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A Test of Structural Model for Fear of Crime in Social Networking Sites

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Abstract:
This study constructed a structural model which consists of social demographic factors, experience of victimization, opportunity factors, and social context factors to explain the public's fear of crime on social networking sites (SNS). The model is based on the risk interpretation model, which predicts that these factors influence users' fear of crime victimization. Using data from 486 university students in South Korea, an empirically-tested model suggests that sex and age have direct and significant effects on fear of victimization, supporting the vulnerability hypothesis. Among opportunity factors, the level of personal information and the number of offending peers have significant effects on fear of victimization through the medium of the perceived victimization risk, although the effect of SNS usage time is not significant. In addition, it was revealed that experience of victimization has a direct effect on fear of victimization. Furthermore, findings indicate that bridging social network has a direct and indirect positive effect on fear of victimization, and collective efficacy has an indirect effect on fear of victimization. Results show that incidents in SNS have the strongest effect on fear of victimization among various factors in this model without being mediated by the perceived victimization risk. Overall, this study supports a structural model for the fear of victimization.

Introduction

Fear of crime is a serious social problem. Crime itself can negatively affect individuals' mental health and society by creating anxiety and distrust (Ferraro, 1995; Lewis and Salem, 1986; Park and Lee, 2010). These consequences have been extended to cyberspace since the emergence of the Internet, as a wide range of criminal activities have been committed online. Cybercrime has made people using the Internet similarly become afraid of online victimization. Choi (2010) reported that over 60% of his college student participants indicated identify theft as the most feared cybercrime. A recent study

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reported that two-thirds of Americans also worry about becoming victims of interpersonal cybercrime, including bullying, harassment, or stalking in cyberspace (Choi, 2015). One study found that adults in the U.S. are more fearful of Internet crimes than traditional crimes (Reinhart, 2017). This report is even more alarming when one considers that cyber-victimization is one of the most rapidly growing types of crime (Morgan, 2017).

Social networking sites (SNS) or applications, also known as social media, are online platforms that have been rapidly growing over the last few years. They have become an integral part of life, creating a ubiquitous outlet for communicating with and disseminating information to others. However, social media, exemplified by Twitter and Facebook, also opens the door to various cyber threats such as cyberbullying, communication with strangers, confidential information disclosure, identity theft, malware, or scams. In fact, recent research reported that the overall use of social media is positively correlated with an individual's fear of crime (Intravia, Wolff, Paez, & Gibbs, 2017). Nevertheless, few efforts have been directed towards addressing the extent and nature of fear of crime in social media.

To date, numerous studies have been done to find the determinants of anxiety regarding potential victimization. Researchers have examined various factors that affect traditional fear of crime and proposed several models, including those focusing on vulnerability, victimization, disorder, social integration, and risk interpretation (Cohen et al., 1981; Covington and Taylor, 1991; Ferraro, 1995; LaGrange, Ferraro, & Supancic, 1992; Meier and Miethe, 1993; Rountree and Land, 1996; Skogan and Maxfield, 1981; Taylor and Hale, 1986; Warr, 1984). Although researchers' understanding of conventional fear of crime has greatly improved, inadequate empirical research has been conducted on fear of victimization in cyberspace (Henson, Reyns, & Fisher, 2013) as well as on social media platforms (Intravia et al., 2017). It is unknown whether established theories regarding fear of traditional crime can be applied in the context of social media and online environments.

Given the increasing influence of social media, more empirical research is needed to examine what factors affect fear of victimization on SNS. The present research attempts to account for fear of criminal victimization on social media by constructing and empirically testing an integrated structural model based on Ferraro's (1995) risk interpretation model. Using a sample of 486 university students in South Korea, several established factors of traditional fear of crime (e.g., factors of the vulnerability model, the victimization model, the disorder model, the social integration model, the social demographic, and the social media environment) are addressed in the developed model to identify which predictors have either direct or indirect influence on fear of victimization on SNS. The research question can be summarized as exploring what factors influence fear of victimization in the social media environment.

Literature Review

Victimization and Vulnerability Models

Earlier studies on fear of crime mainly focused on predictors at the individual level. One compelling explanation of this fear comes from the victimization model that suggests the level of fear is higher for individuals who have previously been victimized than those who have not experienced victimization (Skogan and Maxfield, 1981). The fear of crime is a direct consequence of prior victimization. Additionally, there are studies that have argued that individuals who have the vicarious experience of crime tend to be even more fearful of being victimized than those who were actually previously victimized (Ferraro, 1995; Liska, Sanchirico, & Reed, 1988). For instance, individuals who watched television programs showing crimes or met people having been previously victimized were more likely to be anxious about victimization (Skogan and Maxfield, 1981; Taylor and Hale, 1986). Nevertheless, this model

of victimization cannot fully explain why a fair number of non-victimized individuals, those who are neither directly nor indirectly victimized, still suffer from fear of crime (M. Braungart, R. Braungart, & Hoyer, 1980; Clement and Kleiman, 1977).

