. Conceptual framework (Created by the author)

4. Results

4.1. Sociodemographics and Levels of Social Media Exposure Platforms

Overall, the social media exposure platforms about SPCT with the highest levels are Facebook ($\bar{X}=4.77$) and Twitter ($\bar{X}=4.70$). TikTok ($\bar{X}=4.31$), LINE ($\bar{X}=4.20$), website ($\bar{X}=4.16$), and YouTube ($\bar{X}=4.13$) are at high levels. Instagram ($\bar{X}=3.41$) is at a moderate level (Table 1).

Table 1. Sociodemographics and means of social media exposure (n=625) (Created by the author)

Variable	Level of social media exposure						
	Facebook	Line	Instagram	YouTube	Website	Twitter	TikTok
Gender							
Male (315)	4.75	4.18	3.42	4.08	4.13	4.68	4.2
Female (310)	4.78	4.20	3.41	3.14	4.19	4.72	4.2
Age (years old)							
18-26 (156)	4.83	4.21	3.48	4.17	4.13	4.76	4.3
27-41 (156)	4.76	4.21	3.39	4.05	4.14	4.74	4.3
42-57 (157)	4.75	4.15	3.40	4.11	4.22	4.68	4.3
58-70 (156)	4.72	4.22	3.38	4.19	4.15	4.62	4.2
Education							
< Bachelor (156)	4.78	4.22	3.42	4.20	4.21	4.63	4.3
Bachelor (304)	4.77	4.24	3.42	4.13	4.14	4.71	4.3
> Bachelor (165)	4.75	4.10	3.41	4.08	4.16	4.73	4.2
Occupation							
Student (81)	4.85	4.22	3.43	4.12	4.17	4.78	4.4
Employee in private (138)	4.80	4.33	3.42	4.25	4.26	4.62	4.3
Gov. employee (135)	4.69	4.10	3.42	4.13	4.19	4.60	4.3
Ownership (137)	4.74	4.12	3.43	4.03	4.02	4.77	4.2
Freelance (134)	4.78	4.22	3.37	4.12	4.18	4.75	4.2
Monthly income (US\$)							
≤594.36 (143)	4.82	4.34	3.44	4.20	4.26	4.69	4.3
594.36–891.53(337)	4.76	4.17	3.37	4.13	4.15	4.72	4.3
>891.53 (145)	4.74	4.12	3.48	4.06	4.08	4.65	4.2
Total	4.77	4.20	3.41	4.13	4.16	4.70	4.3

Remark: (1.00-1.49=Never, 1.50-2.49=Rarely, 2.50-3.49=Sometimes, 3.50-4.49=Often, 4.50-5.00=Always)

4.2. Social Media Exposure

Overall, the respondents had high social media exposure about SPCT ($\bar{X}=4.44$, $SD=0.38$). Order of the average scores: 1) How much do you depend on social media for SPCT content? ($\bar{X}=4.62$), 2) How much of the information you obtain about SPCT from social media

do you believe? ($\bar{X}=4.52$), and 3) How much have you seen about SPCT content on social media these days? ($\bar{X}=4.19$) (Table 2).

Table 2. Means and standard deviations of social media exposure regarding SPCT (n=625) (Created by the author)

Question	$\bar{X}$	SD	Level
Overall	4.44	0.38	High
(1) How much have you seen about SPCT content on social these days?	4.19	0.46	High
(2) How much do you depend on social media for SPCT content?	4.62	0.63	Highest
(3) How much of the information you obtain about SPCT from social media do you believe?	4.52	0.66	Highest

4.3. Personal Risk Perception regarding SPCT

Overall, the respondents had the highest personal risk perception ($\bar{X}=4.53$, $SD=0.37$). Order of the average scores: 1) I am worried that I would be affected by SPCT ($\bar{X}=4.63$); 2) I would likely be affected by SPCT ($\bar{X}=4.68$); 3) I have felt that SPCT is dangerous ($\bar{X}=4.52$); 4) The problem of SPCT is serious to me ($\bar{X}=4.36$) (Table 3).

