RISKY DATING BEHAVIORS IN THE TECHNOLOGICAL AGE: CONSIDERATION OF A

NEW PATHWAY TO VICTIMIZATION

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by

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ABSTRACT

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The present study explores the relationship between risky lifestyles, both online and offline, in relation to cyberstalking victimization risk. Online risky lifestyles are measured through online dating application behaviors, a new potential pathway to victimization that has received heavy media attention in recent years. As online dating applications become an increasingly normalized part of relationships and young adults rely more on the use of technology to pursue and foster interpersonal connections, it can be suggested that these applications present new opportunities for risky behaviors and victimization possibilities online.

Using a systematic random sample of undergraduate students from a Southern university, an original survey instrument was created to measure traditional offline risky behaviors, such as sexual behaviors and substance use, along with technological and online risky behaviors, including explicit messaging behaviors and use of online dating applications to pursue relationships. Online dating applications, while a popular subject of media reports, have yet to be explored using original data collection among the young adult population. This series of risky behaviors, along with underlying individual differences in self-control and victimization history are explored in relation to cyberstalking victimization risk using the frameworks of lifestyle-routine activity theory (Hindelang, Gottredson, & Garafolo, 1978; Cohen & Felson, 1979), the vulnerability thesis (Schreck, 1999), and arguments of repeat victimization, namely state dependence (Tseloni & Pease, 2003) and population heterogeneity (Hindelang et al., 1978).

Descriptive statistics for online dating application behaviors suggest that users are indeed engaging in potentially dangerous activities through these applications, including meeting an online only contact for the first time at a private residence. Multivariate models support the relationship between increased risky behaviors, decreased self-control, and increased risk of cyberstalking victimization. With respect to repeat victimization risk, both arguments of state dependence, which states that individuals who experience an initial victimization event are at a higher likelihood for additional victimization events (Tseloni & Pease, 2003), and population heterogeneity, suggesting that victims and non-victims are inherently different in some way (Hindelang et al., 1978) are supported in the data. Research implications and future research possibilities are discussed.

KEY WORDS: Cyberstalking, Victimization, Risky lifestyles, Self-control, Online dating

there. When I didn't want to answer or my phone or pull myself out of bed, your jokes and random stories always made things a little better. For your unconditional friendship, I will always bring you back hot sauce from wherever I go. Here's to many more years of shared stories, inside jokes, weird memes, and Netflix suggestions that it takes months to get the other to watch.

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CHAPTER I

Introduction

Mobile technological advancements, along with an exponential increase in the availability of internet access, social networking websites, and mobile applications have created new possibilities for networking and communication, but also exposure to multiple forms of victimization. With advances in technology, perpetrators of interpersonal crimes are increasingly able to hunt new victims or maintain their presence in lives of a past victim through online means, most notably through cyberstalking (Woodlock, 2016). Cyberstalking occurs when online harassment, threats, or other intimidating communications are repeated over a prolonged period of time (Reyns, Henson, & Fisher, 2011). As young adults increase their reliance on technology and heighten their online presence, less effort is required to monitor and terrorize a past victim or seek new ones. Sexual assault (Zweig, Dank, Yahner, & Lachman, 2013), intimate partner violence (Woodlock, 2016), and in-person stalking victimization (Sheridan & Grant, 2007) have all been reported as significant precursors to continued victimization through cyberstalking behaviors resulting in victims experienced multi-form victimization which could continue for an indefinite amount of time.

Research on repeat victimization over the life-course finds greatest support in two arguments: state dependence and population heterogeneity. State dependence suggests that once victimized, an individual becomes more likely to experience additional victim events (Tseloni & Pease, 2003). On the other hand, population heterogeneity proposes that victims and non-victims are inherently different due to underlying traits (Hindelang, Gottfredson, & Garafolo, 1978). Specifically exploring cyberstalking following an in-

person victimization event, it is possible that both arguments are valid. Cyberstalking provides a means of easily exerting power and control over a victim, even if an offender cannot find a way to be face to face with the victim following an initial incident (Woodlock, 2016). Furthermore, increased social media presence and reliance on technology increases options for offenders to harass victims (Eichorn, 2013; Holt & Bossler, 2014) and also causes confusion in policing cyberstalking (Powell & Henry, 2016). The question remains as to whether an initial victimization event is solely responsible for continued victimization through cyberstalking or inherent characteristics of the individual increased their vulnerability to the initial event, as well as future victimization.

Among research exploring prevalence of cyberstalking, college age samples are frequently used due to their increased risk of victimization along with a growing preference for electronic communication (Joinson, 2004). It is becoming more common for victimization to occur prior to individuals ever meeting in person, with these incidents broadly referred to as cybervictimization (Pratt, Holtfreter, & Reisig, 2010; Reyns, Burek, Henson, & Fisher, 2013). This new form of victimization encompasses cyberstalking, online harassment, or online sexual solicitation, among other offenses (Reyns et al., 2011). Still in initial phases, a growing amount of research has emerged using lifestyles/routine activity theories (L-RAT; e.g., Reyns et al., 2011) and self-control (e.g., Bossler & Holt, 2010) frameworks to explore correlates of these crimes.

Coinciding with this rise in technology and increased risk of cybervictimization is the development and rise of the hook-up culture among the college age population, in which young adults are shifting many traditional facets of communication and

relationships to include an online component (Lenhart, 2014). This evolution of behaviors and lifestyles to an online context is potentially accompanied by new pathways to victimization.

As opposed to traditional dating or relationship formation, the hook up culture emphasizes sexual encounters "between two people who are brief acquaintances or strangers, usually lasting only one night, without the expectation of developing a relationship" (Paul & Hayes, 2002, p. 640). Hooking up is often considered a common part of the college lifestyle, reflecting the self-exploratory and autonomous nature of this environment (Allison & Risman, 2014). The hook-up culture does not imply that young adults are having more sexual encounters, but simply that that the context of these encounters is evolving. In a comparison of sexual attitudes between college students in the late 1980s to college students in the 2000s, Monto and Carey (2014) did not find an increase in the number of sexual partners for the average young adult, but did find significant differences in relationship type. Young adults in the later time period were more likely to report sexual encounters with casual partners or "pick-ups" compared with committed partners, the opposite of the 1980s sample.

There are a number of explanations suggested for this transition from courtship to one-night rendezvouses. Largely these explanations are tied to the continuing social trends of increased emphasis on career success, limited free time, and sexual liberation among women (Rosin, 2012). Additionally, changes in mobile technology aimed at socialization among young adults, have led to today's students feeling more "comfortable without close emotional relationships" (Konrath, Chopik, Hsing, & O'Brien, 2014, p. 12), turning to the internet to pursue any form of personal connection.

Prior research on the hook-up culture has relied heavily on data collected in the early 2010s, specifically through use of the Online College Social Life Survey, a nationwide survey of college students which began in 2005 (e.g., Allison & Risman, 2013, Kuperberg & Padgett, 2017). While this data source is invaluable as a national sample of respondents, research utilizing only this data is perhaps missing the changing landscape of young adult hook ups: those which are facilitated through the internet.

Increasingly young people are relying on social media and mobile dating applications to meet others and pursue relationships or hook ups. Beginning with instant messaging programs, such as AOL Instant Messenger, and now through social media applications, such as Facebook, more and more the internet is becoming a surrogate for face-to-face interactions (Greenwood, Perrin, & Duggan, 2016). Not only are these applications used to maintain relationships, perhaps through keeping in touch with out-of-state friends, they are also being used to form new connections that begin first online and are eventually moved to an in-person context (Lenhart, 2014). Nowhere is this more apparent than among the dramatic rise in mobile dating applications.

Mobile dating applications have targeted millennials by incorporating GPS-based technology and simple designs to increase the ease at which hook ups can occur, fostering a continued evolution of dating behaviors and social norms. Among adults age 18-24, mobile dating applications have experienced rapid growth in popularity since their introduction in the early 2010s (Smith, 2015). As opposed to popular online dating platforms of the early 2000's, such as eHarmony or Match.com, mobile dating applications do not rely on lengthy relationship and personality assessments or complicated algorithms, but instead on photos and physical proximity of users. The most

popular mobile dating application of the moment is Tinder, which had amassed millions of users in almost 200 countries, in just two years after its debut (Smith, 2015).

Profile creation on Tinder and like applications takes a matter of minutes as long as the user has an active Facebook account, which almost 90% of young adults do (Greenwood et al., 2016). After creating an account and choosing a profile photo, users are immediately shown photos of potential partners within a geographical area ranging from one to one hundred miles. Geographical range is a key aspect to these mobile dating applications, as a user can increase or decrease their search radius based on their ultimate goal. For instance, an individual casually swiping through photos at home may extend their search radius to be shown more users and be able to be entertained for a longer period. In stark contrast, a user who is seeking a sexual partner for the evening, may limit their search range to under five miles to search all of those within their comfort area or to limit their travel distance if they have been drinking.

Vanity Fair (Sales, 2015) explored the association between mobile dating applications (e.g. Tinder) and the emergence of the hook-up culture, referring to this combination as the "dating apocalypse." The author gathered information through interviews with over fifty young adults in four different states about their online dating activities. Ultimately, the author suggested that young adults are "using their phones as a sort of all-day, every-day, handheld singles club, where they might find a sex partner as easily as they'd find a cheap flight to Florida" (Sales, 2015). In fact, one woman noted an instance where she observed her new sexual partner perusing Tinder as she was getting dressed to leave his residence.

Sales (2015) noted that male users were quick to gloat about the number of women they had slept with in a short amount of time and their ability to garner phone numbers solely through the use of cell phone emojis, or small clip-art like pictures available through text messaging. These include innocent symbols, such as a smiley face, but many have evolved to sexual innuendos. A group of interviewed women discussed the immediacy at which male users requested sexually explicit images or even asking for sex within moments of a "match" occurring. Despite commentary on the aggressive nature of male users, female users have also found entertainment and enjoyment in the application, with many suggesting that they are using the applications in the same petty ways as men. One woman used the phrase "Tinder food stamps," referring to the use of the dating application as a way to be offered dinner paid by their date (Sales, 2015). Overall, the article had a wide-reaching effect in the media, with the phrase "dating apocalypse" being used to discuss Tinder in *GQ* (referring to Tinder as a "sex-app;" Witt, 2014)*, The Guardian*, *New York Magazine*, and *The Atlantic* among others and led founders of other dating applications to alter their products (Russell & Kissick, 2016; Singal, 2015; Beck, 2016; respectively).

Tinder was developed in 2012 (Giuliano, 2015), created by two male students at the University of Southern California (Stampler, 2014). The creators of this increasingly popular application designed the interface to appear game-like, creating an experience that users would want to engage with, even when they were not seeking a partner. Relying heavily on pictures that users simply "swipe" left or right (right if they were interested), the application was originally marketed to the "social elite" of the college campus, or those in Greek life. Using fraternity connections to gain access, Tinder

quickly became a popular application among college students, with 90% of the original users between the ages of 18-24 years old (Stampler, 2014). Tinder has been one of the fastest growing mobile dating applications, amassing 1.4 billion individual swipes per day (Tinder, 2017). The application has so successfully transitioned from niche to mainstream that a recent campaign suggests that it is "fun for the whole family" (Tinder, 2016). Multi-platform advertisements feature young men and women using the application on the television in their family room, while opinionated family members weigh in on whom they should like.

The *Vanity Fair* article further discusses the sexual expectations that arise as a result of these applications, with many pre-meeting conversations featuring sexual innuendo or an exchange of explicit images (Sales, 2015). Unfortunately, once two users meet in person, they must confront these expectations, a situation that is uncomfortable for many. This uneasiness has often resulted in excessive alcohol consumption, which research has stated can increase expectations of sex for females, resulting in greater sexual miscommunication (Franklin, 2011). Binge drinking is a common behavior for college age students prior to a hook-up, increasing regret from one or both parties (Kuperverg & Padgett, 2017). The term "hook up" has multiple interpretations and does not require penetration. It is these varied meanings that can further increase the possibility of miscommunication.

Flack and colleagues (2007) reported that unwanted sexual intercourse was common during hook up situations. In their study of college age respondents, 78% of respondents reported a hook up resulting in unwanted sexual intercourse due to pressure or decreased judgement after drinking. Despite these risks, women often have difficultly

seeing themselves as potential victims, even in the context of alcohol consumption, where "women who drink still believe that other women who drink are more vulnerable" (Gidycz, McNamara, & Edwards, 2006, p. 448).

Overall, it can be suggested that the increased use of online dating applications has presented a new pathway to victimization, one which begins through a series of online communication and relationship behaviors, increasing the potential for victimization. This idea has been discussed through scattered media stories presenting the most sensationalized cases, such as a recent article published by *Investigation Discovery* on "5 Internet Dates that Ended in Murder" (Sigona, 2016). This focus on exceptional stories fails dating application users in several ways. First, a discussion of only the most sensationalized cases often makes readers feel that they would never be in those circumstances (Felson & Eckert, 2016). Secondly, a lack of coverage for common offenses fails to inform users about more probable negative outcomes and what reasonable precautions they should be taking on these encounters.

The present study will examine the potential for victimization risk among young adults, arguably those most enmeshed in the hook up culture and most likely to seek relationships using an online component. It is suggested that new technological options for relationships are resulting in online behaviors that could be deemed risky and increase vulnerability to victimization. Therefore, these ideas will be explored through two seminal criminological theories.