Other perspectives may account for fear of crime at the individual level. The vulnerability model suggests one's vulnerability to victimization has greater influence on fear of crime than one's prior victimization; the level of vulnerability towards crime varies depending on individuals' social and demographic characteristics, primarily sex and age (Choi, Choo, & Sung, 2016; Warr, 1984). In addition, opportunity factors, which have been given relatively little attention despite their importance in criminal victimization theories (Cohen et al., 1981; Meier and Miethe, 1993), could influence fear of victimization if those opportunities (e.g., exposure to risk, target attractiveness, and the lack of guardian) are related to victimization and increase its risks (Cohen et al., 1981; Kanan and Pruitt, 2002; Kennedy and Forde, 1990; Mier and Miethe, 1933; Rountree and Land, 1996).

In sum, individuals who have either experienced direct or indirect victimization, or those who are vulnerable and prone to victimization due to their routine activities, could be more fearful of victimization (Choi, 2008; Choi, 2010; Choi, 2015; Choi, S. Lee, & J. Lee, 2017). Henson and colleagues (2013) used a sample of college students to examine fear of online interpersonal crime. That study found that individuals who were female, younger, and previously victimized in cyberspace were more likely to be fearful of online victimization; the level of online exposure such as Internet usage and using date sites, however, was not significantly related to fear of crime online. A more recent study also reported that prior victimization experiences online, as well as social and physical vulnerabilities, affected fear of online crime, both directly and indirectly (Virtanen, 2017).

Disorder and Social Integration Models

A growing body of fear of crime research has focused on the local community. According to broken windows theory (Wilson and Kelling, 1982), disorder in the community indicates that the community lacks the power for social control; thus, it contributes to the perception that crime is hard to control, resulting in an increase in the perceived victimization risk as well as fear of victimization in the neighborhood.

Disorder in communities consists of physical disorder, such as litter on the street, graffiti on the walls, or abandoned vehicles; neighborhood social disorder includes gangs, public intoxication, prostitutes, or homeless persons living on the street. Previous studies examined disorder in communities (Rountree and Land, 1996; Taylor and Hale, 1986), as well as the individual's perception of community disorder (Covington and Taylor, 1991, LaGrange et al, 1992); fear of crime researchers have confirmed a link between fear of crime and disorder in the community measured at both levels.

Social integration model, stemming from social disorganization theory by Shaw and Mckay (1942), is another community level explanation. It states that weak integration of community members is significantly related to fear of crime. In fact, fear of crime literature reports that residents in socially disorganized areas tend to worry about crime because they believe that social control has been compromised, which increases the possibility of victimization (Rountree and Land, 1996; Skogan and Maxfield, 1981; Taylor and Hale, 1986). In addition, a host of findings are in line with the social integration model in their findings that the level of social integration has a negative relationship with fear of crime (Rountree and Land, 1996; Skogan and Maxfield, 1981).

Fear of crime researchers have turned their attention to the concept of collective efficacy more recently, which includes community solidarity and informal social control (Sampson, Raudenbush, &

Earls, 1997). It is argued that high levels of collective efficacy contribute to decreasing fear of victimization (Gibson, Zhao, Lovrich, & Gaffney, 2002).

Many researchers have found that neighborhood disorder has more of an effect on fear of crime than collective efficacy does (Ferguson, & Mindel, 2007; T. Franklin, C. Franklin, & Fearn, 2008; Gibson et al., 2002; McCrea, Shyy, Western, & Stimson, 2005). For instance, Franklin and colleagues (2008) compared the models of vulnerability, disorder, and social integration, concluding that disorder in communities is the most influential explanation among them. Park and Lee (2010) reported that neighborhood social disorder has a greater effect on fear of crime than neighborhood physical disorder; the same result has been found in other empirical studies using adolescent samples (Park, 2012; S. Lee, Park, & J. Lee, 2012).

Although limited research has applied social environmental factors to cyberspace, Lee and Hwang (2018) reported that the level of online illegal acts, a gauge of collective efficacy and disorder in cyberspace, is one of the factors associated with cybercrime, which indicates that individuals using these online environments are linked to a greater risk of victimization as well as more fear of it.

