



"HOW SAFE DO YOU FEEL OUT ALONE ONLINE?"

FEAR OF CRIME AND CYBERCRIME: A
SYSTEMATIC LITERATURE REVIEW

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Fear of crime is a well-explored field within criminology. Although inconsistencies exist, it is mostly defined as an emotional reaction to crime or aspects of crime. Consequences can affect society indirectly but are mainly on an individual level. For example, an individual can decide to avoid certain environments. One of these environments can be cyberspace, the internet, as individuals can experience fear of online criminal activity. This area of research has not been explored as much as fear of traditional crime. A systematic literature review is conducted to analyse the body of research that applies the concept fear of crime to cybercrime. With the purpose to assess the much-discussed concept fear of crime to a new subset of crimes within criminology, cybercrime. This review has shown that challenges and limitations from traditional fear of crime research are still present in fear of crime research of the online environment. Findings are in part in line with previously published studies on the subjects and provide a knowledge base for future research. The paper concludes that the online environment does not seem to stand on its own when it comes to feelings of fear, and that the broader context of an individual's experiences should be considered.

Keywords: Cybercrime; Online Victimization; Fear of Crime; Fear of Cybercrime

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INTRODUCTION

In today's society, individuals can do everything and anything with their computers and mobile phones, mostly using the world wide web to do so. The internet brought opportunities for retail in terms of online stores, accessibility of information increased and so did accessibility of organizations and governments (Wall, 2008b). With the internet came digital social networks which also created benefits (Delerue & He, 2012), making it easier to contact others for social connection and for organizations to contact customers and vice versa.

However, how this technology was developed and the subsequent responses from society, offered an opportunity for new crime types and a new type of criminal to emerge (Li, 2013). It is implied that much of the world's population spends their time on the internet, and therefore it is implied that this group of the population is at risk of becoming a victim of cybercrime (Reep-van den Bergh & Junger, 2018). The internet as an environment is vulnerable for criminal activity (Burden & Palmer, 2003), offenders are anonymous for example and do not have to be physically present to commit the crime. Society might become more dependent on the internet and of online activities for day-to-day life. With an increase of dependency on this technology, an increase in risks and seriousness in threats occurs (Li, 2013). Threats and online crime can undermine confidence in the internet and its security (Burden & Palmer, 2003). It can be a problem for the (internet-dependent) society when individuals become reluctant to use the internet (Riek et al, 2016), and this reluctance can be initiated by feelings of fear of (cyber)crime. Fear is an emotional response that can influence an individual's behaviour and perceptions. The concept 'fear of crime' has been studied for decades and it resulted in diverse outcomes (Hale, 1996). Besides individual predictors of fear, the environment has played a role in predicting fear of crime, however, the internet as environment has not received the same attention as the physical context (Brunton-Smith, 2018; Henson & Reynolds, 2015).

As cybercrime will continue to develop and increase while the technology develops (Li, 2013), understanding the predictors of fear in this new context is necessary. Furthermore, since fear of crime has been researched for decades and crime is changing continuously, criminological concepts and theories need to be critically assessed. Therefore, the area of fear of crime and cybercrime warrants more research and an assessment of the already existing material.

Aim

The above introduced changing landscape from crime to cybercrime, and the problems for individuals and society that comes with it, implies that this topic is of most relevance and importance to further investigate.

The aim of this thesis is to examine literature on fear of crime and cybercrime and to establish a knowledge base for future research on cybercrime. The systematic literature review will aim to answer the following research questions:

- 1) *How is fear of crime research conducted and fear of crime measured in the cybercrime environment?*
- 2) *How is the fear of crime concept applied to cybercrime compared to the application to traditional crime?*

BACKGROUND

Defining cybercrime

Cybercrime is a term used for a wide number of offences that are connected to the internet and technology (Wall, 2008b). Clough (2010:9) assumes that “there are almost as many terms to describe cybercrime as there are cybercrimes”. The complexity of cybercrime might explain why there are different definitions for it (Tsakalidis & Vergidis, 2019). Cybercrime can be defined by the type of crime, the type of victim or the means used to commit the crime. For example, as Clough (2010:10) puts it, cybercrimes are “existing offences where the computer is a tool used to commit the crime”. However, it can be argued that there are more complicated dynamics when it comes to cybercrime. It is therefore interesting to look at it like Burden and Palmer (2003) who make a distinction between crimes that cannot exist outside the cyber environment and traditional crimes that are committed online, in other words cyber-enabled crimes. Crimes can be committed with the internet as a tool but there is no direct victim, illegal downloading is an example of this (Anderson, 2018). However, cybercrime can also be defined by the victim (Tsakalidis & Vergidis, 2019). For example, crimes against property and crimes against the government (Anderson, 2018). But also, crimes that directly target individuals, crimes such as identity theft, credit card fraud, and phishing (financial fraud) target individuals or consumers on and of the internet (Riek et al, 2016). Some crimes share similarities with crimes committed in the physical environment, while others can only be committed on the internet. Take bullying as an example, an individual that is bullied in the physical world often also experiences this in the online world. However, online the bullying can happen at any time and at any place, the bullies do not have to be present and can remain anonymous (Reep-van den Bergh & Junger, 2018).