Chapter two will provide a detailed overview of the theoretical frameworks used for this study. Historically, criminological theories explaining criminal offending have far out-numbered those attempting to explain victimization patterns. Two of the more

prominent theories in this area include lifestyles-routine activity theory (Cohen & Felson, 1979; Hindelang et al., 1978) and *The General Theory of Crime* (Gottfredson & Hirschi, 1990). While *The General Theory of Crime* was not originally intended to apply to explanations of victimization, the discovery of similarities between offenders and victims of crime opened the door for a theory of low self-control predicting an individual's risk of victimization, ultimately leading to the vulnerability thesis (Schreck, 1999).

Hindelang, Gottfredson, and Garafollo (1978) were among the first in criminology to not only suggest a theory of victimization, but to analyze self-report victimization data, in the form of the National Crime Survey. Through this research they formulated a lifestyle-exposure theory of victimization, suggesting that individual lifestyles influence amount of exposure to potential offenders, therefore increasing risks of victimization. These individual lifestyles are influenced heavily by the role expectations and structural constraints placed on an individual, due to their school, work, family, etc.

Since it's conception, lifestyles-exposure theory has been integrated heavily with Cohen and Felson's (1979) routine activity theory, arguing that three components are necessary for a crime to occur: a likely offender, a suitable target, and lack of capable guardianship. In the seminal study of routine activity theory, Cohen and Felson (1979) explored national decreases in aggregate poverty and unemployment rates which were accompanied by an increasing crime rate, a relationship opposite of what was expected by previous criminological theories. Over time, the routine activity approach, in combination with lifestyles-exposure theory, resulting in lifestyles-routine activity theory

(L-RAT), has been applied to victimization at the micro-level and is frequently used in conjunction with the vulnerability thesis.

The vulnerability thesis (Schreck, 1999) was influenced by Gottfredson & Hirschi's (1990) G*eneral Theory of Crime*, has suggested a significant relationship between individual levels of self-control and risk of victimization. Schreck (1999) proposed that individuals with low levels of self-control were more likely to participate in events or engage in behaviors that would increase their vulnerability to victimization. Furthermore, due to a lack of future orientation, they would be less likely to consider long-term consequences of their actions. This proposition has been supported many times over in criminological research (Pratt, Turanovic, Fox, & Wright, 2014), with longitudinal studies reporting a long-term and persistent vulnerability to victimization and the stability of risky behaviors through the life-course (Averdijk, 2011; Fisher, Daigle, & Cullen, 2010). These core theories will be explored chronologically, beginning with the original conceptions, application to face-to-face crimes, and ending with application to cybervictimization.

Prior to the integration of the theoretical framework to online behaviors and victimization, chapter three will begin with a review of the history and current state of online dating platforms and applications including typical users and reasons for use. Potential risks of these applications are explored through deception, online harassment, and cyberstalking, all of which have received significant media attention. Deception in the cyber world has become an increasing public fascination, resulting in the term "catfish" and a popular MTV program currently on its sixth season. Online harassment is

also receiving increasing media attention (Hess, 2014). Noticeably missing is research combing these concepts into an academic study.

Chapter four describes the methodology of the current study. Using survey data collected from a systematic random sample of undergraduate students during the fall 2016 semester at one public university in the South, this research explores the current state of online meeting behaviors and how these behaviors may increase an individual's risk of cyberstalking victimization. Using regression analyses, victimization is explored under the frameworks of low self-control and a variety of risky behaviors, both online and offline. Research questions are aimed at exploring the risky online behaviors of individuals who use the internet to pursue relationships, along with the contexts in which face-to-face meetings occur. Through examination of both these online and offline risky behaviors, along with individual self-control, latter research questions examine potential correlates of cyberstalking victimization.

Chapter five will begin with an overview of online dating behaviors among users, including the information they are displaying and frequency of use. In addition, these potentially risky behaviors will be explored in the context of the application and also when a user decides to meet a stranger offline. The influence of self-control will be explored as related to these offline risky behaviors, along with other technology-facilitated behaviors, such as sending sexually explicit messages. Lastly, regression models will be used to analyze predictors of victimization among the sample to investigate the possible relationship between online dating and cyberstalking victimization.

Finally, chapter six will discuss the results in the context of L-RAT and the vulnerability thesis, along with an overview of potential policy implications, limitations, and future research questions. Policy implications will focus heavily on issues with policing cyberstalking and how victims are advised by the criminal justice system. Further discussion will revolve around the changing landscape of online dating applications to more female-led options and various idea for further research projects in this area.

CHAPTER II

Theoretical Framework

Two major criminological theories and their victim-oriented derivatives serve as a framework for the present study: lifestyles-routine activity theory (L-RAT; Hindelang et al., 1978; Cohen & Felson, 1979, respectively) and the vulnerability thesis (Schreck, 1999), an adaptation of *The General Theory of Crime* (Gottfredson & Hirschi, 1990). To date, research testing both theories has shown significant and persistent relationships with the potential for victimization, both in-person and online. The present chapter will review the development of these theories individually, followed by how they have been integrated. The chapter will conclude with recent research applying L-RAT and self-control theories to cyberspace.

Lifestyle-Exposure Theory

Lifestyles theory focuses on exposure to potential victimization through an individual's personal lifestyle, noting that victimization occurs disproportionately at different times, places, and among those with certain demographic characteristics. Hindelang, Gottfredson, and Garafalo (1978), presented the foundations for lifestyle theory. During the early 1970s, crime researchers began collecting data on victims, as opposed to crime events, through the use of victimization surveys. Hindelang (1978) was among the first to analyze this initial victimization survey data, through the National Crime Panel. Collected by the U.S. Bureau of the Census, this self-report data was collected from individuals age 12 and older across eight cities. The overall research goal was to search for potential patterns and correlates of victimization. Based upon initial reviews of the data encompassing over 165,000 participants from over 75,000

households, Hindelang and colleagues (1978) concluded that victimization experiences and risks varied by an individual's lifestyle, such as those determined by individual age, sex, marital status, socioeconomic status, and race. It is this lifestyle that influenced exposure to potential offenders.

The lifestyle model (Hindelang et al., 1978) suggests that an individual's demographic characteristics (i.e. age, sex, race) determine and contribute to society's expectations of how that individual will behave, known as role expectations, and also the limitations they will face from the institutions in which they are involved, known as structural constraints. Role expectations play a key role in lifestyles and alter risk of victimization. For example, married individuals are expected to spend more time at home with their partner (Hindelang et al., 1978), therefore decreasing exposure to potential offenders. Role expectations do not occur in a vacuum and are influenced by individual structural constraints. Structural constraints take many forms, including economic, familial, educational, and legal. Furthermore, the constraints are interactive and fluid throughout the life-course. People make both individual and sub-cultural adaptations as a result of the interaction between role expectations and structural constraints, which shape the lifestyle that they lead.

In example, the present study focuses on the dating behaviors and attitudes of college students. College represents a unique sub-culture or social community (Hartshorne, 1943), creating a particular set of role expectations and social constraints. Traditionally, one's college years are viewed as a time of increased drinking, socializing, and sexual experimentation (Allison & Risman, 2014; Sloan & Fisher, 2011). Most notably, this corresponds to the reality that many college fraternities encourage alcohol

consumption with sexual activity as the ultimate goal (Martin & Hummer, 1989). It can be suggested that this riskier college lifestyle, oriented towards increased casual sex and greater alcohol consumption, has only been further encouraged through the evolution of the hook up culture, as mentioned in chapter one.

With respect to structural constraints, the traditional college student, generally thought of as age 18-22, is likely living on-campus and away from their parents for the first time, but still being constrained by their school and/or work schedule (Schmidt, Dickerson, & Kisling, 2011). The reciprocal influences of role expectations and structural constraints contribute to adaptations made by that individual (e.g. scheduling later classes to have a more active social life) and, therefore, the lifestyle they are ultimately living. Adaptations to the new roles and constraints of higher education are made by many individuals conforming to this environment resulting in "shared adaptations," or those that occur when people of similar demographic characteristics experience like expectations and constraints (Hindelang et al., 1978).

In example, females are less likely to be victims of crime (with the exception of interpersonal and sexual crimes). Hindelang and colleagues (1978) suggest that this is due to sex role socialization and increased monitoring of female activities. A shared adaptation of socialization is that females spend less time outside of the home and are more likely to go places in groups, increasing monitoring. Men report not only going out alone more often than women, but also feeling more safe about doing so (Hindelang et al., 1978). Furthermore, following a victimization event, female victims may be more likely to adopt protective behaviors as this "is more in keeping with role expectations for women than for men" (Clay-Warner, Bunch, & McMahon-Howard, 2016, p. 1411).

As Hindelang et al. (1978) emphasized repeatedly throughout their presentation of lifestyles theory, role expectations and structural constraints are constantly changing as a person continues throughout the life-course. The lifestyle an individual leads affects their vocational, educational, and leisure activities as discussed above. Continuing with the college example, a student may choose to work on campus due to convenience or transportation limitations. This simple choice could change their lifestyle and amount of time spent away from campus significantly, and therefore the amount and type of victimization risk they are exposed to. This may be especially true in respect to property and out-of-home violent crime, as many college campuses have greater situational crime prevention through lighting, security cameras, and specially designated university police forces.

Lifestyle choices affect a person's probability of personal victimization both directly, through exposure, and indirectly through associations. Hindelang et al. (1978) put forth four necessary conditions for victimization to occur:

> First, the prime actors – the offender and the victim – must have occasion to intersect in time and space. Second, some source of dispute or claim must arise between the actors in which the victim is perceived by the offender as an appropriate object of the victimization. Third, the offender must be willing and able to threaten or use force (or stealth) in order to achieve the desired end. Fourth, the circumstances must be such that the offender views it as advantageous to use or threaten force (or stealth) to achieve the desired end. (p. 250)

In a reciprocating fashion, these times and places are determined by individual lifestyle, which becomes a function of role expectations, structural constraints, adaptations, and demographic characteristics of each individual.

Routine Activity Theory. Following publication of Hindelang et al.'s (1978) lifestyle theory, Cohen and Felson (1979) published their routine activity theory of crime. This theory was developed as a means of explaining a long term trend of rising crime rates despite improved social conditions (poverty and unemployment decreasing), a relationship they argued was opposite of the expected direction based on existing criminological theories. This macro-level theory examined the changing household structures of the United States (e.g. more female-headed households, more activities away from home, etc.) and their effect on increasing crime rates from the 1960s-1970s.

Cohen and Felson (1979) argued that these changing social conditions created a change in the three components necessary for crime to occur: (a) likely offenders, (b) suitable targets, and (c) an absence of capable guardianship. Suitable targets include those persons or things with which an offender can easily offend against. In example, frequently being away from the home provides an opportunity for burglary or other property crime, while being out in public increases exposure to potential offenders, and therefore, risk of physical crimes. These propositions were supported by examining direct-contact victimization[1] rates of various demographic groups. Adolescents and young adults had higher rates of victimization, as did non-married individuals. These groups generally spend more time socializing with peer groups outside of the home. In

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[1] Cohen and Felson (1979) define these as predatory crimes, or those "illegal acts in which 'someone definitely and intentionally takes or damages the person or property of another' (Glaser, 1971, p. 4)" (p. 589).

this original form, Cohen and Felson (1979) note that it is the convergence of these three components that lead to increased opportunity for crime and victimization to occur.

The Development of Lifestyles/Routine Activity Theory (L-RAT). The integration of lifestyle-exposure theory with routine activity theory was first explored by Cohen and colleagues (1981). The authors initially referred to this perspective as "the opportunity model of predatory victimization" (p. 507). This integration featured five main concepts including proximity to potential offenders, guardianship, target attractiveness, exposure, and definitional properties. Definitional properties refer to the constraints or opportunities present that may sway a potential offender towards or away from the commission of a particular crime.

Cohen and colleagues (1981) used this new conceptualization to explore the relationship of these components with victimization, but mediated by age, race, and income. Using the National Crime Survey, the same data set explored in Hindelang et al. (1978), Cohen and colleagues (1981) analyzed two consecutive years of data from approximately 60,000 households. Respondent lifestyle was measured using varying combinations of marital, employment, and parental status (e.g., married, both working, with children). Proximity was explored through the interaction of household location and income (e.g., central city, low income). Guardianship was incorporated into these measurements using the idea that guardianship is highest among individuals who are married, and therefore more likely to be around another person, who are home more to protect their property, and also those with older individuals with a higher income.

In general, the authors found a significant relationship between their measures of exposure, guardianship, and proximity and risk of predatory victimization. Furthermore,

income, race, and age were interconnected in a way that increased the potential for

victimization. For instance, young people typically have a lower and less stable income

compared to older individuals and this income gap is greater among African-Americans

due to structural/social constraints. This further supports the routine activity claim that

crime does not need risky behaviors to occur, but instead happens in the course of

everyday "routine" life (Cohen & Felson, 1979).

Presently, lifestyle-exposure theory and routine activity have been discussed as a

singular theory (L-RAT), combining concepts and attempting to explain victimization at

the individual level. Hindelang et al.'s (1978) exposure is discussed as exposure to likely

offenders, which may increase as a result of individual lifestyle. As noted above, an

individual's lifestyle results in being perceived as a more attractive target for offenders

(e.g., a person spending more time drinking alcohol is perceived as less capable of

defending themselves) and the amount of guardianship they are surrounded by (e.g. being

away from home alone vs. with friends, carrying physical protection, etc.).