Risk Interpretation Model

The risk interpretation model provides an integrated view on fear of crime which combines individual and community-level characteristics (Ferraro, 1995). Ferraro argues that the victimization risk perceived by individuals based on their individual and community characteristics are key factors determining fear of crime. The perceived risk of victimization, which causes fear of crime, is primarily derived from individuals' social demographic factors, level of exposure to victimization risk, and macro environment characteristics such as neighborhood disorder and weak social ties. For instance, Lee (2000) found that an individual's victimization experiences and disorder factors, especially neighborhood social disorder, escalate victimization risk, influencing fear of crime. Ferguson and Mindel (2007) reported that not only do sex, age, and previous victimization have effects on fear of crime, but neighborhood disorder and collective efficacy also directly or indirectly impact fear of crime through perceived victimization risk.

Within the context of cyberspace, Henson and colleagues (2013) compared the relative strength of these effects across several factors, including prior online victimization, sex, age, online exposure to victimization risk, and perceived risk of online victimization (See also Choi and Lee, 2017). They found perceived risk of online victimization most significantly associated with fear of online victimization. This finding supports the notion that online environmental factors may affect fear of online victimization through perception and interpretation of victimization risk.

Method

Statement of the Testing Model

Based on the risk interpretation model, this research attempts to present an integrative model that examines several variables to determine which factors have an effect on fear of victimization within social media, either directly or indirectly, through the perceived victimization risk. Variables assessed in the previous fear of crime literature were used: social demographic (e.g., victimization experience, sex, and age), opportunity (e.g., exposure to victimization risk, target attractiveness, and lack of guardian), and SNS environmental factors (e.g., disorder and collective efficacy). These variables were used to explore whether previously established factors for conventional fear of crime also affect fear of victimization on social media.

Based on the victimization and vulnerability models, it is expected that those who are more vulnerable (e.g., women and the elderly) or who have experienced direct or indirect online victimization, will be more likely to perceive higher risk of victimization and therefore be more likely to feel fearful about being victimized on SNS.

Regarding opportunity factors as main predictors of victimization (Bossler and Holt, 2009; Reyns, Henson, & Fisher, 2011), it is expected that exposure to risk, target attractiveness, and lack of capable guardianship will influence fear of crime via increased victimization experiences or heightened perceptions of victimization risk. Therefore, this study will use SNS usage time (exposure to risk), personal information on SNS (target attractiveness), and offending peers. With these variables, the following hypotheses were made: (1) those who spend more time on SNS, disclose their personal information on SNS, and have offending peers on SNS will be more fearful of online crime. In other words, the more time individuals spend on SNS, the more likely they will be exposed to the risk of online victimization; those who disclose their personal information will be more attractive targets, elevating their victimization risk online; having offending peers—used as an indicator of lower levels of social monitoring—will increase the possibility of and perceived risk of online victimization.

In terms of the SNS environment factors, social networking properties that have been used as key variables in previous research will be employed. There are two forms of social capital on SNS: bridging and bonding (Putnam, 2000). Bridging is characterized by weak social ties with new people based on the extended network, highlighting sharing and exchanging information openly and freely; whereas bonding features strong social ties with familiar groups such as family or friends, emphasizing closed-sharing emotions. Some platforms (e.g., Twitter) represent enlarged bridging, featuring rapid delivery of information; others (e.g., Facebook) resemble a type of bonding because they lend themselves more readily to sharing emotions with friends (Choi and Park, 2011). As bridging exposes users to strangers more than bonding, it is expected that people using social media platforms that tend to encourage bridging may be more likely to experience fear of victimization online. These characteristics may affect collective efficacy or disorder factors; bonding networks revolving around close friends can engender increased collective efficacy, social ties, and informal control than their bridging counterparts.

While there have been arguments supporting the mutual influences between disorder and collective efficacy (Markowitz, Bellair, Liska, & Liu, 2001) or the notion that community disorder affects social integration and collective efficacy (Gainey, Alper, & Chappell, 2011; Gibson et al., 2002), most scholars have agreed that collective efficacy precedes disorder (Lee et al., 2012; Sampson and Raudenbush, 1999). In fact, a host of empirical studies have reported that effects of community disorder are larger than those of collective efficacy (Cho and Jung, 2015; Ferguson, & Mindel, 2007; Franklin et al., 2008; Park and Lee, 2000). In addition, Lee and colleagues (2012) found that although the effect of community disorder on collective efficacy is not significant, low collective efficacy leads to community disorder, which in turn leads to fear of crime.

The structural causal model for this study is illustrated in Figure 1 (below). According to the proposed model, the characteristic of bridging and bonding will affect collective efficacy, which in turn, impacts disorder and influences fear of victimization. Based on the risk interpretation model, those SNS environmental factors will elevate the possibility of victimization as well as the perception of victimization risk, affecting the fear of victimization. In this model, features of social networks and collective efficacy will have effects on disorder, victimization experience, and perceived risk of victimization.