The before mentioned crimes that directly target an individual is the section of cybercrime that is used for the scope of this thesis: *crimes committed online and through technology that targets an individual that uses internet and technology*. This choice is made because individuals are the ones that can have an emotional reaction to crimes, for example in terms of fear, which will be further explained below. It is therefore the most relevant to include individuals only and focus on this section of cybercrime for the aim of this thesis.

Comparison traditional crime – cybercrime

As previously described, it is possible that offenders moved from traditional crimes to the online world, as the opportunity was there and the risk of being caught was lower (Li, 2013). The internet came with “a world of opportunity for offenders” (Clough, 2010:7) and therefore there are similarities between offline and online crimes. However, there are also some important differences. Because of the number of people that use the internet, there is a large group of offenders and victims. Thus, the scale of offending is much wider in the online world, which would not be possible in the traditional context (Clough, 2010). Related is the fact that everybody that uses the internet can become a victim. To stay anonymous online is much easier for offenders due to technical experience or encryption (Clough, 2010). Furthermore, there is a low likelihood for an offence to be reported. Loss and threats from cybercrimes might not be directly evident or taken seriously and a victim might feel ashamed of the occurrence (Wall, 2008b). Cybercrime is also characterised by the difficulty of investigating and therefore

finding the perpetrators (Brenner, 2012). Besides, when it comes to online fraud, this might be reported to the bank and the offence solved or loss reimbursed and this will not be reported to authorities in another way (Wall, 2008b). Another characteristic to differentiate between cybercrime and traditional crime is the physical or violent element that is not present when it comes to cybercrime (Anderson, 2018).

Cybercrime victimization

There is a challenge in policing to find offenders of cybercrime, which applies to criminological research as well. It is more difficult to collect data from cybercrime offenders than it is from victims (Jaishankar, 2018). Therefore, research that investigates cybercrime victimology is prevalent. For the scope of this thesis, online crimes targeting individuals and the victims of these crimes are discussed, however, cybercrime can also target companies and governments (Anderson, 2018). As already briefly touched upon, anyone that is online can become a victim of cybercrime. An individual's activity online can put one at differing risks in terms of their victimization (Ngo & Paternoster, 2011), in other words depending on where and how they spent their time online they can be exposed to differing cybercrimes. It is evident that the more time individuals spent on the internet the higher the risk of becoming victimized (Rughiniş and Rughiniş, 2014). Furthermore, crimes in the online world can happen more covertly, can advance, and expand quicker, target a wider audience, and happen for a longer time period compared to traditional crimes (Gini, Card, & Pozzoli, 2017). As the previous cyberbullying example shows, crimes targeting an individual can occur in the physical world but have an extension to cyberspace. It is therefore more difficult for a victim to escape the bullying. This example also applies to other crimes such as harassment or stalking. The impact of cybercrime can differ; however, the impact is mostly psychological (Anderson, 2018) and can range from distress to severe mental consequences and individual or public fear (Tsakalidis & Vergidis, 2019).

Fear of crime

Like the conceptualization of cybercrime, a clear agreement on the conceptualization of fear of crime seems to not exist (Collins, 2016; Farrall et al. 1997; Hale, 1996; Henson & Reyns, 2015). Fear of crime is a complex concept and misunderstandings and unclarities are many. It is a contested subject (Farrell et al, 2009), and a social problem, which are “always complicated by definitions” (Lewis & Salem, 2016:XV). Yet a consensus on fear of crime is that it refers to a “(negative) emotional reaction generated by crime or associated symbols” (Hale, 1996:92). Furthermore, fear of crime definitions often include three elements which according to Henson and Reyns (2015:92) “provide a solid foundation”: 1) an emotional response 2) to a danger or threat 3) of an actual or potential criminal incident. For an extensive literature review on the concept fear of crime see Hale (1996).

Limitations to fear of crime research

Collins (2016) argues that the reported levels of fear of crime are impacted by the study design and specifically how fear of crime is measured and/or how fear is asked after in data collection. This is one of the main critique or limitation on fear of crime research. Farrall et al. (1997) discussed the same limitations to fear of crime research almost ten years earlier. This suggests that it has been a reoccurring problem.

According to Farrall et al. (1997), the nature of the asked question has an influence on how a respondent categorizes their own levels of fear. There is a difference in how a respondent answers between open and closed questions, and therefore the level of fear can be affected. Besides, women might think of physical assault when they think of crime and thus report higher levels of fear (Henson & Reyns, 2015). On the other hand, they might not be fearful of theft, but as the respondents associate crime with a physical and/or sexual threat they will report to be fearful. This can be ascribed to the close link between fear of crime and perceived risk (Henson & Reyns, 2015). By attempting to distinguish between these while defining fear of crime has resulted in inconsistencies in definitions and therefore the body of research (Collins, 2016). A common question in studies is: *'How safe do you feel being out alone in your neighbourhood after dark?'*. There has also been discussion on this type of questioning, as it uses a 'global measure', this means that there is no reference made to a specific crime type (Hale, 1996). Thus, respondents can be afraid of the neighbourhood and maybe not specifically about crime, explanation of this can be that they are aware of the criminogenic risk in the neighbourhood. Perceived risk is a judgement whereas fear is an emotion (Collins, 2016) and the concept fear of crime is mainly defined as an emotional reaction to crime or criminogenic environments. In other words, feelings of worry refer to fear of crime, while feelings of safety refer to the perceived risk (Rader, 2004).