Lifestyle theory and the routine activity approach are often used interchangeably

or combined into various forms, leading to confusion over the individual components for

each theory (for one example see Averdijk, 2011 where the study hypotheses mention

"risky routine activities" on p. 131). Despite this frequent interchanging of theories, there

are notable differences in key concepts. Mainly, the routine activity approach focuses

heavily on the convergence of a likely offender, suitable target, and lack of guardianship,

discussing potentially risky behaviors outside of the home as a result of individual

structural constraint. This can be compared to the original suggestions of Hindelang et al.

(1978) who focus on the lifestyle choices that increase risk of victimization, concentrating on a theory of increasing probabilities.

Commentary on the relationship between L-RAT concepts and victimization notes that many forms of victimization are more likely to occur in the home, which is directly in contrast to Cohen and Felson's (1979) study examining household activity ratios (e.g. time spent away from home) and crime rates. As mentioned, the initial analysis focused on victimization after the fact, versus attempting to predict victimization risk (Pratt & Turanovic, 2016). Studies that followed used comparable measures to predict victimization by time spent away from home (Kennedy & Forde, 1990; Miethe, Stafford, and Long, 1987). Critics argue that it is not simply leaving the house that puts one at an increased risk of victimization, as "some people leave home at night to do things like watch the latest episode of *The Bachelor* and eat bonbons at a friend's place – not everyone who goes out after dark does piles of cocaine at a biker bar" (Pratt & Turanovic, 2016, p. 10), suggesting the importance of underlying individual differences.

The General Theory of Crime – Low Self-Control

Gottfredson and Hirschi's *General Theory of Crime* (1990) is one of the most cited and tested criminological theories ever developed. This is not surprising considering its simplicity: individuals with low self-control are more likely to engage in criminal behaviors, or those behaviors *analogous* to criminal behavior (e.g. smoking, drinking, risky sexual practices, etc.). Not only is the theory simple, Gottfredson and Hirschi (1990) argue that self-control is fully formed in childhood, around the age of 10, and remains stable throughout the life-course, therefore eliminating the need for longitudinal studies to clarify temporal ordering. Based on these assertions, the majority of studies

examining self-control on offending or victimization have used cross-sectional data, with few exceptions (e.g., Higgins. Jennings, Tewksbury, & Gibson., 2009; Schreck, Stewart, & Fisher, 2006).

In their seminal study, Gottfredson and Hirschi (1990) were clear to differentiate between crime and the propensity to commit crime. An individual may have low self-control, a propensity, but a crime will not occur unless an opportunity presents itself. A criminal act is more likely to occur if immediate gratification is apparent and the act will require minimal effort. Low self-control individuals are described as "impulsive, insensitive, physical (as opposed to mental), risk-taking, and non-verbal" (Gottfredson & Hirschi, 1990, p. 90). Crime, Gottfredson and Hirshi (1990) argued, may be committed by anyone, as criminal acts usually involve little thought and minimal physical ability. The concept of self-control has been tested using both attitudinal and behavioral scales, with self-control significantly predicting offending and victimization using both types (Pratt & Cullen, 2000; Pratt et al., 2014).

The most commonly used measure of self-control is the Grasmick scale (Pratt & Cullen, 2000). The Grasmick scale was developed for a survey of approximately 400 community members directly testing Gottfredson and Hirschi's (1990) original proposition: individuals with low self-control are more likely to engage in acts of fraud and force (Grasmick, Tittle, Bursik, & Arneklev et al., 1993). Additionally, Grasmick and colleagues (1993) measured the frequency at which respondents were presented with the opportunity to commit criminal acts. To measure self-control, the authors formulated a list of 24 items measuring six key components discussed by Gottfredson and Hirschi: impulsivity, a preference for simple tasks, risk-seeking, preference for physical activities,

self-centeredness, and temper. Grasmick et al. (1993) found significant effects of self-control and opportunity in the ways suggested by Gottfredson and Hirschi (1990), persistently noting the importance of opportunity in any future exploration of the self-control-crime relationship, with their study finding direct effects of opportunity on criminal behavior.

In 2000, ten years after the publication of *A General Theory of Crime* (Gottfredson & Hirschi, 1990), Pratt and Cullen (2000) undertook a meta-analysis on the current state of research examining the relationship between self-control and offending. In the short time frame from 1993-1999, Pratt and Cullen (2000) identified 21 studies, composed of approximately 50,000 respondents. In comparison of the studies included, self-control was a generally consistent predictor of criminal offending or analogous behaviors. This held true across samples of various sizes, racial make-ups, and age brackets, leading the authors to conclude that self-control is "one of the strongest known correlates of crime" (p. 952).

Vulnerability and Victimization. The *General Theory of Crime* (Gottfredson & Hirschi, 1990) was initially applied exclusively to crime acts and the propensity to commit criminal and analogous behaviors. Schreck (1999) adopted the concept of self-control to the potential for victimization, based on Gottfredson and Hirschi's (1990) notion that offenders and victims share many similarities. Schreck argued that individuals with lower levels of self-control are more likely to find themselves in circumstances that increase the potential for victimization. This is done through six elements: *future orientation*, the degree to which an individual is willing to defer gratification or consider the long-term consequences of their actions; *empathy*, the ability to understand and be

sensitive to the feelings of the people around you; *tolerance for frustration*, how quickly

an individual will negatively react in a difficult situation; *diligence*, the amount of effort

and attention an individual places in their surroundings; *preference for physical activity*

as opposed to mental activity and use of cognitive abilities; and *risk avoidance,* the

likelihood of engaging in risky or thrill-seeking behavior. These six concepts may be

individually related to an increased risk of victimization, however, they are more likely to

work concurrently among individuals with low levels of self-control (Schreck, 1999).

Schreck (1999) tested his hypothesis using survey data from approximately 1,000

undergraduate students, measuring self-control through use of a personality scale. In

general, Schreck found a significant relationship between low self-control and a greater

likelihood of victimization. As hypothesized by Gottfredson and Hirschi (1990), males in

the sample had significantly lower levels of self-control than females, relating to a higher

percentage of male victims overall. When comparing victims versus non-victims by sex,

males with a history of victimization had lower levels of self-control when compared to

male non-victims, and the same was true when looking at female victims versus non-

victims. Schreck concluded that Gottfredson and Hirschi's (1990) *General Theory of*

Crime should be incorporated into future studies predicting risk of victimization and

should further be combined with lifestyles theory to explore how an individual's level of

self-control contributes to their lifestyle choices. Schreck's subsequent works

incorporating these components will be reviewed in the following section.

Self-control has been linked to various forms of victimization from fraud

(Holtfreter, Reisig, & Pratt, 2008), credit card theft (Reisig, Pratt, & Holtfreter, 2009),

property crime (Franklin, Franklin, Nobles, & Kercher, 2012b), homicide (Piquero,

MacDonald, Dobrin, Daigle, & Cullen, 2005), and crimes against women (Combs-Lane & Smith, 2002; Fetchenhauer & Rohde, 2002; Franklin, 2011; Franklin, Bouffard, & Pratt, 2012a; Gover, Jennings, Tomsich, Park, & Rennison., 2011; Kerley, Xu, & Sirisunyaluck, 2008; Skubak Tillyer, Tillyer, Ventura Miller, & Pangrac, 2011) and culminating in a meta-analysis of 66 empirical studies (Pratt et al., 2014). The vast majority of the sample studies included some form of risky lifestyle variables in their original models (e.g. offending behaviors, delinquent peers, substance use) and approximately half employed the Grasmick scale as their self-control measure. Similar to the meta-analysis for self-control and offending, Pratt and colleagues (2014) concluded that self-control has a consistent and general effect on victimization across the various methodologies explored, with more significant effects found for direct contact forms of victimization.

Perhaps the most consistent finding from self-control research is lower levels of self-control for males when compared to females, a concept also discussed in the routine activity literature (Cohen et al., 1981). As such, many studies on self-control and victimization focus on violent or property victimization as opposed to interpersonal crimes or those traditionally perpetrated against women, including sexual assault, intimate partner violence, and stalking. The inherent difference of interpersonal crimes from the crimes examined above (Myers & LaFree, 1982) warrants an exploration of the relationship between self-control and risk for these types of victimization with few studies taking on this task.

Fox and colleagues (2009) were among the first to explore the relationship between self-control and interpersonal crime victimization, surveying over 1,300

undergraduates, with a female sample twice as large as the male sample. The authors examined the effects of self-control and child maltreatment on stalking victimization. For females only, stalking victimization was significantly related to respondent self-control. In a separate sample of data, Fox, Nobles, and Fisher (2016) incorporated social learning and control-balance variables in their self-control and stalking analysis, finding results opposite of their original study. In the second study, self-control was a significant predictor of stalking behavior for men only and not women.

Specifically focusing on crimes against women, self-control has been linked, through use of the Grasmick scale, to dating violence (Gover et al., 2011; Kerley et al., 2008) and sexual assault (Franklin, 2011; Franklin et al., 2012b) or through sub-sections of the scale (Fetchenhauer & Rohde, 2002), and also other risk-taking behavior scales (Combs-Lane & Smith, 2002; Skubak Tillyer et al., 2011). In a sample of female university students, Franklin and colleagues (2012) examined predictors of victimization using both self-control and routine activity concepts. Overall, they reported that different components of the theories predicted different types of victimization. For example, personal/violent crimes were predicted by self-control and living off campus, considered a guardianship component, as campus living offers more security measures compared to off-campus housing. Comparatively, sexual assault victimization was predicted by self-control, exposure variables, and proximity variables.

Vulnerability and L-RAT. Self-control and L-RAT are the most commonly cited and tested theories when discussing potential and risk for victimization. As discussed by Gottfredson and Hirschi (1990), individual traits and criminal propensity do not result in definite criminal behavior occurring. A potential offender must also be presented with

opportunity. The majority of studies examining predictors of victimization that have been published since Schreck's (1999) seminal work have included a measure of self-control along with variables examining risky lifestyle behaviors, opportunity measures, or routine activity components (Pratt et al., 2014).

Generally, studies of these nature suggest that self-control directly affects victimization and also indirectly affects victimization through one's lifestyle "where one's low self-control sets in motion certain social and behavioral processes that, in turn, may result in victimization" (Pratt et al., 2014). For example, low self-control is related to not considering long term consequences, which may lead to an individual spending more time away from home, later in the night, and not considering the potential consequences of such actions.

Schreck, Wright, and Miller (2002) explored these indirect effects of self-control on victimization through risky lifestyles. Studying a sample of high school students, lifestyle variables were operationalized as unmonitored time with peers, time spent out at night looking for someone to hang-out with, and delinquent peer associations. Results indicated significant direct effects of self-control on violent victimization compared to the lifestyle variables examined. Schreck et al.'s (2002) study focused exclusively on self-control and lifestyle theories and did not include situational routine-activity variables.

The most predictive models of individual victimization occur when combining self-control with components of L-RAT theories: exposure to likely offenders, suitable targets, and lack of guardianship (Schreck et al., 2006). In example, individuals with low self-control are more likely to drink alcohol (Gottfredson & Hirschi, 1990), which may

place individuals in public bars, around more likely offenders, with decreased diligence or guardianship to process what is going on around them. These factors combine to increase risk of victimization.

Forde and Kennedy (1997) were among the first to examine the relationship between self-control, analogous criminal behaviors, and the potential for either offending or victimization while adding items from both lifestyles and routine activity theories. Risky lifestyles/routine activity were measured by asking respondents about their usual nighttime activities and how they would handle potential situations involving conflict. In the full model of adult respondents, three of six components of self-control, impulsivity, self-centeredness, and task-orientation, had a direct relationship on whether the respondent had been a crime victim. Five of six components (with the exception of task-orientation), had indirect effects on crime victimization through crime-analogous behaviors. Similarly, a respondent's routine activities were affected by components of self-control, which led to a separate indirect effect on victimization.

Not only does self-control indirectly affect victimization through its influence on individual lifestyles, individuals with low self-control are less likely to change their lifestyles following a victimization event, increasing their risk of repeat victimization. Schreck, Stewart, and Fisher (2006) were among the first to examine this idea suggesting that the stability of self-control, as discussed by Gottfredson and Hirschi (1990), should correspond with stability in risk of victimization. Using G.R.E.A.T. data, Schreck and colleagues found that even after a violent victimization event, individuals low in self-control were less likely to alter their own delinquent behavior patterns, exposure to deviant peers, or attachment to school and parents. Similar results were found in

independent studies using the same data source (Higgins et al., 2009; Turanovic & Pratt, 2014) as well as other longitudinal data sources (Turanovic, Reisig, & Pratt, 2015), demonstrating not only the stability of self-control over time, but it's direct influence on the stability of risky lifestyles and repeat victimization.

Repeat Victimization Risk

Under the L-RAT framework, not only have studies explored the effect of risky lifestyles and routine activities on victimization risk, but also the reciprocal effect; whether victimization alters an individual's lifestyle and daily activities. Averdijk (2011) found little change in individual lifestyles and activities following either household or violent victimization outside of the home, stating, "most victimizations are not very traumatic, cost-benefit analyses do not necessarily favor preventive behavior, and opportunity structures and structural constraints determine the extent to which one is capable of changing routine activities" (p. 144). Hindelang and colleagues (1978) suggest that when victims do make changes following an event, these changes are most likely "subtle adjustments" with individuals making changes, not in what they do generally, but in the ways that they go about these activities (p. 224). Presented in a different context, Fisher and colleagues (2010) examined risky lifestyles and routine activities of one-time vs. repeat sexual assault victims, finding no significant lifestyle differences between the two categories of individuals studied.