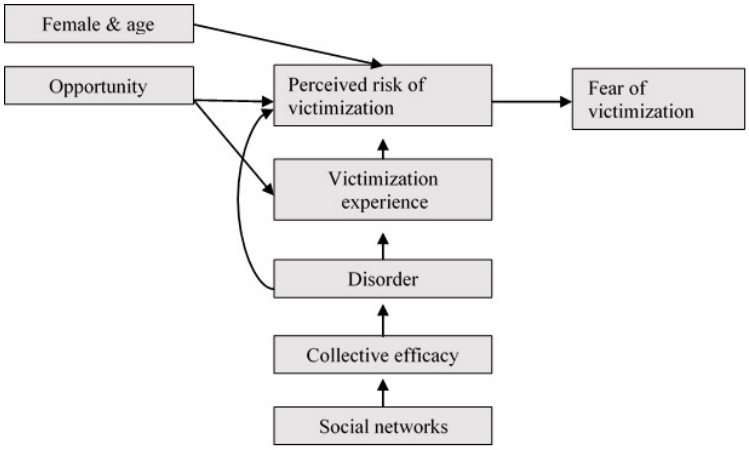

Figure 1. A Structural Causal Model on Fear of Crime on Social Networking Services.

Data and Sample

This study utilized a sample of college students enrolled in several urban universities located in South Korea because of its enormous accessibility at that time: In 2012, it was estimated that the Internet usage rate in South Korea was 78.4 percent; 67.1 percent of Internet users were also social media users; and the most common Korean social media users, at 89.7 percent of Internet users, were in their twenties (Korean Internet & Security Agency, 2012). A total of 800 surveys were distributed; 100 persons from 8 different universities, with 762 completed between June 25 and July 9 in 2012. Among them, 486 respondents were identified as SNS users (63.7%) and were thus selected for analysis.

Measures

Independent variables. Seven sets of independent variables were utilized in the subsequent analysis: (1) vulnerability, (2) opportunity, (3) social network, (4) collective efficacy, (5) disorder, (6) experience of victimization on SNS, and (7) perceived risk of victimization.

Vulnerability. Age and gender were used as vulnerability variables. Age was measured in years at the time of the survey and responses to gender were dichotomized (0 = male, 1 = female).

Opportunity. Three measures of opportunity were used: (1) SNS usage time, (2) target attractiveness, and (3) offending peers. Regarding target attractiveness, the level of personal information was a composite of 3-questions (alpha = .724), asking: (a) On the SNS, I tend to disclose personal information, (b) I often post my daily life on SNS, and (c) I always present my opinion frankly on SNS. The number of offending peers was measured by asking, “Of those who are close to you on the Internet, there is a person who violates the law on the Internet.” SNS usage time was a short-answer questions; the other questions were answered with a five-point Likert scale (‘Strongly disagree’; ‘Disagree’; ‘Neutral’; ‘Agree’; ‘Strongly agree’).

Social network. The characteristic of bridging and bonding on social networks was measured with questions used by Williams (2006). The measure of bridging was a composite of 10 items, including a question asking, “People with whom I communicate make me become interested in people who think differently from me.” (alpha=.925); bonding was also composed of 10 items that included a question

asking, "of those with whom I communicate, there are people whom I can ask for advice when I make a decision" (alpha=.924). A five-point Likert-type scale was employed.

Collective efficacy. Collective efficacy was operationalized by aggregating two elements: social ties and informal control. The measure of social ties was a composite of four items based on questions used in Browning and colleagues' (2004) study, stemming from Sampson et al. (1997). Those questions were adapted into questions examining efficacy within the context of the Internet or SNS, which includes an item asking, "The members of your group on the Internet are close to each other." The informal control measure was also composed of four items, including a question asking, "The members of the Internet I am using sometimes work to create a healthy culture." A five-point Likert-type scale was used.

Disorder. Levels of disorder on SNS were measured using a five-point Likert-type scale, consisting of three questions such as "Law violations are common on the Internet." (alpha = .851)

Experience of victimization on SNS. Sixteen items were scored; the score of each item was added up to assess the level of online victimization experiences on SNS: (1) abusive remarks, (2) slander, (3) false information/rumors, (4) bullying, (5) threats, (6) stalking, (7) sexual harassment, (8) sex trafficking, (9) pornography, (10) the spread of personal information (photo/video), (11) personal information leaks (social security/ID number), (12) hacking, (13) malware/virus, (14) spam email/message, (15) fraud, and (16) copyright infringement. To interpret scores more easily, the scale was arranged from 0 (Never), 1 (1 time), 2 (2-3 times), 4 (4-9 times), to 5 (more than 10 times).