Hale (1996) discussed that fear of crime research mostly focused on quantitative methods and a more combined or qualitative approach is needed to understand the complex mechanisms of fear of crime. Rader (2004) discussed the use of cross-sectional data which is prevalent in the research and argues that this type of data makes it difficult to establish cause and effect relationships. Fear of crime as the dependent variable in studies can thus not show if fear is a cause or an effect (Rader, 2014). Besides, studying change and development of feelings of fear has not been possible with previous research designs (Hale, 1996), which suggest that longitudinal data can contribute to a better understanding of fear.

Concluding, fear of crime research has been going through a "vicious circle" (Farrall et al, 1997), due to differential conceptualization and these discussed methodological issues.

Predictors of explaining fear

According to Collins (2016), fear of crime can determine an individual's behaviour and everyone can experience some form of fear in their lifetime. The research often studies predictors or indicators of fear of crime. If these factors are applicable to an individual, they might experience higher levels of fear and vice versa. Predictors of fear can be on a community level, for example perceptions of crime rates and these perceptions can be influenced by media crime news reporting (Hale, 1996). However, most predictors of fear are on an individual level (Henson & Reyns, 2015). Some argue that fear of crime is "the product of victimization" (Farrell et al., 2009:82); victimization experience seems to have a big influence on levels of fear. Although results differ between studies (Rader, 2004), it is a variable that is often included in fear of crime research. Perceived risk and fear of crime has previously been discussed in the section of methodological discussions. Even though methodological issues are noted, perceived risk is prevalent in research as a predictor of fear of crime (Hale, 1996).

Furthermore, the victim-offender relationship is studied as related to levels of fear (Henson & Reynolds, 2015), whether individuals are more afraid of being victimized by a known or unknown perpetrator. Individuals can also experience different levels of fear related to crime seriousness (Hale, 1996). This reflects the seriousness of a crime as individuals perceive it, but also the seriousness of this crime happening to them.

There are demographic characteristics which suggest an individual's vulnerability. Especially gender but also age and race (Henson & Reynolds, 2015). From most of the research, it is concluded that the elderly and women report being fearful, even though this does not relate to their risk of being victimized (Hale, 1996). This vulnerability perspective suggests that when an individual is likely unable to prevent victimization, they are more susceptible to crime and thus are likely to report higher levels of fear (Henson & Reynolds, 2015). Some refer to this as the risk-fear paradox, where individuals or social groups that are most at risk of victimization are less fearful opposed to the vulnerable individuals or social groups (Farrall et al., 2009). However, it has been discussed that men are less likely to report that they are fearful and therefore women are concluded to be more fearful (Rader, 2004).

Besides these individual explanations of fear, the environment or context has been studied related to levels of fear. Physical disorder, for example, rubbish, graffiti, or the presence of likely criminal activity, can increase levels of fear (Henson & Reynolds, 2015). Connected to this is social integration, in a well-integrated context, the levels of fear might be lower due to characteristics of these kinds of places (Henson & Reynolds, 2015).

A limitation is that, as discussed above, there is not a united framework for the concept and therefore these predictors and how they are measured can differentiate between studies.

Consequences and consequential behaviours

Experiencing fear of crime can cause an overall decrease of an individual's wellbeing. It goes from insecurities about possible crime victimization, to taking serious precautions such as restricting one's movement or staying isolated and a decrease in trust in society and others (Farrall et al., 2009). The consequences of fear can thus be on an individual level, but also affect community life and therefore society (Hale, 1996). Furthermore, it has been argued in the research that fear of crime has an impact on crime rates and vice versa. On the one hand, by removing capable guardians (people that stay inside or avoid certain areas) more opportunities are created for offenders. But, when fear of crime results in a collective anti-crime movement this can reduce crime numbers (Hale, 1996). On the other hand, the crime rates influence the levels of fear an individual can experience. Although the picture of crime rates an individual has can be distorted due to media reporting (Hale, 1996).

As briefly mentioned before people can change their behaviour due to the feelings of fear. This can be avoidance behaviour or protective behaviour (Henson & Reynolds, 2015). An assumption is that individuals will try to protect themselves (Hale, 1996), for example when one starts to carry a weapon. But these behavioural consequences can also increase feelings of fear as a reminder that if the individual does not protect themselves, they can be victimized (Rader, 2004).