Not only do individual lifestyles, routine activities, and vulnerability contribute to single victimization events, but also to long term, persistent vulnerability to victimization (Averdijk, 2011; Fisher et al., 2010). Humphrey and White (2000) reported that childhood victimization doubles the risk of adolescent victimization, which in turn more

than quadruples the risk of victimization as a young adult. In general, three hypotheses have been proposed exploring individual behaviors following a victimization event. The *once bitten, twice shy* hypothesis suggests that victimization increases preventative measures, decreasing risky behaviors, and decreasing future risk of victimization (Hindelang et al., 1978). In the opposite direction is the state dependence argument, suggesting that a victimization event increases the probability of future victimization as it "renders the target more vulnerable and/or attractive" to potential offenders (Tseloni & Pease, 2003, p. 196). Lastly, population heterogeneity suggests that there are inherent, underlying differences between individuals that make some more prone to victimization (Hindelang et al., 1978).

Hindelang and colleagues (1978), in their discussion of population heterogeneity, note that key underlying differences among individuals include differences in age, marital status, employment status, and sex. Not only do these four characteristics increase repeat victimization for individuals, but also for households. When one member of a household has been victimized, other persons residing within that household are also at a greater risk for victimization (Hindelang et al., 1978). This suggest the inclusion of other social or neighborhood characteristics within the heterogeneity argument (Lauritsen & Quinet, 1995), including associations with potential offenders. In their examination of one-time versus repeat victims, Hindelang et al. (1978) reported that a key difference was relationship to the offender, with one-time victims more likely to experience victimization at the hand of a stranger, compared with repeat victims who were more likely to have non-stranger offenders.

The main issue in distinguishing between population heterogeneity and state dependence is temporal ordering, especially in regards to psychological differences among individuals. In other words, do underlying, pre-existing psychological characteristics (such as anxiety and shyness; Lauritsen and Quinet, 1995) consistently increase vulnerability to victimization or does an initial victimization event alter the psychological state of a victim, therefore increasing the possibility of future events? It is also possible that this relationship is reciprocal (Clay-Warner et al., 2016).

Psychological trauma among victims is often studied in relation to post-traumatic stress disorder (PTSD) symptoms displayed after an initial victimization event. Lauritsen and Quinet (1995) suggested this idea in a key study of repeat victimization. Using five waves of NYS data, the authors examined assault, robbery, and vandalism victimization as related to neighborhood characteristics and family and peer variables, along with fundamental demographic variables emphasized by lifestyle-exposure theory. After finding support for both state dependence and population heterogeneity, they argued that a victimization event may result in psychological changes in a victim that increase their vulnerability to future victimization. Future research in this area examined these symptoms as a form of PTSD.

Clay-Warner and colleagues (2016) conducted an innovative study of repeat victimization by using multiple waves of NCVS data and propensity score matching to pair victims and non-victims on a series of demographic characteristics and risky lifestyle variables. They found a correlation between high-risk victims and the likelihood of PTSD symptoms following a victimization event. PTSD symptoms may increase the perception

of vulnerability by an offender, increasing victimization risk. This argument supports both the population heterogeneity hypothesis, as well as state dependence.

In general, PTSD symptoms, in relation to sexual assault victimization, are related to changes in the ability to process risky situations and respond in a protective manner (Yeater, Hoyt, Leiting, & Lopez., 2016). Furthermore, increased victimization history interacts with greater presence of PTSD symptoms, further decreasing decision-making ability among repeat victims, along with their ability to identify potentially risky situations (Yeater et al., 2016).

Messman-Moore and Brown (2006) explored the possibility of decrease risk assessment using a longitudinal study of college women. In this inventive research design, Messman-Moore and Brown (2006) used vignettes with increasingly risky scenarios. Their initial data collection revealed that women with a history of sexual victimization had a decreased perception of risk compared to women without a victimization history. After approximately eight months, the researchers followed up with respondents about victimization experiences that had occurred since the vignettes. In general, findings suggested that victimization history interacted with vignette responses. "Hypothetically, women who agreed to accompany the acquaintance to a secluded place such as his apartment (e.g., late leavers) were more likely to report being raped during the follow-up period than women who refused to go with the acquaintance to his apartment" (p. 168).

Porter and colleagues (2015) supported these findings in a similar study using vignettes, but no follow-up period for victimization. They reported no differences in respect to victimization history and recognizing risk. However, respondents with a

history of sexual assault stayed in the hypothetical scenario for a longer period of time,

despite risk acknowledgement, and were more likely to predict that the scenario would

end in consensual sex. Women with a victimization history were also more likely to be

concerned about what the hypothetical male would think if she left, worrying that rumors

would be started or that the male would think poorly of her. This final finding supports

the possible reciprocal effect of victimization on psychological symptoms, with a

victimization event decreasing self-efficacy and the ability to process a risky situation,

increasing future victimization risk.

These findings support the need for *The General Theory of Crime*, in combination

with L-RAT, to be further explored in relation to interpersonal crimes or those in which

women are more likely to be victims. Up until this point in the literature, the studies

covered have focused on in-person, or what could be deemed "traditional" forms of

victimization. The following section will explore how these theories can be applied to the

changing trend of criminal behavior and victimization, that which occurs through the use

of technology.

Vulnerability, Lifestyles, and Technology

Self-Control and the Internet. As noted, low self-control leads to a host of

problem behaviors, including impulsive decision making, increased vulnerability,

increased association with delinquent individuals, and decreased empathy (Gottfredson &

Hirschi, 1990). The last point may make it difficult for individuals with low self-control

to relate to others or understand their intentions (Gottfredson & Hirschi, 1990; Schreck,

1999). Schreck's (1999) components of self-control on vulnerability can be applied to

cybervictimization as well. A lack of future orientation results in a decreased focus on

long-term consequences. In the online world, this concept can be applied to individuals who pirate media or visit pornography websites, increasing their risk of accidentally downloading malicious software, among other possibilities (Bossler & Holt, 2009). In regards to the other components, individuals with low self-control may be less able to gauge intentions and emotions of others, be less likely to use security software, be more likely to get into arguments or communicate with supporters and/or offenders of cyber-crime (Bossler & Holt, 2010), and be more impulsive during online shopping, resulting in increased risk of fraud targeting (Reisig et al., 2009). Greater self-control has been found to increase perceived risk and fear of online victimization, resulting in greater prevention measures (Higgins et al., 2008).

In a study of 573 undergraduate students, Bossler and Holt (2010) measured the effect of self-control, cyber-deviance, and peer offending on the likelihood of cyber-crime victimization. Victimization in this study was operationalized as someone stealing your password, altering computer files without your permission, being sent a virus, having your credit card information stolen, or being harassed online. The authors found that individuals with lower reported levels of self-control were more likely to have their password stolen, their information changed without their permission, and to be harassed online. The authors argue that these crimes tend to be non-random and more person-based, as opposed to the potential randomness of downloading malware or having electronic credit information stolen. In other words, an individual with low self-control is more likely to associate with delinquent peers online, increasing their exposure to potential offenders.

As research exploring the influence of self-control and L-RAT concepts is relatively new, few studies have combined the theories to explore cybervictimization, with Ngo and Paternoster (2011) among the first. Using a large sample of undergraduate students, respondents were asked to report on a range of online victimization experiences.[2] Overall, individual self-control was related to experiencing online harassment only, while L-RAT variables were related to online harassment in the expected direction. The authors note the difficulty in operationalization of L-RAT variables in cyberspace and argue for continued experimentation and conceptualization of these ideas for future research. Other research using self-control and L-RAT components to explore online harassment, interpersonal victimization online, and other forms of interpersonal technological deviance will be reviewed in the following chapter.

Lifestyles – Routine Activity Theory. Developed in 1979, prior to the invention of the internet, the original propositions of routine activity theory relied on the convergence of a victim and offender in a physical space. Cohen and Felson (1979) even hint to a technological application in their work: "Many technological advances designed for legitimate purposes…may enable offenders to carry out their own work more effectively or may assist people in protecting their own or someone else's person or property" (p. 591).

Proponents of the application of this theory to cybervictimization argue that "the cyber-spatial environment is chronically spatio-temporally disorganized," therefore making the utilization of a routine activity approach inappropriate for the explanation of

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[2] These included "getting a computer virus, receiving unwanted exposure to pornographic materials, being solicited for sex, encountering phishing, experiencing online harassment by a stranger and by a non-stranger, and experiencing online defamation" (p. 779).

cybervictimization (Yar, 2005, p. 424). Despite this argument, it is becoming more common for crimes to occur without victims and offenders ever coming face to face, suggesting that victims and offenders do not need a physical meeting place, but a common network or platform (Pratt, Holtfreter, & Reisig, 2010; Reyns, 2013). Research on this premise has consistently focused on college students, a traditionally high-risk group, with an ever-growing dependency on social connectedness through online means (Reyns et al., 2011).

The first consideration of applying L-RAT to cybervictimization is how to adapt and operationalize key concepts from in-person to online. While the exact items asked to respondents vary by study, generalities amongst studies exist. Proximity or exposure to likely offenders has been measured as types of programs used and activity online (Bossler & Holt, 2009; Holt & Bossler, 2008; Pratt et al., 2010; Reisig et al., 2009; Reyns, 2015), amount of time spent online (Bossler, Holt, & May, 2012; Marcum, Higgins, & Ricketts, 2010; Ngo & Paternoster, 2011; Pratt et al., 2010; ; Reisig et al., 2009; Reyns et al., 2011), and amount of information displayed on social media (Reyns et al., 2011). Lack or absence of guardianship has been operationalized as use of any protective software (Bossler & Holt, 2009; Bossler et al., 2012; Holt & Bossler, 2008; Marcum et al., 2010; Ngo & Paternoster, 2011; Reyns, 2015), having friends who engage in online deviance (Bossler et al., 2012; Holt & Bossler, 2008; Reyns et al., 2011), and characteristics of use, such as where the computer is being accessed (Bossler et al., 2012; Marcum et al., 2010). Collectively, these studies have suggested the application of L-RAT online with respect to exposure to likely offenders and target suitability. However, there has been considerable debate over guardianship online.

The most heavily debated application of routine activity theory to online victimization is operationalization of guardianship. As originally conceptualized by Cohen and Felson (1979), guardianship consists of a real world, human component. This has been supported by Hollis and colleagues (2013) who note "there must be some human presence that acts to reduce the likelihood of a criminal event occurring" (p. 74). Online victimization explored through offline guardianship measures, such as location of the computer and presence of in-person guardians, has not found support in the literature (Reyns et al., 2015). Arguably, this method may simply be trying to force a square peg into a round hole. While there can be a human component to online activity, such as conversing on social media through a group scenario, online activities do not typically include the presence of an *online* human guardian.

Operationalization of target attractiveness online has also found little agreement in routine activity literature and is mainly determined by on the study's dependent variable. For example, Bossler and colleagues (2012) examined online harassment and bullying among middle and high school students. In this instance, target suitability was defined by the sex, race, and school performance of the respondents. In contrast, Ngo and Paternoster (2011) used self-control and routine activity concepts to study seven different types of online victimization ranging from online harassment to receiving a computer virus. In this instance, target suitability was measured using a series of items including talking with strangers online, sharing personal information online, and opening unfamiliar attachments or messages. Fraud and identify theft research have conceptualized target suitability as amount of online shopping (Pratt et al., 2010).

Overall, recent research has shown that there is indeed a place for the routine activity approach in the study of online victimization. What is presently lacking is the fully developed integration of lifestyles/exposure theory into this framework. It can be suggested that some of the variables discussed above could be deemed "risky" online behaviors, such as visiting and providing personal information on unfamiliar websites (Reyns, 2015) or allowing strangers access to personal information through social media (Reyns et al., 2011). However, there is much room for expansion and exploration of these topics as they relate to online victimization. These concepts will be considered further in the next chapter when reviewing research related to online interpersonal victimization, most notably, risk of cyberstalking.

Conclusion

The theories detailed in this chapter, lifestyles/exposure, routine activity, and the vulnerability thesis, predicated on *The General Theory of Crime*, have had a profound history explaining in-person victimization, beginning with property and violent crime. More recently, scholars have been adapting these theories to explaining other forms of victimization including, interpersonal or crimes against women and crimes which occur purely in an online context. Few attempts have been made to merge these two pathways, with the exception of recent works using L-RAT concepts to explore interpersonal crimes that originate online, mainly cyberstalking. The next chapter will examine the recent trend of relationships beginning online and their potential for increased risk of online interpersonal victimization.

CHAPTER III

Technology-Facilitated Relationships

The internet offers a broad spectrum of activities for creating and building relationships, from Facebook and Twitter to Tinder and Grindr. Compared with face-to-face communication, the online world provides users relative anonymity, reduced importance of physical appearance, reduced impact of physical distance, and greater control over time and place of interactions (Aretz, Demuth, Schmidt, & Vierlein, 2010; Couch & Liamputtong, 2008; Daneback 2006; Joinson, 2004; Xia, Ribeiro, Chen, Liu, & Towsley, 2013). These factors can work in conjunction to reduce accountability of users and increase feelings of depersonalization, possibly fostering antisocial behavior (Guadagno, Okdie, & Kruse, 2012).