Perceived risk of victimization. One item was measured using a five-point scale, asking "I think there are many ways to be victimized via the SNS I am using."

Dependent Variables

Fear of victimization. To assess fear of victimization on SNS, respondents were asked to rate a five-point scale measuring how afraid they were of being victimized on the SNS they are using. In addition to this general question, a similar question was also asked regarding five specific types of victimization: (1) verbal abuse, (2) sexual harassment, (3) privacy infringement, (4) hacking/malware, and (5) property damage.

Table 1 shows the descriptive statistics and their measurements in the current study. Among the 486 respondents whose average age was 22 years old, 274 persons were male (56.4%) and 212 were female (43.6%). The mean daily SNS usage time was approximately 2 hours; the mean level of personal information (which ranged from 3 to 15) was 9.823; and the mean number of offending peers, which ranged from 1 to 5, was 2.012. In terms social network, the average scores were similar between bridging (30.231) and bonding (30.025). The mean score was 25.996 for collective efficacy, with a range of 8 to 40; 6.415 was the mean disorder, with a range of 3 to 15; 1.197 was the mean experience of victimization in SNS, with a range of 0 to 24; and finally, 2.448 was the mean perceived risk of victimization, with a range of 1 to 5.

Regarding the dependent variables, the average score of fear of victimization was 2.270. Specifically, the highest mean score was personal information leak (2.840), followed by malware and virus (2.670); sexual harassment was the lowest (2.230). This study only used fear of victimization for analysis.

Table 1. ***Descriptive Statistics***

Measures	N (%)	Mean	SD	Range
Sex				
Male	274 (56.4)			
Female	212 (43.6)			
Age		21.745	2.324	18-28
SNS usage time		1.940	2.010	0-12
Personal information		9.823	2.308	3-15
Offending peers		2.012	0.876	1-5
Bridging network		30.231	6.626	10-50
Bonding network		30.025	6.605	10-50
Collective efficacy		25.996	4.436	8-40
Disorder		6.415	2.301	3-15
Experience of victimization in SNS		1.197	3.143	0-24
Perceived risk of victimization		2.448	0.911	1-5
Fear of victimization				
General		2.270	0.937	1-5
Verbal abuse		2.310	0.995	1-5
Sexual harassment		2.230	0.965	1-5
Privacy infringement		2.840	1.218	1-5
Hacking/malware		2.670	1.156	1-5
Property damage		2.390	1.043	1-5

LISREL software was utilized to examine the proposed model. The estimated model is shown in Table 2. The chi-square for the model was 3241.72 ($p<.001$); CFI (.92), IFI (.92), NFI (.89), and RMESA (.082), indicating the model's good enough fit.

Table 2. *The Estimated Model*

Theoretical concepts	Measures	LAMDA	Validity
Sex	Female	1.00	1.00
Age	Age	1.00	1.00
SNS usage time	SNS usage time	1.00	1.00
Personal information	Personal information 1	1.00	0.46
	Personal information 2	1.08	0.54
	Personal information 3	0.88	0.36
Offending peers	Offending peers	1.00	1.00
Bridging network	Bridging 1	1.00	0.49
	Bridging 2	1.08	0.58
	Bridging 3	1.10	0.60
	Bridging 4	1.08	0.58
	Bridging 5	1.12	0.62
	Bridging 6	1.16	0.66
	Bridging 7	1.00	0.50
	Bridging 8	1.00	0.50
	Bridging 9	0.83	0.34
	Bridging 10	0.57	0.16
Bonding network	Bonding 1	1.00	0.58
	Bonding 2	1.09	0.69
	Bonding 3	1.10	0.71

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Tabel 2 – continued from previous page

Theoretical concepts	Measures	LAMDA	Validity
	Bonding 4	1.07	0.66
	Bonding 5	0.66	0.25
	Bonding 6	0.81	0.39
	Bonding 7	0.72	0.30
	Bonding 8	0.61	0.22
	Bonding 9	0.89	0.46
	Bonding 10	0.83	0.40
Collective efficacy	Collective efficacy 1	1.00	0.50
	Collective efficacy 2	1.05	0.56
	Collective efficacy 3	1.18	0.71
	Collective efficacy 4	1.09	0.60
	Collective efficacy 5	0.55	0.15
	Collective efficacy 6	0.47	0.11
	Collective efficacy 7	0.48	0.12
	Collective efficacy 8	0.53	0.14
Disorder	Disorder 1	1.00	0.62
	Disorder 2	1.07	0.70
	Disorder 3	0.99	0.61
Experience of victimization	Experience of victimization in SNS	1.00	1.00
Perceived risk of victimization	Perceived risk of victimization	1.00	1.00
Fear of victimization	Fear of general victimization	1.00	1.00

Result

Table 3 displays the findings on fear of victimization on SNS. The collective efficacy measure was positively influenced by bridging ($p < .05$) and bonding ($p < .001$) networks; yet, negatively by disorder ($p < .001$). The relationship between disorder and the bridging and bonding networks was not statistically significant. In terms of the victimization experience measure, the effect of bridging network was positive ($p < .01$) whereas bonding network was negative ($p < .001$); and collective efficacy, disorder, and opportunity measures were all not statistically significant.