Fear of cybercrime

Research has explored fear of crime in different contexts, but the online context has not received much attention yet (Brunton-Smith, 2018; Henson & Reynolds, 2015). Even though it is noted that crime seems to move online, and online victimization becomes more prevalent. It can be assumed that as with fear of traditional crime, fear of online crime has an influence on an individual's behaviour. This can affect related areas and individuals, how one behaves and reacts to certain online activities. This fear might overshadow the benefits for which internet was created, such as accessibility of organizations and governments or opportunities for retail and leisure (Wall, 2008b) and can result in individuals avoiding using online services (Riek et al., 2016). It is therefore meaningful to conduct a literature review to estimate how far the research is with fear of online crime, what can be learned from the state of the research and to propose future research for this topic.

METHODS AND ETHICS

Research method

To answer the research questions described in the introduction of this thesis the methodology used is a systematic literature review.

Systematic literature review

There is a large body of information on both the concept fear of crime and cybercrime, however, there is not yet a clear conclusion or knowledge that has come from previous studies. It is therefore of importance to conduct a systematic literature review, to collect, analyse and understand the existing information (Dakduk & González, 2018). With conducting a literature review many of the published work on a certain topic or in a research field is examined and can create a discussion on the knowledge (Davies & Francis, 2018). Hart (1998:198) argues that "all types of research benefit from a systematic review of the literature". However, a brief search on the subject shows that thus far a systematic literature review on the subject fear of crime and cybercrime has not been conducted.

Part of a systematic literature review is to establish search strategies to make sure that all existing relevant research will be considered. The outcome of these searches will then be methodologically examined and analysed (O'Brien & McGuckin, 2016). There are three steps into collecting the correct research according to Hart (1998), firstly a detailed search of the sources, secondly continue from these sources to collect initial studies and lastly to conduct (secondary) evaluations of the included literature. In figure 1 the systematic search of this review is illustrated.

Inclusion and exclusion criteria

All studies that do not have the main subject of testing fear of crime in the online world, with a focus on individual fear and online behaviour, will be excluded. Studies that do have a connection to fear of crime and cybercrime but have another main subject to the study will be excluded as it is outside the scope of this paper. Only studies published in English will be included. Since the topic under

investigation is relatively new in this combination, there is no time limit set to the search.

Search string and Databases

To cover studies that examine the concept fear of crime and cybercrime there are multiple search terms and combinations used. The search terms are established by using the following steps: 1) define text words, 2) determine synonyms for the text words, and 3) control for different spelling (O'Brien & Mc Guckin, 2016).

The final search string used in the databases is:

"fear of online crime" OR "fear of cybercrime" OR "fear of cyber crime" OR "fear of cyber-crime" OR "fear of online victimization" OR "fear of internet crime" OR "fear of cyber victimization" OR "fear of online victimisation" OR "fear of cyber-victimization"

This search string was applied to four different databases. However, results from two databases (Criminology collection and Google Scholar) are mainly used for the review, since the remaining two databases (PsycINFO and Sociological abstracts) mostly resulted in duplicates. Besides the database search, the references of the articles were examined, and this resulted in more articles.

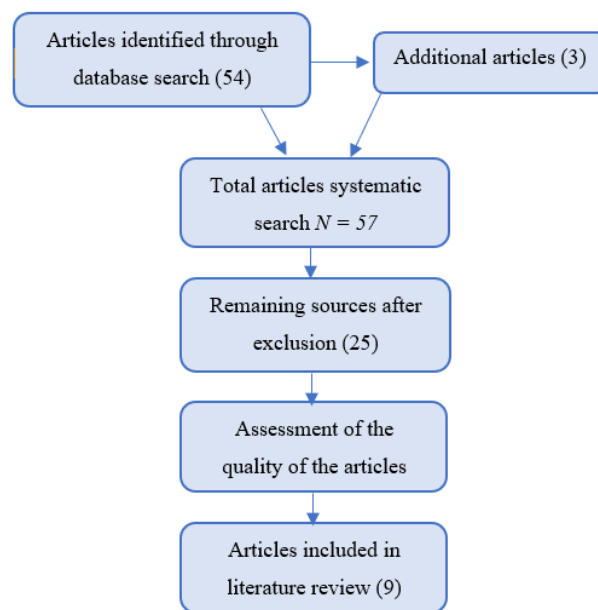


Figure 1: Flowchart systematic search

Assessment of the quality of the literature

After the search string was applied to the different databases and it was controlled for languages and duplicates the literature is assessed to see whether it should be included or excluded in the review. Assessment is based on the abstract and the keywords of the articles. Mainly, the sample group of the study and the main subject of the study were examined to assess the articles. For example, studies that applied fear of crime to cybercrime, but had media representations as the main subject (Wall, 2008a) were excluded. Furthermore, articles can be excluded after assessment of the full text. For example, when the focus of an article is more on testing a theory in the context of fear of crime and cybercrime (Higgins et al., 2008).

Ethical considerations

For this thesis, no interviews or surveys were conducted, and it does not work with sensitive or vulnerable individuals or materials. As the methodology of this thesis works with previous published work, there are no ethical considerations for the scope of this thesis. The studies that are included are ethically approved if relevant and therefore there were no ethical issues found for this study.