While use of personal ads (e.g. Match.com, Yahoo! personals, etc.) is still prevalent, college age singles are increasingly using mobile dating applications, such as Tinder (Lenhart, 2014). Compared to their predecessors, these applications forego traditional personality questionnaires, require minimal effort for profile creation, and rely heavily on proximity to users. These GPS-based applications are the fastest growing among the college age population, age 18-24 (Smith, 2015), due to their game-like design, focus on immediate gratification, and cost, using advertisements as opposed to subscription fees. The following chapter will chronicle this evolution of online dating platforms, focusing on the increase in risky online behaviors that have resulted. It is this transformation of relationships from in-person to online, occurring in conjunction with the rise of the hook-up culture, that suggests the need to research the behaviors of users, along with the potential negative consequences.

A Brief History of Online Dating

Dating through the use of personal advertisements has been available for decades through the use of newspapers or other public print with computer match making first introduced in the late 1950s. Through the use of a questionnaire and an IBM 650 computer, which requires a small room to operate, students at Stanford matched 49 pairs of men and women on a series of personal characteristics (Gillmor, 2007). Other projects combining computers and the search for love followed in the 1960s from Harvard and the University of Massachusetts (Finkel, Eastwick, Karney, Reis, & Sprecher, 2012). When combined with the beginning of online communication in the 1980s, these primitive matchmaking programs set the stage for widespread use of the internet to meet potential romantic partners.

Online dating platforms have evolved through three major stages. The first was online personal advertisements. These commercial services most prominently began in 1995 with the establishment of Match.com. Match.com, followed later by similar websites such as Plenty of Fish, originally relied on self-selection of potential partners. Users would upload a profile, with any pictures or information they would like to share, then browse the profiles of other members. While Match and Plenty of Fish provide a wide database of profiles, several more specific websites also emerged (Finkel et al., 2012). These specialty dating websites allowed for a variety of subpopulations based on fandom (trekdating.com, for Star Trek fans), religious orientation (JDate or Christian Mingle), race (BlackPeopleMeet.com), political ideologies (trumpsingles.com), and even those who suffer from an STD (positivesingles.com).

The second progression of online matchmaking began with eHarmony in 2000 and the use of mathematical algorithms. These algorithms are mathematical formulas that analyze answers to personality and relationship questionnaires to suggest the most compatible users. For instance, the dating website OKCupid asks users a series of questions about themselves and what they want in a potential partner, along with how important each characteristic is. The website, designed by two math majors, then places different weights on each answer, based on user-specified importance, and creates a compatibility score, suggesting pairing of members with the highest compatibility score (Rudder, 2013).

Algorithm-based dating websites frequently advertise a staff of clinical psychologists or other academicians. eHarmony boasts a success rate of 600,000 marriages that were matched using "29 dimensions of compatibility" (eHarmony, 2016), including emotional temperament and social styles, among others (Finkel et al., 2012). However, some are quick to point out that, despite research presented at a national conference, eHarmony has failed to document this success through the peer-review process due to poor methodology (Epstein, 2009). Algorithm-based websites have even advanced to the point of using facial and biological characteristics to find a successful partner (i.e., GenePartner.com, which matches users based on their DNA profiles). Even noted researchers have explored these statistics, one team including Philip Zimbardo, concluding that "When eHarmony recommends someone as a compatible match, there is a 1 in 500 chance you'll marry this person….Given that eHarmony delivers about 1.5 matches a month, if you went on a date with all of them, it would take 346 dates and 19 years to reach [a] 50% chance of getting married" (Thompson, Zimbardo, & Hutchinson,

2005, p. 3). However, users of these applications recognize the time and effort required to sift "through a lot of crap to be able to find somebody" (Beck, 2016).

Most recently, online "matchmaking" has transitioned to GPS-based pairing and cell phone applications. These platforms rely heavily on the use of pictures, with limited text, to find potential partners in a user's close vicinity. One of the most popular applications based on this model is Tinder, which was released in 2012 and is currently available in 196 countries, claiming over ten billion matches since its inception (Tinder, 2016). Tinder operates by showing users pictures of other members. A text description is deemed optional and not visible without the user taking additional steps. If a user likes the picture, they note this by swiping the picture right. If two users mutually like each other's pictures, they are alerted and may begin messaging back and forth through the application. Unlike match making websites of the past, mobile applications such as Tinder base their success off of quantity, not quality, boasting their number of "swipes" and "matches" as opposed to number of serious relationships formed.

As discussed previously, lifestyle theory (Hindelang et al., 1978) posits that role expectations and social constructs work together to influence an individual's lifestyle. A major proposition of lifestyle theory is that individuals will disproportionately interact and socialize with those people who share similar lifestyles. Generally, this is a basis of the online dating environment, especially through the use the different styles of applications discussed above. The use of the internet for finding sexual relationships was originally used exclusively by sexual minority individuals (Couch & Liamputtong, 2008). Online options allowed not only for a more comfortable environment to pursue potential

partners, but also increased access to individuals with similar backgrounds, interests, and sexual preferences.

As the technology progressed to algorithms and commercial marketing, companies like eHarmony and Match.com advertised the ability to find a "soul mate" or potential marriage partner. These websites, which require a monthly subscription fee, are targeted toward adults who have greater disposable income and are seeking long-term, more permanent relationships. With the advent of mobile dating technology and a focus on basic instinctive choices relying heavily on photos, as opposed to written profiles of interests, etc., the business of online dating absorbed an influx of young adults who were looking for short-term connections and one-night rendezvouses. Therefore, each of these stages of development created a clustering of individuals with similar demographics, relationship intentions, and lifestyles who were seeking similar relationship experiences.

Through the invention of geographically-based applications, structural constraints are now significantly decreased with students no longer having to attend social events or converse with classmates to form social connections. In regards to the potential for victimization, the pool of potential offenders is increased exponentially, as is the pool of potential victims. An offender can reasonably spend more time waiting for the most desirable target within their geographical comfort area (a range they may control through the application) a proposition discussed by Hindelang et al. (1978).

The Current State of Online Dating

Historically, using the internet to find a romantic partner was looked down upon, possibly due to issues with safety and deception or the idealized view of love as spontaneous and incapable of being formulated through the use of scientific equations

and mathematical algorithms (Sautter et al., 2010). While gay men were the first major group of individuals to seek offline sex through online means (Couch & Liamputtong, 2008), in recent years, seeking offline sexual encounters using the internet has become more common across all groups, with public stigma decreasing (Aretz et al., 2010; Cali, Coleman, & Campbell, 2013; Epstein, 2009; Finkel et al., 2012; Hogan, Dutton, & Li, 2011; Lenhart, 2014; Ramirez, Bruant Sumner, Fleuriet, & Cole, 2015; Sales, 2015). Compared to a decade ago, adults now are more likely to view online dating as "a good way to meet people" and less likely to view online daters as "desperate" for a partner (Smith & Duggan, 2013, p. 3).

There are many reasons that an individual chooses to engage in online dating, ranging the spectrum of friendship to sexual activities, including seeking a soul mate, seeking excitement, easing boredom, ease of meeting people, being busy with work, moving to a new city, or even being with a partner who is unable to be sexually active (Couch & Liamputtong, 2008). The use of online dating platforms or social networking sites for sexual activities does not apply exclusively to non-committed individuals (Couch & Liamputtong, 2008; Koeppel, Smith, & Bouffard, 2013).

As stated by the authors of a study on users of online dating websites, the "speed of getting to know somebody is controllable and anonymity can be maintained, which can reduce inhibitions and increase self-confidence" (Aretz et al., 2010, p. 8). Other positive features of online dating include no time constraints, the ability to contact a variety of people from diverse cultural and socio-economic backgrounds, and a large pool of potential partners (Aretz et al., 2010). Perhaps best stated by Daneback (2006), online dating allows for anonymity, accessibility, affordability, and acceptability. The latter

refers to the ability to explore social and sexual fantasies that may be considered taboo in the offline world. Not only are there a wide range of applications for an individual's preferences, online dating also allows for a quick exit if a user finds themselves in an awkward or uncomfortable situation.

Even in 2002, before the online dating "boom," a study reported that 9.8% of survey respondents had used the internet to facilitate offline sexual activities (Couch & Liamputtong, 2008). Due to the lack of empirical research on motivations for online dating, Couch and Liamputtong (2008) conducted a qualitative study of fifteen users of an online dating platform. When asked their reasons for pursuing partners over the internet, the participants provided an extensive list, including seeking a soul mate, seeking excitement and fun, ease of use, being busy with work or children, having recently left a partner, and moving to a new city.

More recent explorations into the use online dating platforms have reported a growing number of users. Funded by the Pew Research Center, the Internet & American Life Project (2005 and 2013), was conducted using telephone interviews of a national sample of approximately 2,200 Americans age 18 and older. According to the 2013 data, 11% of respondents had used an online dating application of some sort, with almost half of single respondents engaging in this activity. In the PEW study, the most common online dater was a single male, 25-34, with some college and an income between $50-75 thousand (Smith & Duggan, 2013).

Overall, the PEW data only provides a small window into the typical user of online dating websites and it is generally argued that there is no stereotypical profile of someone who uses online dating (Aretz et al., 2010). More specifically, few studies on

the topic have explored the college age population and the presence of mobile applications. The majority of early research into users of online dating report a mean respondent age of 30 to 40 years old (Bapna, Ramaprasad, Shmueli, & Umvarov, 2016; Daneback, Månsson, & Ross, 2007; Hogan et al., 2011; Houran & Lange, 2004; Kang & Hoffman, 2011; Ramirez et al., 2015; Rosenfield & Thomas, 2012; Sautter, Tippett, & Morgan, 2010). However, there are has been a three-fold increase in online dating platforms for 18-24 year olds in recent years (2013-2015; Smith & Anderson, 2016).

As of 2014, Tinder boasted an estimated 50 million users, 3.6 million of which were solely mobile users, with 50% between ages 18 and 24 (Smith, 2015). This is most likely due to Tinder's original marketing campaign, which was targeted directly to college students, specifically fraternity and sorority members (Seal, 2015). While Tinder can be used to find long-term relationships, it has a media reputation as being a "hook-up" app, where users will meet for a one-night rendezvous, or a place where overt sexuality runs rampant, (Alter, 2015; Beck, 2016; Sales, 2015). The application has gained such high popularity that it has been profiled by multiple media outlets, such as *New York Magazine* and *Vanity Fair*, and used for entertainment on television through late night talk shows (e.g., "Live Tinder" on the *The Late Late Show*). Even broad coverage magazines such as *The Atlantic* have noted the normalcy of mobile dating applications in modern relationship formation (Beck, 2016). This increase in use of online dating platforms among college age individuals, previously discussed as one of the most high-risk populations for victimization, warrants an exploration of the potential dangers faced by an ever more technological generation.

Potential Risks and Dangers of Technology-Facilitated Relationships

   Deception and Self-Presentation. Users of online dating sites report frequently seeing misrepresentations of physical appearance, relationship goals, age, income, and marital status in an attempt to avoid being "filtered out" of searches or to portray an idealized version of self (Gibbs, Ellison, & Heino, 2006). This strategy is not surprising after viewing an article posted by the dating website Plenty of Fish, a concept similar to Match.com, describing the "Ideal Woman [and Man] of 2014" (Gooding, 2014). The ideal woman was reported as Catholic, thin, 25 years old, with a post-secondary degree, a dog, a past relationship of 3-8 years, and considered herself a heavy or social drinker. The ideal man was a Christian, with a doctorate degree, who wanted a relationship, making between $100,000 and $150,000 a year, with brown hair, and an athletic build (Gooding, 2014). Based on these descriptions of what is considered most desirable, it does not come as a surprise that individuals engage in deceit when trying to find a partner online, with men more likely to emphasize status and women emphasizing physical attractiveness (Guadagno et al., 2012).

   This concept has been supported in multiple studies of online dating users. Guadagno and colleagues (2014) surveyed 148 undergraduate students about their self-presentation in online environments, finding that both men and women use deceptive self-presentation. Men attempted to make themselves look more resourceful, more dominant, and nicer, whereas females were more deceptive about their physical appearance. These findings revealed that men were significantly more likely to portray altered personality characteristics when speaking to potential partners online, especially when they planned on meeting a date in person. Men were also more likely to present a

lowered level of neuroticism, attempting to appear more emotionally stable and kind. A 2001 study of undergraduate students found that 40% of respondents had lied on the internet, mainly when discussing their age, weight, appearance, marital status, or gender (Knox, Daniels, Sturdivant, & Zusman, 2001).

In general, deceit is usually found in a person's appearance, age, marital status, parental status, income or profession, with Epstein (2007) noting that "the shorter and heavier people are, the bigger the lies" (p. 2); however, there are gender differences reported. Male users of online dating websites are more likely to misrepresent their education, income, height, age, marital status, and undesirable personality traits (Epstein, 2007; Guadagno et al., 2012; Hancock, Toma, & Ellison, 2007), while women are more likely to falsify or distort their weight, physical appearance and age (Epstein, 2007; Hancock & Toma, 2009; Hancock et al., 2007). Some users also present false information about their relationship intentions or current status. One notable case involved a U.S. military officer who was simultaneously dating fifty women from a series of online dating websites, even proposing to many of them (Albright, 2007). Stories such as this are not unique in the world of online dating.

Cases of online deception are frequently covered in the media with public fascination resulting in the advent of the term "catfishing" or "catfished." To catfish someone online is to deceive them, usually through the assumption of a false identity. This phenomenon has become so fascinating and frequent that an MTV show was developed in 2012 and has had six seasons of young adults trying to find out if the person they have been speaking to online, sometimes for years, is who they claim to be. Catfishing has even made its way into some research aspects. Bettencourt (2014), in her

study of undergraduates, found that males and females were equally likely to be victims of this deception. There are many reasons why an individual may choose to engage in intentionally deceptive behavior, including revenge, boredom, loneliness, or those who simply want to emotionally hurt others. There are entire websites dedicated to potential photos for a fake profile that will garner the most attention (McHugh, 2013).