Regarding perceived risk of victimization as a mediator variable and fear of victimization as a dependent variable, results indicated that bridging network has a positive influence on the perceived risk of victimization ($p < .05$); a direct and positive affect on fear of victimization ($p < .01$). The bonding network had a negative effect on the perceived risk of victimization ($p < .001$), but no effect on fear of victimization. It was revealed that both perceived risk and fear of victimization have no statistically significant relationships with collective efficacy; however, they had a direct and significant relationship with disorder ($p < .001$). This indicates that collective efficacy has an indirect influence on fear of victimization via the perceived risk of victimization.

Although sex, age, and victimization experience were not significantly associated with perceived risk of victimization, they had direct effects on fear of victimization, indicating that those who are female ($p < .001$) and older ($p < .01$) and have experienced victimization on SNS ($p < .001$) are more likely to fear victimization on SNS.

Table 3. Coefficients table of the testing model on fear of victimization

Independent variables	Dependent variables				
	Collective efficacy	Disorder	Victimization experience	Perceived risk of victimization	Fear of victimization
Bridging network	0.17*	0.01	0.35**	0.23*	0.28**
Bonding network	0.36***	−0.06	−0.35***	−0.43***	−0.01
Collective efficacy		−0.17***	0.03	0.04	−0.06
Disorder			0.19	0.52***	0.46***
SNS usage time			0.06	0.03	−0.06
Personal information			0.16	0.43*	−0.11
Offending peers			−0.01	−0.17*	−0.13
Female				−0.05	−0.16***
Age				0.08	0.12**
Victimization experience				0.03	0.21***
Perceived risk of victimization					0.11*

*p<.05, **p<.01, ***p<.001

While the opportunity measures do not directly affect fear of victimization on SNS, it appears that the more individuals disclose their personal information on SNS, the higher perceived risk of victimization they have ($p < .05$). In addition, those who have fewer offending peers on SNS were more fearful of victimization on SNS, which contrasts with expectations. Lastly, the perceived risk of victimization, used as a mediator variable, had a significant and positive effect on fear of victimization on SNS ($p < .05$). The results from the structural casual model on fear of victimization on SNS is displayed in Figure 2.

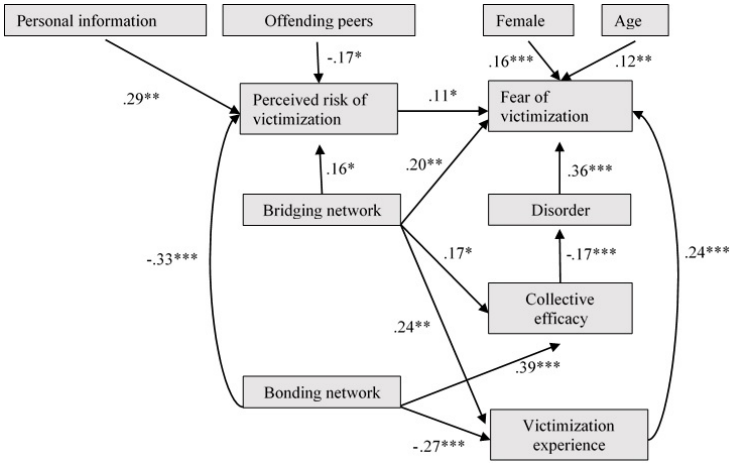

Figure 2. Analysis Results from The Structural Causal Model on Fear of Victimization on SNS

Discussion And Conclusion

To account for fear of victimization on SNS, this study constructed and empirically tested a structural causal model composed of elements that were previously used in the fear of crime literature:

social demographic factors, experience of victimization, opportunity factors, and social context factors. The model suggests those elements influence fear of victimization via the perception of victimization risk on SNS.

With regards to the social demographic factors, the results show that sex and age directly affect fear of victimization on SNS: women and older users were prone to higher fears of victimization on SNS, which supports the vulnerability hypothesis. In terms of opportunity, the findings indicated that those who expose higher levels of personal information and have more offending peers on SNS tend to be more fearful of victimization through perceived risk of victimization, partially supporting the opportunity hypothesis. In addition, the direct effect of victimization experience on fear of victimization on SNS supports the victimization hypothesis.