RESULTS

Finally, there are 9 articles included in the review (Brands & van Wilsem, 2019; Henson, Reyns & Fisher, 2013; Pereira, Spitzberg & Matos, 2016; Radda & Ndubueze, 2013; Randa, 2013; Roberts, Indermaur & Spiranovic, 2013; Savimäki, Kaakinen, Oksanen & Räsänen, 2018; Virtanen, 2017; Yu, 2014). The search included all articles without a timeframe, however, the articles that are included in the review are from 2008 and later. This suggests, as assumed, that it is a relatively recent and understudied research area. Furthermore, no distinction was made between qualitative or quantitative studies, but all studies included use a quantitative method and two explorative studies are included in the review (Henson et al., 2013; Yu, 2014). The results will be presented starting with the methodological approach in the fear of online crime studies that have been included in this review. Secondly, the application of how the fear of crime concept is studied related to cybercrime and a comparison will be made between fear of crime in the traditional and online context. For this part, the results of the studies from the review articles are presented.

Table 1 shows a summary of the included studies, whether it includes the aspect of traditional crime, how fear is measured, if a methodological discussion as illustrated before is included in the studies and whether consequential behaviour of fear is discussed. These are five themes that are abstracted from the background research which was conducted for this thesis and will now be further discussed.

Methodological discussions

As aforementioned there has been a reoccurring discussion on methodological limitations when it comes to fear of crime research. Farrall et al (1997:659) even suggest that fear of crime “has been significantly misrepresented”. It is therefore of interest to look at how these methodological issues are discussed and/or reduced in the fear of crime research in a new environment, that is online. The discussion of methods in fear of crime research is not brought up in the included studies as would be expected. This can be interpreted that most of the research neglects the limitations that have been broadly discussed in the literature.

Table 1: Summary of findings

Study	Comparison with traditional crime	Measurement fear of crime	Predictors of fear of online crime	Methodological discussions	Behavioural consequences
Brands & van Wilsem, 2019	Indirect*	Intensity	Victimization Vulnerability Exposure	Yes	Protective Avoidance
Henson et al., 2013	Yes	Intensity	Perceived risk Victimization Online exposure Victim-offender relationship	Yes, but minimal	No
Pereira et al., 2016	Yes	Intensity	Cyber-aggressor relationship Persistence of victimization	No	Help-seeking
Radda & Ndubueze, 2013	No	Not specified	Not specified	No	No
Randa, 2013	Yes**	Frequency	Bullying experience Personal crime experience Household total victimizations School environment disorder	No	No
Roberts et al., 2013	Yes	Intensity	Demographic characteristics Fear of physical crime Perceived risk Exposure	Yes	No
Savimäki et al., 2018	No	Prevalence	Online victimization experience Offline victimization Experience Exposure Risk-taking tendency	No	No
Virtanen, 2017	Yes	Intensity	Vulnerability Victimization Exposure	Yes, but minimal	No
Yu, 2014	Yes	Intensity	Perceived risk Perceived crime seriousness Victimization	No	No

*Comparison with traditional crime is not within the scope of the study, however by reviewing fear of crime research and including predictors from this in the study, an indirect comparison with traditional crime is made

**This study includes the impact of online fear on the experiences of the physical world

Note that these results come from interpretation by the author

The discussion on the definition of fear is brought up albeit briefly. Virtanen (2017:329) for example discusses the wordings used in the questionnaire to measure fear as it is “crucial to make a distinction between the concepts of emotion (fear) and cognitive assessment (perceived risk)”. By using the word ‘concern’ it reflects the emotional response thus fear (Virtanen, 2017). The wording in the questioning is also brought up by Brands and van Wilsem (2019), this is a highly discussed limitation when it comes to fear of crime research as previously illustrated. By using words such as fear and worry they “flag[s] the emotional dimension” (Brands & van Wilsem, 2019:9) and it shows that fear is measured as an intensity. The fear of crime is mostly measured in terms of intensity. Henson et al. (2013) explain this properly when discussing the response alternative for the fear variable (from 1 = not afraid at all to 10 = very afraid), which provides an intensity measure instead of only measuring the presence of fear.

The issue of global measurements has been brought up related to fear of crime research. As these review articles show, there has been made a distinction between crime types (Radda & Ndubueze, 2013; Virtanen, 2017; Yu, 2014), or it only focuses on a certain crime type within the context of online crime (Brands & van Wilsem, 2019; Henson et al., 2013; Roberts et al., 2013; Savimäki et al., 2018). Pereira et al., (2016) and Randa (2013) focussed on cyberbullying to measure fear in the online context. Yu (2014:37) discusses that if this distinction is not made it “can lead to misleading conclusions”.

As has been discussed by Rader (2004) the cause and effect relationship has not been clear in fear of crime research. The same conclusion about absence of causality is made by articles included in this review (Brands & van Wilsem, 2019; Henson et al., 2013; Randa, 2013; Savimäki et al., 2018; Virtanen, 2017). Furthermore, to better understand fear of online crime multiple of the authors suggest that a qualitative approach is necessary (Pereira et al., 2016; Roberts et al., 2013; Savimäki et al., 2018; Yu, 2014) and to study change of fear over time longitudinal data is needed (Randa, 2013). This is in line with what Hale (1996) concluded in his literature review on fear of (traditional) crime.