Overall, catfishing comes in many forms with reported online deception varying greatly based on the population studied. For example, a study of Match.com members, who are generally older than college-age, reported that less than 10% of respondents had engaged in intentional deception, while almost 90% felt they had been intentionally deceived by a potential partner online (Gibbs et al., 2006). It is possible that these discrepancies are due to what Ellison and colleagues (2006) refer to as the "Foggy Mirror Syndrome," where individuals use slight deception while highlighting what they believe are their best attributes. This can lead to a "gap between self-perceptions and the assessments made by others" (p. 428). In other words, what one person feels is only a slight misrepresentation of themselves, another person may view as a blatant and intentional fabrication. This view seems more likely and has been supported by other researchers examining self-presentation in the online environment (Hancock & Toma, 2009; Hancock et al., 2007).

Deception and self-presentation is only one concern in the realm of online dating and social media applications. Beginning in 2014, Australian researchers Henry and Powell began exploring the concept of technology-facilitated sexual violence (TFSV), beginning a body of research on the potential correlations between technology and interpersonal victimization. They conceptualized TFSV as:

- The unauthorized creation and distribution (actual or threatened) of sexual images,

- The creation and distribution (actual or threatened) of sexual assault images,

- Using a carriage service to procure a sexual assault,

- Online sexual harassment and cyberstalking,

- Gender-based hate speech, and

- Virtual rape (p. 85).

It is important to note that these six forms of victimization are discussed by Henry and Powell solely in the context of cyber-space or other technological contexts. These will be expanded upon in the following sections, beginning with the first two concepts.

Sexually Explicit Messaging. More recent studies have applied *The General Theory of Crime* to the new phenomenon "sexting," or sending sexually explicit texts, pictures, or videos through cell phones, social media, or even email (Reyns, Burek, & Fisher, 2013). This increasingly popular behavior is most common among college-age students (Gordon-Messer, Bauermeister, Grodzinski, & Zimmerman, 2013), with research in the area focused almost exclusively on this age group (e.g., Burkett, 2015; Reyns, Henson, & Fisher, 2014). This means of communication is used mainly to entertain a current significant other or to entice a prospective partner into forming a relationship or engaging in a sexual encounter (Reyns et al., 2013). Reyns and colleagues (2014) found that this "digital deviance" (p. 288) can be linked to decreased self-control, relationship status, and even drug use. Similar studies have reported relationships between these activities and cybervictimization through online threats and harassment (Reyns et al., 2013).

The prevalence and correlates of sexually explicit messaging has quickly gained interest among researchers in a range of disciplines from health or sociology. Klettke and colleagues (2014) conducted a review of 25 studies exploring this behavior, published between 2008-2013. Overall, more than half of respondents in prevalence studies reported both sending and receiving sexually explicit images. Engaging in sexually explicit messaging behaviors was also correlated with other risky sexual behaviors, including increased sexual partners, engaging in unprotected sex, and using substances prior to sex.

In general, females have been reported as more likely to send sexually explicit messages (Gordon-Messer et al., 2013; Lounsbury, Mitchell, & Finkelhor, 2011; Reyns et al., 2014); however, this population is also more likely to be pressured to send messages (Burkett, 2015) and face negativity as a result of doing so. Not only can this pressure lead to what has been called "unwanted but consensual" messaging (Drouin & Tobin, 2014, p. 412), an oxymoron in itself, senders are at risk of their images being shared without their consent. When this occurs, the victim has little opportunity for recourse as the individual consented to taking the original photo, despite not consenting to its distribution (Powell & Henry, 2016). In a multi-study comparison, Lounsbury and colleagues (2011) found that 17% of respondents reported receiving an explicit message and forwarding it to a third-party. In many cases, image sharing is not initially intended to cause harm, with the most common reason being the assumption that other people want to see the pictures, to gloat, or as a joke (Klettke et al., 2014). This non-consensual sharing of images, coupled with the gender-based double standards of this behavior, have resulted in various forms of distress for victims, with suicide being the result in extreme cases (Rosin, 2014).

These outcomes are not meant to imply that sexting must always be considered a deviant behavior, but that it becomes so when someone feels pressured into sending images or when messages are shared without the consent of the sender. It has been suggested that sending/receiving of explicit messages is now a regular step in relationships that begin online, in many cases, before two individuals ever meet in person (Burkett, 2015). Interestingly, in the meta-analysis conducted by Klettke and colleagues (2014), multiple studies reported that respondents were fully aware of the dangers of this behavior and still continued to engage in these acts.

Online Harassment. Risky sexual behaviors through technology have also been linked to an increased likelihood of online harassment (Baumgartner, Valkenburg, & Peter, 2010). Online harassment comes in many forms, including receiving unwanted sexually explicit images or sexual solicitations, being called offensive names, being purposefully embarrassed, physically threatened, or even cyber-stalked (Duggan et al., 2015). This form of victimization has been referred to as "quick and easy violence" (Melander, 2000, p. 266), due to the ease at which individuals can engage in these behaviors.

The most common age group reporting online harassment are 18-24 year olds, three-quarters reporting some form of online harassment, with many victims being women. There are few gender differences in various forms of online harassment, with the exception of sexual-based comments and stalking. In these avenues, women far outnumber men as victims (Duggan et al., 2014). A nationally representative sample of internet users revealed that young adult (age 18-24) women were twice as likely to be

sexually harassed online compared to men (25% vs. 13%) and over four times more likely to be victims of cyberstalking (26% vs. 7%; Duggan et al., 2014).

Research exploring victimization through online harassment has been limited, especially in regards to using L-RAT concepts. As detailed in the previous chapter, these include risky lifestyle behaviors, such as risky online sexual behavior, exposure to likely offenders, target suitability, and lack of capable guardianship. For this reason, international research, despite the possibility of occurring in a differing social context, is deemed important for review.

Exploring risky online sexual behaviors and their relationship to online sexual harassment and solicitation, Baumgartner and colleagues, 2010) surveyed Dutch citizens, ranging in age from 12-50+, finding that men were more likely to engage in risky sexual behaviors, such as searching the internet for someone to talk about or have sex with, send explicit images, and sending personal information to someone they knew online only. Males age 18-29 were the most likely of all groups studied to send out their address or phone number to someone they had met online. Despite males being more likely to engage in these risky behaviors, female respondents were significantly more likely to receive unwanted sexual solicitations.

In regards to L-RAT conceptualizations, exposure has generally been measured as types of online activity and time spent online, suitability as demographics or amount of personal information shared on a user profile or through private messages, and guardianship as physical computer location and protective software (Holt, Bossler, Malinski, & May, 2016; Marcum et al., 2010). Of the few studies exploring online harassment through the framework of L-RAT, target suitability has had the most

significant relationship with online victimization (Marcum et al., 2010), suggesting that users who share personal information and engage in higher amounts of private messaging are falling victim to increased sexual expectations by the people they are encountering online.

Most recently, Holt and colleagues (2016) conducted a study of middle and high-school age students, examining their online routine activities, self-control, and victimization through online sexual harassment. The authors found that online sexual harassment was significantly related to the amount of time spent online and number of pictures posted, along with individual self-control. Unfortunately, the study did not include a measure for private messaging behaviors and information shared through this manner.

Despite research only recently appearing in this area, the general online location of this victimization has been discussed heavily, with the majority of harassment taking place on social media platforms, such as Facebook and Twitter, where almost 90% of 18-29 year olds are active users (Greenwood et al., 2016).While Facebook is overwhelmingly the most popular social media application presently, those requiring less identifying information, such as Twitter and Instagram, are rising in popularity (Greenwood et al., 2016). With this anonymity comes an increase in harassment from strangers or unknown offenders. In their study of online harassment, the Pew Research Center reported that in over half of online harassment incidents, the victim had no relationship with the offender (Duggan et al., 2014). Increasingly, the harassment may turn to threats including murder and rape. Writing about her own experiences with online harassment and threats of rape, a columnist for the Pacific Standard detailed the multiple

comments and threats she received after penning a feminist article, stating "None of this [threats of rape] makes me exceptional. It just makes me a woman with an internet connection" (Hess, 2014, p. 2). In her case, as with an overwhelming 26% of young adult women, these harassments can escalate into cyberstalking (Duggan et al., 2014).

Cyberstalking. Online harassment can progress into cyberstalking when certain behaviors are targeted at a single individual (Cavezza & McEwan, 2014), are persistent, and unwanted (Reyns, Henson, & Fisher, 2012). Cyberstalking is a relatively new term in criminology, and as such, has been described using a range of behaviors including prolonged harassment, threats, intimidation, solicitation, sending viruses, or online identity theft/impersonation. These behaviors may occur directly to a potential victim, through personal messaging, or indirectly through public social media or blog posts (Sheridan & Grant, 2007).

Due to relative infancy of the concept, it is often difficult for victims to recognize their experiences as cyberstalking. In a vignette study of undergraduate students, respondents were presented with details of an actual cyberstalking case where the offender was convicted (Alexy, Burgess, Baker, & Smoyak, 2005). Only one-third of respondents in the study labeled the scenario as cyberstalking. There is some evidence that cyberstalking awareness is increasing. Using data from the NCVS supplemental victimization survey, Nobles and colleagues (2014) reported that 300 respondents were victim to cyberstalking behaviors, but less than half recognized their situation as such. Cyberstalking behaviors have become so increasingly common that the term "Facebook stalking" is casually and frequently used to describe obsessive monitoring of or searching through an individual's social media page (Lyndon, Bonds-Raacke, & Cratty, 2011).

Generally speaking, victims of cyberstalking are disproportionately female (Drebing, Bailer, Anders, Wagner, & Gallas, 2014; Nobles, Reyns, Fox, & Fisher, 2014; Reyns et al., 2011; Sheridan & Grant, 2007) with offenders most commonly either an ex-partner (Alexy et al., 2005; Cavezza & McEwan, 2014) or stranger (Reyns et al., 2011; Sheridan & Grant, 2007). As mentioned, cyberstalking behaviors can appear similar to online harassment, but differ in longevity. In an expansive study of German social networking sites, Debring and colleagues (2014) surveyed over 6,000 respondents. Approximately 40% of users reported experiencing online harassment with 19% reporting harassment that lasted more than two weeks, progressing into cyberstalking. Almost half of these victims reported their offender engaging in cyberstalking behaviors for up to a year with half of victims contacted daily or several times a week. In Nobles et al.'s (2014) examination of NCVS data, the average cyberstalking offender was active for over two continuous years. Unfortunately, research on victim responses suggests that the majority of victims do not take any self-protective measures (Nobles et al., 2014) and simply hope the offender will cease their behaviors (Alexy et al., 2005).

Limited research exists examining cyberstalking victimization through the traditional criminological theories detailed in the previous chapter. Marcum and colleagues (2014) found a significant relationship between cyberstalking victimization and low self-control among a large sample of high school students. Reyns and colleagues (2011) have also explored cyberstalking victimization, but through the framework of L-RAT. Their results found that increased use of messaging applications and social media networks, along with allowing strangers to access personal information, had positive

relationships with an individual's risk of being cyberstalked. These findings support further research applying L-RAT and self-control to cyberstalking victimization.

In many instances, cyberstalking behaviors present simultaneously with or follow other forms of victimization including offline stalking (Sheridan & Grant, 2007) or sexual coercion (Zweig et al., 2003), suggesting the application of repeat victimization theories to cyberstalking victimization. In one of the premiere studies of cyberstalking behaviors, Sheridan & Grant (2007) reported that of 1,000 stalking victims, only 4% experienced purely online stalking, with the majority of victims experiencing purely offline stalking, or offline with a small cyber component. Due to increase in social media applications and access to technology, these ratios are beginning to change (Nobles et al., 2014). Drebing and colleagues (2014) reported cyberstalking behaviors in almost half of the stalking cases they examined with a small percentage (16%) originating online before moving to offline behaviors.

Risky Online Lifestyles

In many instances, the ultimate goal of using an online dating platform is to meet someone in person, whether to form a relationship, a friendship, or have a brief sexual encounter. A two-wave national survey of adults, How Couples Meet and Stay Together (HCMST), revealed that meeting online is now the second most common way for heterosexual couples to meet, behind meeting through friends (Rosenfield & Thomas, 2012). A similar study of married couples revealed that one-third had met their spouse online (Cacioppo, Cacioppo, Gonzaga, Ogburn, & VanderWeele, 2013). Online dating platforms seem to show even greater success among sexual minority couples. For 2010, the HCMST reported that nearly 70% of same-sex couples had met online. European

studies have also found a greater use of online dating applications by sexual minority users (Daneback et al., 2007; Hogan et al., 2011).

Bapna and colleagues (2016) conducted a randomized experiment of online dating users by giving half of the users complete anonymity when viewing other profiles. Generally speaking, most dating applications will show the user a list of other people who have viewed their profile, even if the person viewing decides not to send a message. Both women and men in the anonymous group were significantly more likely to view profiles for the same sex when compared to the control group. Combined with results from HCMST, it can be inferred that online platforms provide a more comfortable place for those who may feel uncomfortable or judged in conventional meeting places. This is echoed by other scholars who note an increased feeling of acceptability when using the internet to find potential partners (Daneback, 2006; Hogan et al., 2011; Ross, 2005). Newer dating applications do not allow users to see all individuals who have viewed their profile, but only the ones who have "liked" them. In theory, this serves to decrease feelings of rejection as users who cannot see those who didn't choose them.