Regarding the social context factors, although it was suggested that bridging network may be associated with a higher level of collective efficacy and a lower level of disorder, which could lead to lower levels of fear of victimization on SNS, the impact of this indirect relationship was weak. In addition, the findings show that bridging network has a direct and positive influence on fear of victimization, and respondents who use the bridging-focused social networks tended to have more victimization experiences and higher levels of perception of victimization risk; therefore, being more prone to fear of victimization on SNS. However, respondents using bonding-centric social networks were more likely to have higher levels of collective efficacy as well as lower levels of disorder, victimization experience, and perceived risk of victimization; thus, being less likely to fear victimization on SNS.

Fear of victimization was negatively influenced by collective efficacy only in an indirect way through disorder; but this influence was positive, direct, and strong. Therefore, this model supports the disorder hypothesis more than the social integration hypothesis.

Overall, the current study produced results that somewhat support the proposed structural causal model based on multiple models pertaining to fear of crime. Given that some variables impact fear of victimization not through the perceived risk of victimization but directly, and fear of victimization is slightly affected by the perceived risk of victimization, the risk interpretation model is not strongly supported. However, given that most individual and social network environmental factors have influences on fear of victimization and some of them use perceived risk of victimization as a mediator variable, the model may be useful in explaining the fear of victimization on SNS.

Due to the direct effect of social demographic and victimization experience factors, it is necessary to identify a mediating factor. Given that the opportunity factors that address only certain variables were relatively weak predictors, an analysis with new variables is needed. Considering macro-level factors were the strongest predictors in the current research, particular attention needs to be drawn to the social network's contextual aspects in coping with the fear of victimization on SNS. In that sense, a public awareness campaign can play a vital role in teaching users how to use social media more wisely.

The aim of the awareness campaign is to help users find safer ways to use social media. While there are many benefits of using social media, such as staying connected with friends, interacting with others who share similar interests, and communicating with others by sharing ideas and information, the campaign sheds light on the downsides of social media and instructs users on how to take advantage of social media while cautioning them about risks users should avoid (Choi, Earl, Lee, & Cho, 2018). Young people are prone to engage in online risky behaviors, such as revealing their personal information, posting photos of themselves, and sharing their location (Choi, 2015). Given that social media can be a venue for cybercrime, risky activities on such platforms can make them vulnerable targets for cyber predators with malicious intentions. The campaign therefore urges users to 1) refrain

from disclosing their personal information and posting photos of themselves to others they are not familiar with, 2) stop receiving online advertising, posts, and information that are inappropriate for their age, and 3) block online contacts who seem suspicious or make them feel uncomfortable. Furthermore, encouraging active reporting of inappropriate messages and posts can help reduce the possible fear of victimization on social media.

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Appendix

Survey Questionnaire

Vulnerability

1. Please respond to following questions regarding your personal details.			
1	What is your sex?	(1) Male	(2) Female
2	What is your age?	(	) years

Opportunity

SNS usage time

2. How much time do you spend using SNS a day?
(About) Hours

Target attractiveness

3. Please answer the following questions related to the use of SNS						
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	On the SNS, I tend to disclose personal information.	1	2	3	4	5
2	I often post my daily life on the SNS.	1	2	3	4	5
3	I always present my opinion frankly on the SNS.	1	2	3	4	5

Offending peers

4. From here, all of you are required to answer the following questions regarding SNS.						
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	Of those who are close to you on the Internet, there is a person who violates the law on the Internet.	1	2	3	4	5

Social network

Bonding

5. From here, all of you are required to answer the following questions regarding SNS.						
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	Of those with whom I communicate, there are people who I trust that they will help me solve my problem.	1	2	3	4	5
2	Of those with whom I communicate, there are people whom I can ask for advice when I make a decision.	1	2	3	4	5
3	Of those with whom I communicate, there is a person with whom I feel comfortable talking about personal issues.	1	2	3	4	5

Continued on next page

Tabel 4 – continued from previous page

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
4	Of those with whom I communicate, there are many people with whom I can talk when I feel lonely.	1	2	3	4	5
5	Of those with whom I communicate, I know a person from whom I can borrow money when I need it urgently.	1	2	3	4	5
6	I can enhance relationships with people I already know by using SNS.	1	2	3	4	5
7	People with whom I communicate will be good references.	1	2	3	4	5
8	People with whom I communicate are so honest that I feel I can share my last money with them.	1	2	3	4	5
9	Those with whom I communicate are people I know enough to entrust them with some important tasks.	1	2	3	4	5
10	People with whom I communicate will hele me fight against injustice.	1	2	3	4	5