Traditional versus cybercrime

It is noted in the studies that fear of crime might differ between environments and therefore the comparison with traditional crime is prevalent.

Online predictors of fear of crime

In traditional fear of crime research several factors that can predict levels of fear have been included in studies. This review takes these predictors into account when analysing the articles included. Table 2 shows the predictors that are included or not in the reviewed studies.

Table 2: Predictors of fear of crime

Study	Offline victimization experience	Online victimization experience	Vulnerability	Victim-offender relationship	Online exposure/internet use	Demographic characteristics	Perceived risk	Perceived crime seriousness
Brands & van Wilsem, 2019	-	+	+	-	+	+	-	-
Henson et al., 2013	-	+	-	+	+	+	+	-
Pereira et al., 2016	+	+	-	+	-	+	-	-
Radda & Ndubueze, 2013	-	-	-	-	-	+	-	-
Randa, 2013	+	+	-	-	-	+	-	-
Roberts et al., 2013	-	-	-	-	+	+	-	-
Savimäki et al., 2018	+	+	-	-	+	+	-	-
Virtanen, 2017	-	+	+	-	+	+	-	-
Yu, 2014	-	+	-	-	+	+	+	+

- not present in study
+ present in study

Individual variables

Victimization experience is a prevalent variable and as seen in table 2 it also occurs in fear of online crime research. Most studies include only online victimization experience (Brands & van Wilsem 2019; Henson et al., 2013; Virtanen, 2017; Yu, 2014) while in three studies both are asked after (Pereira et al., 2016; Randa, 2013; Savimäki et al., 2018). This is interesting, as the discussion is brought up whether cybercrime is a new crime environment that stands on its own or not. This adds to the discussion if offline experience has an influence on the online environment and vice versa. Roberts et al. (2013:320) do not include victimization experience in their study, this is due to “the poor predictive ability of traditional predictors” of fear and the crime types explored in their study.

In the study by Brands & van Wilsem (2019) all victimization experiences have higher levels of fear of online financial crime, which is also concluded by Virtanen (2017:330): “all of the victimization experiences are significant predictors of fear of cybercrime”. Savimäki et al. (2018) studied disquiet, feeling unease or disturbed by online (hate) content, as the dependent variable and fear of crime as an independent variable, they reported that fear and victimization experience resulted in more disquiet with online hostile behaviour, although fear seemed to have a stronger relationship than victimization experience. Pereira et al. (2016) noted that when the online harassment (previous victimization experience) was more persistent, respondents reported more fear. Furthermore, previous victimization experience was a significant predictor for fear of computer virus (Yu, 2014). But “one of the most interesting results” from Henson et al. (2013:490) was the lack of relationship between victimization experience and fear

of it. Randa (2013) and Yu (2014) report different results on the relationship between victimization experience and fear of cyberbullying, a positive and a negative relationship, respectively. This is in line with results from fear of crime research, that different relationships are reported.

One of the predictors of fear of crime research is the relationship between the victim and the offender, concluding that people are more afraid of unknown offenders. These results are also shown by studies included in this review. Henson et al. (2013:487) report that their respondents are “significantly more afraid” of online interpersonal victimization by strangers. For each victimization experience respondents in the study by Pereira et al. (2019) were asked the relationship with the aggressor: known or unknown people. When the aggressor was an unknown individual, the respondents reported more fear than when the aggressor was known.

As previously discussed, the fine line between fear of crime and perceived risk have caused operationalization issues in previous research (Collins, 2016). Opinions differ if perceived risk should be included in fear of crime research or not, however it does come back in studies included in this review as it is also established as a potent predictor of fear of crime (Henson et al., 2013). Perceived risk is defined as the cognitive reaction to crime, as opposed to fear of crime which is an emotional reaction. Henson et al. (2013) concluded that individuals who experienced higher levels of perceived risk, also reported higher levels of fear of online interpersonal victimization, which was the crime type for their study. Since this is in line with previous research, they discussed that “fear of traditional crime and online victimization may have a similar relationship with perceived risk of victimization” (Henson et al., 2013:488). Variables in the study by Yu (2014) are tested crime-specific, and thus different results are reported on perceived risk. For fear of online scam and cyberbullying, perceived risk is a significant predictor, but not for the other two crime types (computer viruses and digital piracy) (Yu, 2014).

The variable perceived crime seriousness is included in only one study (Yu, 2014). As is briefly touched upon in the background section of this paper, it can occur that the seriousness of cybercrime is underestimated. Yu (2014) reported different results when it comes to predictiveness of perceived crime seriousness: fear of online scam and fear of computer virus are related to perceived crime seriousness. Although this was not a variable in their study Henson et al. (2013) discuss the result on victimization experience and fear, of which a significant relationship was not present, in terms of perceived crime seriousness as being low and therefore respondents are not fearful of it.