Research examining how quickly a face-to-face meeting occurs is limited, but it has been suggested that the relationship is curvilinear (Ramirez et al., 2015). Users do not want to meet a stranger before getting to know them generally; however, waiting too long to meet someone can lead to decreased interest in the person, or alternatively, an idealized perception that can never be achieved (Kang & Hoffman, 2011; Walther, 1996). Research has been limited on the amount of time that usually elapses between first online communication and initial face-to-face meeting, with some suggesting that quicker meetings corresponds with overall relationship success (Ramirez et al., 2015). Others

would argue that it is these quick meetings can increase chances of victimization (National Crime Agency, 2016).

Mobile dating applications and, more generally, the transition to online lifestyles, provides a new context in which to apply seminal theories of the past. Hindelang and colleagues (1978) suggest that risky behaviors and lifestyles increase risk of victimization. Mobile dating applications are purposefully targeted towards college age adults who crave technology and shy away from close personal relationships. The role expectations inherent in the college lifestyle promote an environment of brief sexual encounters and increased alcohol intake (Allison & Risman, 2014). Mobile dating applications promote these role expectations while removing many of the structural constraints placed on the average college student. Quantity of potential partners over a greater geographical area, free use of the application, and the ability to have sex without dating (a potentially costly endeavor) all work in favor of college students who are typically on a budget and have limited free time (Sales, 2015). Relating this concept to Hindelang and colleagues (1978) original conception of lifestyles exposure theory, mobile dating applications are quickly becoming a shared adaptation among the college age population and are encouraging an ever increasing online lifestyle (Beck, 2016).

Conclusion

The present study attempts to fill the current research gaps by exploring the risks of cyberstalking victimization as a result of risky behaviors occurring through the use of online dating applications. There has been an increase in research using criminological theories of victimization to explore cybervictimization, as well as research exploring cyberstalking and online harassment. The present research will apply these concepts and

theories to a rapidly expanding area of cyberspace, that which is used to pursue

interpersonal relationships. The next chapter will detail the present study and the research

questions that will form the analysis.

CHAPTER IV

Methodology

This dissertation explores the relationship between self-control and risky behaviors in relation to cyberstalking victimization. Repeat victimization theories are examined through the possible effect of prior victimization on this relationship. In addition to these main efforts, further exploration intends to investigate how online dating platforms are used to pursue relationships, along with the individual behaviors and situational characteristics that are involved in these relationships moving to an offline environment. It is suggested that this movement to online lifestyles has created new potentials for victimization through online risky behaviors. In order to pursue answers to these questions, original data were collected from a sample of undergraduate students. The following chapter describes in detail how the sample was chosen, how data was collected, and variables measured in the survey instrument. Lastly, the plan of analysis is presented.

Data

The data used in this study were obtained from a systematic random sample of undergraduate students from a mid-sized university in Southeast Texas. Data collection began on the first day of class, August 24th, 2016 and concluded on September 20th, 2016.[3] Preceding the collection period, the survey instrument was subject to pilot tests in two courses of undergraduate Criminal Justice students. The pilot groups took the survey under supervision of members of the data collection team and were solicited for feedback on content and language. Specifically, the test groups were able to remark on the wording

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[3] Undergraduate, on-campus, enrollment at this time was 17,668 students (Office of Institutional Effectiveness, 2016).

of specific questions and additional areas of popular social media that should be explored.[4]

After the test phase, potential respondents were chosen through systematic random sampling of classes offered on-campus. First, a list of all classes was formulated based on Fall semester [2016] course offerings. The sampling frame was a replication of the official course list posted by the registrar; first, by degree abbreviation; then by course number. The most common concern with systematic random sampling is potential issues with periodicity, referring to when the sampling frame is listed in a cyclical or regular pattern (Maxfield & Babbie, 2009). However, this was not expected to be an issue in the present study as each academic department offered a sufficiently large and varied number of courses. The large number of course offerings by each department, relative to the selection interval increased odds that no department would be excluded from the selection process. Moreover, the ordered arrangement of the sampling frame was expected to assist in avoiding solicitation of multiple sections of the same course and to have an equal distribution of courses across campus, based on department size.

The sampling frame was further refined by removing all online courses and labs. The labs were not suitable for selection, primarily because they are paired with a lecture and could potentially result in selecting the same group of students twice. After the refinements and exclusions, a total of 1,750 courses made up the completed sampling frame, resulting in an approximate average of 28 students per course.

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[4] The main addition, based off feedback from the pilot sample, was the addition of a social media section, exploring how social media could lead to potential romantic or sexual relationships.

To achieve a 99% confidence rate based on the student body population, with a confidence interval of ±3, 1006 completed surveys were needed.[5] Based on the average students per class, a total of 36 classes would be needed to reach the goal, if all students were present and participated. To account for the possibility of non-response or declines to participate from instructors, it was decided to send a much higher number of recruitment emails, and choose 100 classes for initial solicitation.

Using the refined sampling frame of 1,750 course offerings, from 72 different departments, a random number generator selected a whole number between 1 and 18; this number became the start point to begin choosing courses (1750/100 = 17.5, rounded up to 18). From there, every 17th then 18th course was chosen alternately until 100 courses were chosen (see Bachman & Schutt, 2017).[6] The instructors of record for the selected courses were sent a solicitation email asking for permission to survey their class in the first three weeks of the semester.[7] The time frame was chosen to maximize access to classrooms when it was assumed attendance would be high. One week after sending the initial email, a follow-up email was sent to the sample. Due to low response rates at the time of the follow-up, with less than 15 instructors agreeing to participate, a second sample of 50 classes was drawn to ensure that the target number of respondents would be reached.[8] After one week, a final follow-up email was sent to all professors from both samples who

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[5] The formula used for calculating sample size was: $ss = \frac{Z^2 \times (p) \times (1-p)}{c^2}$, where Z = the Z value, p = percentage picking a choice, expressed as a decimal, and c = the confidence interval, expressed as a decimal (Creative Research Systems, 2016).

[6] Classes selected from 53 different departments. Departments excluded had an average five courses offered during the fall semester (range = 1-14), making them less likely to be chosen using systematic random sampling.

[7] In cases where an instructor had not been assigned to the course, the department chair was emailed inquiring about who this would be.

[8] The second sample was also chosen using systematic random sampling with a random start, and a sampling interval of 35.

had not responded. In total, 55 instructors initially agreed to allow their class to be surveyed. Due to scheduling conflicts, such as requesting a survey time after data collection ended, not responding to follow-up emails, or courses being removed from the schedule, 47 separate courses from 28 unique departments, were scheduled for surveys. This was 11 more courses than the estimated required minimum to meet the goals for statistical confidence. Based on enrollment for the participating courses, the potential sample was 1,701 students.

Potential respondents were not offered any incentive to participate, and prior to each session they were informed that their participation was voluntary and that their responses would remain anonymous. Using the University's Institutional Review Board cover letter (see Appendix A), potential respondents were provided an informed consent, prior to beginning the survey. Due to the sensitive nature of some survey items, respondents were informed that they did not need to respond to questions that made them feel uncomfortable. Lastly, in compliance with IRB protocol, the back page of the survey instrument contained information for campus counseling services. Services included free individual and group counseling, as well as specialist referrals, if needed.

Individual survey time was approximately 40 minutes to completion and resulted in a total of 1,445 responses, for a response rate of 84.95%. Respondents over the age of 30 were removed from the sample, resulting in 122 deleted cases, or approximately 9% of the original sample.[9] Lastly, 23 cases were removed where a respondent did not indicate

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[9] Respondents over 30 were removed due to the current study's focus on the young adult population.

their sex, yielding a final total of 1310. This final sample was 61.3% female along with

50.5% white, 20.5% black, and 24.0% Hispanic.10

Variables in Analysis

Dependent Variable.

Cyberstalking Victimization. Cyberstalking is a relatively new concept in

victimology and has yet to be fully integrated into the NCVS. To measure cyberstalking

victimization exclusively, five items were used from Reyns, Henson, and Fisher's (2012)

seminal work. These five items measured contact, harassment, unwanted sexual

advances, threats of violence, along with identity fraud. For the first four items (i.e.,

repeated contact after being asked to stop, persistent harassment, unwanted sexual

advances, and violent comments or threats), respondents were specifically asked if the

action had occurred "on more than one occasion." As these measures capture repeated or

persistent behaviors, respondents were classified as cyberstalking victims if they

answered "yes" to any of the items presented. Full descriptive statistics for stalking

victimization can be found in Table 1.

Table 1
Descriptive Statistics –Cyberstalking Victimization

Victimization Type	**N**	**%**
Repeated contact after being asked to stop	466	35.57
Persistent harassment or annoyance online	301	22.98
Unwanted sexual advances	237	18.09
Spoken to violently or threatened physically	153	11.68
Pretended to be you online, without your permission	100	7.63
Any cyberstalking victimization	**568**	**43.36**
No cyberstalking victimization	**623**	**47.56**
Missing	119	9.08

10 Enrollment data was available for Fall 2016 at the time of this writing, but this data was not separated based on sex or race. Data from Fall 2015 report that 61.1% of SHSU undergraduates were female, 52.5% white, 18.5% black, and 20.4% Hispanic (Office of Institutional Effectiveness, 2016b).

Victimization Covariates.

Respondent history of sexual assault and offline stalking are included in the overall models as potentially influencing cyberstalking victimization risk based on repeat victimization arguments of state dependence (Tseloni & Pease, 2003) and population heterogeneity (Hindelang et al., 1978). As noted in previous chapters, offenders may use cyberstalking behaviors to continue to exert power and control following an initial victimization event (Woodlock, 2016; Zweig et al., 2013).

Sexual Assault. Sexual assault victimization was measured using the 10-item Sexual Experiences Survey (SES; Koss, Gidycz, & Wisniewski, 1987). Items on the survey measured a range of sexual assault, including both "sex play (touching, kissing, or petting, but not intercourse)" to sexual intercourse, as a result of continued pressure or arguments, use of an authoritative position, threats of force, use of force, or use of alcohol/drugs. This series of questions was used, as opposed to the NCVS, due to their more encompassing nature of sexual assault.[11] The situations discussed in the Sexual Experiences Survey are not fully discussed in legal statutes, but still represent potentially traumatic victimization experiences (Franklin, 2010).

The 1987 Sexual Experiences Survey (Koss et al.) is a 10-item scale measuring a series of non-consensual sexual encounters. Koss and colleagues released an updated version of this scale in 2007 with over 35-items. Due to concerns over time restrictions and survey fatigue, the 10-item SES was used in the present study. This will be discussed further in the limitations. Based on Koss and colleagues (1987) initial study using this 10-

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[11] In example, the NCVS (2015) screening questionnaire asked respondents to report "any rape, attempted rape, or other type of sexual attack" (p. 5). It is possible that being coerced into sexual acts through authority or pressure, as discussed in the Sexual Experiences Survey (Koss et al., 1987), would not be reported by a victim under the NCVS language.

item scale, an ordinal variable was created with five potential categories (as seen on pp. 165-166), for purposes of descriptive statistics only. The first category "No sexual aggression or victimization," coded 0, was individuals who did not answer "yes" to any of the SES questions. "Sexual contact," coded 1, represented individuals who had experienced sexual contact through coercion, misuse of authority or force, but without penetration (items 1-3 of the questionnaire). "Sexual coercion," coded 2, consisted of individuals who engaged in sexual intercourse due to pressure or misuse of authority (items 6-7). "Attempted rape," coded 3, indicated *attempted* sexual intercourse through the use of force or alcohol/drugs (items 4-5). Lastly, "Rape," coded 4, included individuals who had experienced sexual intercourse as a result of alcohol/drugs or threats/force. This also included oral or anal penetration by objects other than a penis (items 8-10). These classifications were mutually exclusive and based on a hierarchy rule, indicating that they were categorized based on the most serious form of victimization reported. For instance, if a respondent indicated that they had both given into sexual intercourse due to pressure from an authority figure and experienced an attempted rape event, they would be coded as a "3" to reflect the more serious offense.

Respondents were asked to report "yes/or" for each victimization item. While this approach may create an issue with temporal ordering, it was preferable to asking respondents to report victimization since entering college, or turning 18, as a significant proportion of the sample was freshman. Descriptive statistics for each category are reported in Table 2. For full model analyses, sexual assault victimization was dichotomized into simply a "yes/no" item.

Table 2
Descriptive Statistics – Sexual Victimization

Victimization Type	N	%
Sexual contact	114	8.70
Sexual coercion	115	8.78
Attempted rape	55	4.20
Rape	105	8.02
Any sexual assault victimization	**389**	**29.69**
No sexual assault victimization	**813**	**62.06**
Missing	108	8.24

Approximately one-third of respondents (29.69%) reported any form of victimization from the SES.[12] Similarly high numbers have been reported using the SES (ranging from 31-54% of respondents reporting sexual victimization; see Humphrey & White, 2000 and Koss et al., 1987, respectively). The most frequently reported experience was sexual coercion (8.78%), followed by sexual contact (8.70%), completed rape (8.02%), and attempted rape (4.20%).