Bridging

6. From here, all of you are required to answer the following questions regarding SNS.						
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	People with whom I communicate make me become interested in what is happening in the world.	1	2	3	4	5
2	People with whom I communicate make me want to try something new.	1	2	3	4	5
3	People with whom I communicate make me become interested in people who think differently from me.	1	2	3	4	5
4	People with whom I communicate make me feel like a member of a group.	1	2	3	4	5
5	People with whom I communicate make me curious about different parts of the world.	1	2	3	4	5
6	People with whom I communicate allow me to consider different contexts and options.	1	2	3	4	5
7	Communicating on SNS reminds me that all of the world is interconnected.	1	2	3	4	5
8	By using SNS, I am willing to spend time contributing to general community activities.	1	2	3	4	5
9	Communicating on SNS allows me to talk with new people.	1	2	3	4	5
10	Communicating on SNS allows me to connect with new people.	1	2	3	4	5

Collective efficacy

Social ties

7. From here, all of you are required to answer the following questions regarding SNS.						
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	The members of your group on the Internet can trust each other.	1	2	3	4	5
2	The members of your group on the Internet share similar ideas with each other.	1	2	3	4	5
3	The members of your group on the Internet are close to each other	1	2	3	4	5
4	The members of your group on the Internet are close to each other	1	2	3	4	5

Informal control

8. From here, all of you are required to answer the following questions regarding SNS.						
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	On the Internet I am using, it is not easy to break the law due to appropriate regulations.	1	2	3	4	5
2	On the Internet I am using, if an inappropriate message is posted on a bulletin board, it will be deleted immediately.	1	2	3	4	5
3	On the Internet I am using, there are shared rules or norms that ensure an enjoyable experience.	1	2	3	4	5
4	The members of the Internet I am using sometimes work to create a healthy culture.	1	2	3	4	5

Disorder

9. From here, all of you are required to answer the following questions regarding SNS.						
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	Law violations are common on the Internet.	1	2	3	4	5
2	On the Internet I am using, people who violate the law are treated better than normal.	1	2	3	4	5
3	Law violations are somewhat acceptable on the Internet I am using.	1	2	3	4	5

Experience of victimization in SNS

10. Have you ever suffered any of the following while using it (SNS or Internet message board) for the past year? If yes, please specify the number of times						
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	I have heard bad words from someone while using SNS.	1	2	3	4	5
2	I have been defamed by someone with false rumors or slander while using SNS.	1	2	3	4	5
3	False information or groundless rumors about me have been spread while using SNS.	1	2	3	4	5
4	I have been harassed by a group of people while using SNS.	1	2	3	4	5

Continued on next page

Tabel 6 – continued from previous page

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
5	I have been threatened or intimidated by someone while using SNS.	1	2	3	4	5
6	I have been stalked by someone constantly/repeatedly while using SNS.	1	2	3	4	5
7	I have been sexually offended by someone while using SNS.	1	2	3	4	5
8	I have been offered sex trafficking services by someone while using SNS.	1	2	3	4	5
9	I have received illegal pornography from someone against my will while using SNS.	1	2	3	4	5
10	Videos or photos of me have been spread via SNS without my consent.	1	2	3	4	5
11	Someone has used or abused my personal information (Social security number/ID) secretly via SNS.	1	2	3	4	5
12	Videos or photos of me have been spread via SNS without my consent.	1	2	3	4	5
13	I have received malware or a virus which damaged my devices via SNS.	1	2	3	4	5
14	I have received commercial spam via SNS.	1	2	3	4	5
15	I have suffered damage from fraud via SNS.	1	2	3	4	5
16	Some of my music, movies, games, etc. have been uploaded on it and I have suffered from copyright infringement.	1	2	3	4	5

Perceived risk of victimization

11. From here, all of you are required to answer the following questions regarding SNS.						
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	I think there are many ways to be victimized via the SNS I am using.	1	2	3	4	5

Fear of victimization

12. Please respond to following questions about fear of victimization there (SNS or Internet message board).						
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	I am afraid of being victimized by crimes from someone while I am using it.	1	2	3	4	5
2	I am afraid of being threatened with physical and verbal violence while I am using it.	1	2	3	4	5
3	I am afraid of being victimized by sexual harassment/prostitution/pornography while I am using it.	1	2	3	4	5
4	I am afraid of having my personal information abused while I am using it.	1	2	3	4	5
5	I am afraid of being victimized by malicious code/hacking/spam while I am using it.	1	2	3	4	5
6	I am afraid of property damage such as fraud while I am using it.	1	2	3	4	5