Table 3. Means and standard deviations of personal risk perception (n=625) (Created by the author)

Statement of Protection Behavior	$\bar{X}$	SD	Level
Overall	4.51	0.37	Highest
(1) Avoid receive the phone when you see an international code.	4.42	0.64	High
(2) Report the scam phone number to the police.	4.61	0.55	Highest
(3) Install "Who Call" application.	4.34	0.68	High
(4) Blocked the scam phone number.	4.44	0.66	High
(5) Avoid click all link on SMS.	4.59	0.58	Highest
(6) If in doubt, hang up the conversation.	4.64	0.51	Highest

Remark: (1.00-1.49=Lowest, 1.50-2.49=Low, 2.50-3.49=Moderate, 3.50-4.49=High, 4.50-5.00=Highest)

4.4. Protection Behavior toward SPCT

Overall, the respondents had the highest protection behavior ($\bar{X}=4.51$, $SD=0.37$). In the order of the highest average scores, the top three are: 1) If in doubt, hang up the conversation ($\bar{X}=4.64$); 2) Report the scam phone number to the police ($\bar{X}=4.61$); 3) Avoid clicking all links on SMS ($\bar{X}=4.59$) (Table 4).

Table 4. Means and standard deviations of protection behavior (n=625) (Created by the author)

Statement of Personal Risk Perception	$\bar{X}$	SD	Level
Overall	4.53	0.37	Highest
(1) The problem of SPCT is serious to me	4.36	0.66	High
(2) I am worried that I would be affected by SPCT	4.63	0.51	Highest
(3) I would likely be affected by SPCT	4.61	0.63	Highest
(4) I have felt that SPCT is dangerous	4.52	0.66	Highest

Remark: (1.00-1.49=Lowest, 1.50-2.49=Low, 2.50-3.49=Moderate, 3.50-4.49=High, 4.50-5.00=Highest)

4.5. Comparison of Personal Risk Perception between Generations

The personal risk perception of respondents was not related to generation (P-value = 0.77) with significance at the 0.05 level (Table 5).

Table 5. Comparison of personal risk perception between generations (n=625) (Created by the author)

Variable	n	$\bar{X}$	SD	df.	F	P-value
18-26 (Gen.Z)	156	4.50	0.39	3	0.36	0.77
27-41 (Gen.Y)	156	4.54	0.38			
42-57 (Gen.X)	157	4.53	0.35			
58-70 (Gen.Baby Boom)	156	4.54	0.36			

At significant at the 0.05 level.

4.6. Comparison of Protection Behavior between Generations

The protection behavior of respondents was not related to generation (P-value = 0.18) with significance at the 0.05 level (Table 6).

Table 6. Comparison of protection behavior (n=625) (Created by the author)

Variable	n	$\bar{X}$	SD	df.	F	P-value
18-26 (Gen.Z)	156	4.54	0.37	3	1.63	0.18
27-41 (Gen.Y)	156	4.54	0.36			
42-57 (Gen.X)	157	4.49	0.38			
58-70 (Gen.Baby Boom)	156	4.46	0.38			

At significant at the 0.05 level.

4.7. Correlation between Social Media Exposure, Personal Risk Perception, and Protection Behavior

The Pearson product-moment correlation statistical test found that: 1) social media exposure is significantly and positively related to personal risk perception ($p < 0.01$); 2) social media exposure is significantly and positively related to protection behavior ($p < 0.01$); 3) personal risk perception is significantly and positively related to protection behavior ($p < 0.01$). The correlations are shown in Table 7.

Table 7. Pearson's correlations between SME, PRP, and PB (Created by the author)

Correlation	r	p-value	Level Correlation
1. Social Media Exposure with Personal Risk Perception	0.712**	0.00	High ^a
2. Social Media Exposure with Protection Behavior	0.156**	0.00	Lowest ^a
3. Personal Risk Perception with Protection Behavior	0.547**	0.00	Moderate ^a

**Correlation is significant at the 0.01 level (2-tailed)., ^a(Bartz, 1999).

5. Discussion

1) The highest level of exposure to news concerning scams involving call center gangs occurs on Facebook, receiving a rating of 4.77. This can be attributed to Facebook's enduring presence as a social media platform that has spanned decades and is still popular to this day (Eghtesadi & Florea, 2020). Furthermore, it serves as a fundamental platform for most individuals who maintain their accounts for various purposes and benefits. Specifically, Facebook serves as a widely used platform for content creation and dissemination of news. This includes content generated by users themselves as well as the sharing of news from other sources, facilitated through reposting (Wang et al.,

2019). Additionally, even mass media news agencies leverage Facebook as a channel to present various news stories (Welbers & Opgenhaffen, 2019). As a result, Facebook stands out as the primary source through which the public accesses information about call center gang scams.