Demographic variables

Demographic characteristics are present in all studies, however, there is a difference in how variables are linked to fear of online crime. These characteristics play a more significant role when an individual’s vulnerability influences their levels of fear, the so-called vulnerability perspective (Virtanen, 2017). According to Brands and van Wilsem (2019) women and elderly report higher levels of fear for online financial crime. Higher educated and high-income households show lower levels of fear. Virtanen (2017) examines three vulnerability traits related to fear of crime (gender, social status, and confidence in internet use abilities) and concludes that in part these traits predict higher levels of

fear. However, examined with previous victimization experience the outcome is different and it does not seem that women report higher levels of fear (Virtanen, 2017). On the other hand, Henson et al. (2013:490) examined fear of crime in relation to victim-offender relationship and reported that “being female was also indicative of fear of crime online”. The same result was reported by Savimäki et al. (2018). According to Roberts et al. (2013) the only demographic predictor of fear of cyber-identity theft and related fraudulent activity was gender. There were a few studies that did not include age in the analysis (Pereira et al., 2016; Radda & Ndubueze, 2013; Yu, 2014) or age was not a significant predictor (Roberts et al., 2013; Savimäki et al., 2018). In other studies, younger age predicted higher levels of fear (Henson et al., 2013; Randa, 2013; Virtanen, 2017). Reversed results were reported by Brands and van Wilsem (2019).

Context variables

These studies included the context or online environment in relation to fear, mostly in terms of online exposure or online activity. The internet use of the individuals has an influence on the exposure to cybercrime, this is therefore a relevant variable. The studies examine exposure in a variety of ways. Among other things, the frequency of internet use (Brands & van Wilsem, 2019; Henson et al., 2013; Roberts et al., 2013; Virtanen, 2017). Brands and van Wilsem (2019) included a variable referred to as ‘online infrastructure’ which included number and use of devices. Henson et al. (2013) and Savimäki et al. (2018) counted use of certain online programs (social networks, dating sites, instant messenger etc.), and Roberts et al. (2013) made a distinction between internet used at home or at work. The confidence of one’s ability to use the internet was included in the study by Virtanen (2017) as a vulnerability trait. And lastly, Yu (2014) divided internet activity in four different activities (shopping, downloading, interaction, and publishing). Exposure to the internet does not seem to influence levels of fear (Brands & van Wilsem, 2019; Henson et al., 2013; Virtanen, 2017; Yu, 2014). Roberts et al. (2013) report the opposite as internet use is a significant predictor of fear of cyber-identity theft and related fraudulent activity.

Furthermore, internet use might differ between countries and populations (Reep-van den Bergh & Junger, 2018). For example, Radda and Ndubueze (2013) study fear of online crime in the context of Nigerian Universities, comparing this study to the others included in this review it is important to note that internet use is different in Nigeria. Where the Dutch population have some of the highest internet use (Brands & van Wilsem, 2019). Radda and Ndubueze (2013) do not include internet use in their study. According to Rughiniş and Rughiniş (2014) cybersecurity increases in places where the daily internet use is higher, this can be interpreted that a higher exposure on the internet results in more protective measures.

Roberts et al. (2013) include fear of traditional crime as a measurement to predict fear of online crime in their study. They hypothesised that fear of traditional crime “would significantly predict fear of cyber-identity theft and related fraudulent activity” (Roberts et al., 2013:324). This hypothesis was supported, and they therefore discussed that fear of online crime can come from already present fear of all types of crime. This is similar to what Randa (2013:343) found, that traditional bullying victimization “is arguably the most powerful predictor of fear among students”.

Behavioural consequences

Consequences of fear are not part of most of the studies, however a discussion on the effect it might have on one's willingness to use the internet is brought up briefly as discussion points in some of the studies (Radda & Ndubueze, 2013; Virtanen, 2017). Two articles included behavioural consequences as variables. Brands & van Wilsem (2019) looked at whether people would do certain online activity or not in relation to their feelings of fear (avoidance behaviour) and if people would take online security measures or not (protective behaviours). The study concluded that individuals with higher levels of fear are less likely to engage in online purchases or online banking. However, fear of online financial crime did not relate to protective measures. While studying fear of cyber harassment help-seeking was a factor in the study by Pereira et al. (2016). It was asked after, when experiencing cyber harassment, did the respondent seek for informal or formal help and they concluded that fear of online harassment increased help-seeking behaviour.

DISCUSSION

Especially since both concepts subject to this thesis have operationalizing and methodology issues and limitations, it is important to test conclusions in different situations. Furthermore, since the society is changing and therefore crime is, criminological concepts and theories need to be critically assessed. For this reason, this thesis aimed to assess the much-discussed concept fear of crime to a new subset of crimes within criminology, cybercrime. Furthermore, since fear of crime can be influenced by the physical context it is of interest to know how such a different environment as the online, influences feelings of fear of crime.

As 'cybercrime' is a broad term future research might have to categorize between the crime types that exist in cyberspace (Yu, 2014). Like Henson et al. (2013) discuss, that fear of crime might be crime specific. Due to the crime-specific approach in the study by Yu (2014) the conclusion can be drawn that not one variable can predict all fear of crime. It can be argued that this applies to a subset of crimes, such as cybercrimes, but also in a broader context that the mechanism of fear of crime of an individual is not univocal. One can therefore not move away from the idea that fear of crime is a complex concept. With this, the issue of global measurements as one of the criticisms on fear of crime research is not present when it comes to fear of online crime. The studies included in this review ask after fear of specific types of cybercrime, and therefore also conclude that different predictors are significant or not. However, this does play a role in the difficulty of making any conclusion on which characteristics can predict fear of (online) crime.