2) Personal risk perception was not related to all generations: Generation Z (18-26 years old), Generation Y (27-41 years old), Generation X (42-57 years old), and baby boom generation (58-70 years old). All generations have the highest level of personal risk perception. This is due to the severity of telephone scam issues, with news about them being widely and consistently covered by the police (Bossler et al., 2020), financial institutions, mass media news agencies, personal discussions, and individual content creation, among other sources on social media (Ali et al., 2019b). This elucidates the reason behind widespread awareness among individuals of various age groups regarding news and potential harm that can ensue from succumbing to the deceitful tactics employed by call fraud gangs.

3) Protection behavior of respondents was not related to generation. All generations place importance on adopting behaviors to protect themselves from phone scams. As a general rule, all human beings have an instinct to protect themselves from dangers or misery. Moreover, the defense mechanisms described by Freud's theory are mental processes that occur automatically in individuals. Most of them are used unconsciously, for adaptation, solving existing problems, and maintaining balance or normality of the mind. Self-defence mechanisms are naturally occurring methods of the mind (Mihalits & Codenotti, 2020). It usually occurs or manifests immediately. This is because it is human instinct to protect, fight, and adjust oneself to survive and be safe, happy, and able to maintain the original condition (Khoirunisa & Rahayu, 2020).

4) This essay explored the correlation between social media exposure, personal risk perception, and protection behavior. Social media has become an integral part of our daily lives. It has revolutionized the way we communicate, share information, and connect with people. However, with the increasing use of social media, there has been a rise in cyber threats and online risks.

The first factor to consider is social media exposure. The more time an individual spends on social media, the higher their chances of being exposed to online risks. Social media platforms are a breeding ground for cybercriminals who use various tactics to exploit users. These tactics include phishing, malware, and social engineering. Therefore, it is essential to limit social media exposure to reduce the risk of being targeted by cybercriminals.

The second factor is personal risk perception. Personal risk perception refers to an individual's

awareness of the potential risks associated with social media use. It is crucial to understand risks associated with social media to take appropriate self-protection measures. Individuals who perceive social media as a high-risk platform are more likely to take protective measures such as using strong passwords, enabling two-factor authentication, and avoiding suspicious links.

The third factor is protection behavior. Protection behavior refers to the actions taken by individuals to protect themselves from online risks. This includes using security software, updating software regularly, and being cautious while sharing personal information online. Individuals who engage in protective behavior are less likely to fall victim to cyber threats. This result is consistent with previous studies that have shown a relationship between social media exposure, personal risk perception, and protection behavior (Ng et al., 2018; Ali et al., 2019a, 2019b; Kaspersen et al., 1988).

6. Conclusions

In terms of social media exposure regarding SPCT, Facebook emerged as the predominant platform. Respondents showed a notably high level of exposure to information about SPCT. They also exhibited the highest levels of personal risk perception and engaged in protective behaviors. When comparing personal risk perception across different generations, there was no discernible correlation between respondents' risk perception and their generation. Similarly, when comparing protective behaviors across generations, no significant relationship was observed. Statistical analysis using the Pearson product-moment correlation revealed the following: 1) social media exposure has a significantly positive association with personal risk perception ($p < 0.01$); 2) social media exposure is significantly correlated with increased protective behavior ($p < 0.01$); 3) personal risk perception is significantly linked to higher levels of protective behavior ($p < 0.01$).

7. Limitations

The data for this study were gathered from specific regions in Thailand. This country is plagued by rampant fraud. Furthermore, the study was conducted during extensive coverage of the pilfering of highly specialized terms from government institutions and official papers, incorporating individuals. Consequently, it enhances their awareness of stealing.

8. Further Study

1. Subsequent studies should expand on the research by conducting in-depth interviews or holding focus group discussions on the issue of being scammed over the phone to obtain more insights and answers.

2. The public knowledge variable should be used to test how self-defense behavior variables affect the

relationship between the knowledge level variable and the level of self-defense behavior.

9. Recommendations

1. It is imperative that individuals refrain from using the LINE program to directly connect with authorities from different agencies, particularly police stations or law enforcement organizations. Avoid disclosing personal or financial details, such as identification card numbers, bank account numbers, card verification codes, and one-time password codes, to anyone.

2. The Royal Thai Police should engage in proactive and continuous dissemination of information. In particular, new methods of deceit have emerged, where criminals have devised increasingly sophisticated means to swindle the population.

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