As is comparable with previous research on fear of traditional crime, the reported results are not consistent. In other words, predictors differ between context and crime types, which makes it difficult to come to generalizable results. Victimization experience is a predictor that illustrates this inconsistency very well. From analysing the results of the review articles, it can be concluded that in about half of the cases victimization experience does relate to higher levels of fear. However, the outcome of some studies is that victimization experience does not relate to feelings of fear. Henson et al. (2013) argue for this outcome that

individuals might not take their victimization seriously or because feelings of fear from previous victimization experience might have decreased since the incident and thus is not considered in the respondent's answers. This is due to the lifetime measure used in the study by Henson et al. (2013). Noteworthy, how fear of crime is measured, as discussed in the background section of this thesis, is influential of the outcome and should therefore take in consideration of what is learned from previous research and methodological discussions. A predictor that does seem consistent is that people are more afraid of unknown offenders than they are of known offenders, this applies to both the online and offline environment.

Most studies concluded that exposure on the internet or internet use did not influence levels of fear. This suggests that the online context does not stand on its own when it comes to fear of crime, and other variables are of more significance. Savimäki et al. (2018:33) conclude that the findings "support the presumption that offline problems reflect online behaviour". Fear of crime might be overlapping with experiences of traditional crime and it might be a limitation to dedicate it to only online victimization experience and it needs to be put in a broader context. In other words, should cybercrime victimization be treated as a new form on its own or not? Savimäki et al. (2018:25) argue that "online and offline worlds should not be viewed as two separate places". This argument is shared by Roberts et al. (2013) who included fear of traditional crime in their study and discussed that fear, which an individual already experiences, can predict fear of online crime as well. On the other hand, Henson et al. (2013) discuss that the online environment compared to the physical environment may have a different impact on reported levels of fear. As they mostly study victim-offender relationship, this can be ascribed to the physical opponent, that the offender is not directly visible. These are important findings to establish a knowledge base for future fear of (online) crime research and it shows that fear is the result of interplay of different factors. The lack of causality in these studies adds to the difficulty of drawing any solid conclusions. This, however, does provide several opportunities for future research.

Future research

What this review on fear of crime online, and previous studies into fear of traditional crime clearly shows, is that a development of methodology is necessary for further fear of crime research. The limitations and challenges that are illustrated in this review should be considered when establishing a research design for future research. Furthermore, there are some factors that can be taken into consideration when researching fear of online crime. Most importantly, as has been a consistent conclusion in decades of fear of crime research, qualitative studies are necessary to better understand the concept. Besides, change in feelings of fear is an aspect in the research that could use further investigation, thus longitudinal studies into fear.

Limitations

As the study only used limited databases for the systematic search, it should be noted that different disciplines are involved within this subject, and therefore studies that come from an IT or security discipline for example can be overlooked. This also applies to the language criteria, as only studies in the English language are included. The studies are from different countries and study fear of crime with different crime types, which can be a limitation to this study and its generalizability.

However, this study helps to understand the discussion on complex issues from the criminological discipline and how we can move forward. Furthermore, it stresses the importance of critically assessing and applying concepts as we try to develop our understanding of criminological tendencies, victim characteristics, and their response to crime.

CONCLUSION

At the beginning of this study two research questions had been formulated. The answers to these research questions will now be discussed with the use of previous findings.

The first research question covered the methodology in and measurement of fear of online crime: *How is fear of crime research conducted and fear of crime measured in the cybercrime environment?* As discussed previously, challenges and limitations from fear of crime research are still present in fear of crime research of the online environment. Although these challenges exist, they are only discussed to a minimal extent. This suggests that the fear of crime research is ongoing in the previously mentioned “vicious circle” (Farrall et al, 1997). However, the issue of global measures (Hale, 1996) is not present anymore in the online context, as more specific cybercrimes are asked after in connection with feelings of fear.

The second research question involved the comparison of the traditional fear of crime research and the cybercrime context: *How is the fear of crime concept applied to cybercrime compared to the application to traditional crime?* This review concludes that the concept as it exists is not much adjusted to study the fear of online crime compared to studying the fear of traditional crime. Predictors that are studied in the traditional sense also occur in the online context. However, while victimization experience is included in all types of fear of crime research the distinction that is made between offline and online victimization experience is interesting and should be further developed. The variable online exposure/use does not seem to predict levels of fear in most of the studies.

That an increase in internet and technology use will simultaneously increase the risks and seriousness of cybercrime (Li, 2013), implies that the subject of cybercrime and (emotional) responses of individuals to it warrants attention. As cybercrime can result in individuals avoiding using online services (Riek et al., 2016), even though the internet has many benefits for individuals and society. Besides, everyone can experience some form of fear in their lifetime (Collins, 2016) deeming it a subject in need for further understanding.

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