Stalking. Stalking victimization was measured using two sets of items. First, victimization was indicated using a series of seven-items taken from the NCVS Supplemental Victimization Survey (2006), which are commonly used in studies measuring stalking behaviors (e.g., Fox et al., 2016; Nobles et al., 2012). Respondents were asked if anyone, "not including bill collectors, telephone solicitors, or other sales people…ever frightened, concerned, angered, or annoyed you by": (1) "making unwanted phone calls to you or leaving messages;" (2) sending unsolicited emails or unwanted letters, e-mails, or other forms of written correspondence or communication;" (3) following you or spying on you;" (4) "waiting outside or inside places for you such as your home, school, workplace, retail, entertainment venue, or recreation place;" (5)

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[12] When examining this variable by sex, 39.84% of females and 19.59% of males reported any history of sexual victimization as measured by the SES.

"showing up at places where you were even though he or she had no business being there;" (6) "leaving unwanted items, presents, or flowers;" or (7) "posting information or spreading rumors about you on the internet, in a public place, or by word of mouth." Unfortunately, there is no way to disentangle possible electronic behavior from items 2 and 7, based on question wording. Issues such as these remain a limitation when studying stalking victimization.

Unlike cyberstalking measures, stalking items did not measure repeat behaviors, but single acts. Therefore, respondents were coded as a victim of stalking behaviors if they checked two or more of the items listed, to meet traditional definitions of multiple behaviors.[13] This coding strategy is expected to produce a conservative estimate of stalking victimization among the sample, as it does not capture victims who experienced repeated and persistent forms of a single behavior. Descriptive statistics for stalking victimization are presented in Table 3.

Table 3
Descriptive Statistics – Stalking Victimization

Victimization Type	N	%
Frightened, concerned, angered, or annoyed by:		
Unwanted phone calls or leaving messages	473	36.11
Unsolicited or unwanted communications	228	17.40
Following or spying	187	14.27
Waiting outside or inside places	191	14.58
Showing up at places where you were	187	14.27
Leaving unwanted items	119	9.08
Posting information or spreading rumors	292	22.29
Any stalking victimization (2+ behaviors)	**425**	**32.44**
No stalking victimization	**766**	**58.47**
Missing	119	9.08

[13] Due the limitations of this measure, it is assumed that stalking among this sample will be a conservative estimate as victims were are experiencing high levels of a single stalking behavior will be excluded as victims in the analysis. Furthermore, it was possible that respondents reporting behaviors 2 and 7, those with a potential electronic component, were double-reporting this victimization in the cyberstalking section of the survey, therefore creating an issue with multicollinearity. Upon exploration, it was revealed that only six respondents had been classified as cyberstalking victims and reported stalking victimization through items 2 & 7 only.

Note: Stalking victimization as defined through NCVS (2006) items.

Measuring stalking using items based on the NCVS Supplemental Victimization

Survey (2006), 32.44% of respondents reported experiencing two or more stalking

behaviors, with the most frequently reported offense being unwanted phone calls or

messages (36.11%). Using items from Reyns et al. (2012), 43.36% of respondents

reported experiencing cyberstalking, with the most frequently reported behavior being

repeated contact after the respondent asked the offender to stop (35.57%). These results

are similar to those reported in Reyns et al. (2012), where approximately 40% of college

age respondents had experienced a form of cyberstalking. In regards to offenders in the

present study, respondents who answered "yes" to any of the items from either set of

questions, most frequently reported that the offender was a stranger (38.94%), followed

by an ex-boyfriend/ex-girlfriend (31.51%).

Independent Variables.

Self-Control. As discussed at length in the previous chapter, low self-control is

frequently used in victimization literature to predict risk of victimization (see Pratt et al.

2014 for a meta-analysis of 66 studies examining this relationship). More recently, low

self-control has been linked to risk of cyber victimization (Bossler & Holt, 2010; Marcum

et al. 2014; Ngo & Paternoster, 2011) and sending explicit messages (Reyns et al., 2014).

In this sample, self-control was measured using the 24-item Grasmick scale (Grasmick et

al., 1993). The full Grasmick scale, or a shortened version, is the most commonly used

method for measuring self-control in criminological literature (Pratt et al., 2014) and

includes four items for each of six components of Gottfredson and Hirschi's *General*

Theory of Crime.14 The Likert scale ranged from (1) strongly disagree to (4) strongly agree, and produced acceptable reliability ($\alpha = 0.85$). The set of 24 questions was combined into an index scale calculating the respondent's average score for all 24-items. This method had a potential range of 1-4, and reverse coded for lower scores to indicate lower levels of self-control. Factor loadings for the scale are available in Table 4. Descriptive statistics for self-control ($M = 2.47$, $SD = 0.41$), as well as other dependent variables, will be presented in Table 9.

Table 4
Self-Control – Item Factor Loadings and Scale Reliability

Scale	Factor Loading	Reliability
Self-Control (Eigenvalue = 4.876)		0.847
I often act on the spur of the moment without stopping to think.	0.501	
I do not devote much thought and effort to preparing for the future.	0.386	
I often do whatever brings me pleasure here and now, even at the cost of some distant goal.	0.579	
I am more concerned with what happens to me in the short run than in the long run.	0.480	
I frequently try to avoid projects that I know will be difficult.	0.380	
When things get complicated, I tend to quit or withdraw.	0.307	
The things in life that are the easiest to do bring me the most pleasure.	0.403	
I dislike really hard tasks that stretch my abilities to the limit.	0.344	
I like to test myself every now and then by doing something a little risky.	0.484	
Sometimes I will take a risk for the fun of it.	0.580	
I sometimes find it exciting to do things for which I might get into trouble.	0.589	
Excitement and adventure are more important to me than security.	0.601	
If I had a choice, I would almost always rather do something physical than mental.	0.446	
I almost always feel better when I'm on the move than when I am sitting and thinking.	0.324	
I like to get out and do things more than I like to read or contemplate ideas.	0.347	
I seem to have more energy and a greater need for activity than most other people my age.	0.314	

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14 The six components discussed by Gottfredson & Hirschi (1990) are impulsivity, simple tasks, risk seeking, physical activities, self-centered attitudes, and temper.

I try to look out for myself first, even if it means making things difficult for other people.	0.444
I'm not very sympathetic to other people when they are having problems.	0.381
If things I do upset people, it's their problem, not mine.	0.473
I will try to get the things I want even when I know it is causing problems for other people.	0.541
I lose my temper pretty easily.	0.409
Oftentimes, when I'm angry at people, I feel more like hurting them than talking to them about when I'm angry.	0.471
When I'm really angry other people better stay away from me.	0.423
When I have a serious disagreement with someone, it's usually hard for me to talk calmly about it without getting upset.	0.405

Offline Risky Lifestyles. Offline risky lifestyles were examined by asking

respondents about their sexual behaviors, alcohol use, and illicit substance use. Research

has described a consistent relationship between victimization and risky sexual behaviors

(Abbey, Ross, McDuffie, & McAuslan, Combs-Lane & Smith, 2002; Franklin, 2011),

most likely due to increased exposure to potential offenders. Initial exploratory studies of

online dating applications also show a correlation between risky or taboo sexual

behaviors and use of online dating applications (Couch & Liamputtong, 2008; Daneback

et al., 2007; Daneback, Sevcikova, Månsson, & Ross, 2013; Doring, 2009).

Risky offline sexual behaviors were operationalized by four items, including

number of consensual sexual partners using two questions, one regarding number of

sexual partners "in the last six months" and the second about number of lifetime sexual

partners. Responses were categorical with the options 0, 1-2, 3-5, 6-10, 11-15, and more

than 15. Two items measured sexual activity after drinking alcohol, one measuring

frequency of sex after drinking "any" alcohol in the last three months and one after binge

drinking. Categorical response options included "I did not have sex after drinking

alcohol in the last three months," "sometimes," "about half of the time," "most of the

time," and "every time or nearly every time." These four items were combined into an

index scale, averaging responses for the four items (α=0.762), with higher scores

indicating higher levels of risky sexual behaviors. The items loaded onto one factor with

a potential range of 0-4.5 ($M = 0.92$; $SD = 0.82$). Factor loadings for the sexual behaviors

behavior are presented in Table 5.

Table 5
Sexual Behaviors – Item Factor Loadings and Scale Reliability

Scale	Factor Loading	Reliability
Sexual Behaviors (Eigenvalue = 2.101)		0.762
How many sexual partners have you had in the last six months?	0.830	
How many sexual partners have you had in your lifetime?	0.805	
How often did you have sex after drinking any alcohol in the last three months?	0.606	
How often did you have sex after drinking five or more alcoholic beverages in the last three months?	0.631	

In addition to physical behaviors, the survey gathered information about risky

sexual attitudes through use of the Sexual Compulsivity Scale (Kalichman & Rompa,

1995). During their pilot study using the Sexual Compulsivity Scale, Kalichman and

Rompa (1995) reported that higher scores on the scale were significantly related to

increased unprotected sex and "resistance to adopting sexual risk-reducing strategies" (p.

586).[15] The scale consists of 10 items, measured using likert-style responses from (1)

"not at all like me" to (4) "very much like me," with higher scores indicating higher

levels of sexual compulsivity. The ten items loaded on one factor and were combined into

an index scale with a potential range of 1-4, averaging responses for each respondent.

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[15] While initial studies using the sexual compulsivity scale focused almost exclusively on high-risk
populations and the potential for sexually transmitted diseases, the scale has also been validated among
college age participants, finding significant relationships between scale scores and number of sexual
partners or other sexual risk-taking behaviors (Dodge et al., 2004).

The scale produced high levels of reliability (α=0.88) and an average score of 1.31

(SD=0.45), indicating an overall low level of sexual compulsivity among the sample.

Factor loadings for sexual compulsivity are available in Table 6.

Table 6
Sexual Compulsivity – Item Factor Loadings and Scale Reliability

Scale	Factor Loading	Reliability
Sexual Compulsivity (Eigenvalue = 4.576)		0.881
My sexual appetite has gotten in the way of my relationships.	0.600	
My sexual thoughts and behaviors are causing problems in my life.	0.740	
My desires to have sex have disrupted my daily life.	0.756	
I sometimes fail to meet my commitments and responsibilities because of my sexual behaviors.	0.643	
I sometimes get so horny I could lose control.	0.639	
I find myself thinking about sex at work or school.	0.621	
I feel that my sexual thoughts and feelings are stronger than I am.	0.754	
I have to struggle to control my sexual thoughts and behaviors.	0.772	
I think about sex more than I would like to.	0.673	
It has become difficult for me to find sex partners who desire having sex as much as I want to.	0.534	

Noted earlier, deception is a significant concern of individuals who use the

internet to pursue relationships (Caspi & Gorsky, 2006; Hancock & Toma, 2009). When

combined with discussions of the evolving "hook up culture," exploring the use of

deception for sexual purposes was deemed meaningful to this study. Caspi and Gorsky

(2006) report that individuals who use deception take enjoyment in the behavior,

suggesting decreased empathy, a component of Shreck's (1999) vulnerability thesis. The

Sexual Deception Scale (Marelich, Lundquist, Painter, & Mechanic, 2008) is a recently

developed scale consisting of 15 items with yes or no response options. In this context,

deception is measured as an offline, in-person behavior and is therefore captured among

the full sample. In general, the scale asks respondents about instances in which they have

lied to a partner for the purpose of having sexual intercourse, had sexual intercourse with

a partner solely for non-sexual benefits (such as resources or comfort), or had sexual

intercourse to avoid confrontation with a partner. Other research using the Sexual

Deception Scale has suggested that respondents lie to a partner to avoid conflict or

trauma or use it for self-serving purposes, both of which are potentially related to self-

control through decreased, empathy and risk avoidance, among other components of

vulnerability.

As the Sexual Deception Scale was a list of behaviors, as opposed to attitudes, an

additive scale was constructed, potentially ranging from 0-15 (α=0.82) and loaded on one

factor. Factor loadings for sexual deception are presented in Table 7. The current sample

reported low levels of sexual deception (*M*=1.73, SD=2.45) with the most common form

being respondents having "sex with someone because you wanted to please them"

(34.58%) and having "sex with someone even though you didn't want to" (25.65%).

Table 7
Sexual Deception – Item Factor Loadings and Scale Reliability

Scale	Factor Loading	Reliability
Sexual Deception (Eigenvalue = 3.817)		0.823
Told someone "I love you" but really didn't, just to have sex with them?	0.527	
Told someone "I care for you" just to have sex with them?	0.594	
Had sex with someone so they would leave you alone?	0.456	
Had sex with someone so you have someone to sleep next to?	0.514	
Had sex with someone even though you didn't want to?	0.524	
Had sex with someone in order to maintain your relationship with them?	0.592	
Had sex with someone in order to get resources from them (like money, clothing, or companionship)?	0.595	
Had sex with someone in order to maintain the resources you get from them (like money, clothing, or companionship)?	0.619	
Had sex with someone just so you could tell your friends about it?	0.483	
Had sex with someone so they wouldn't break up with you?	0.417	
Gotten a partner really drunk or stoned in order to have sex with them?	0.301	
Told someone they'd be your boyfriend/girlfriend so they would have sex with you?	0.464	

Had sex with someone, then never returned their phone calls after that?	0.535
Had sex with someone because you wanted to please them?	0.482
Faked "who you are" in order to have sex with somebody?	0.349

To capture technological risky sexual behaviors among respondents who had not used online dating applications, respondents were asked about sexually explicit messaging. Not only has this behavior been directly linked to self-control (Reyns et al., 2014), it is becoming increasingly normalized in young adult relationships (Burkett, 2015), and has been significantly linked to cyber-victimization (Reyns et al., 2013), among other negative consequences, including non-consensual distribution of images (Rosin, 2012). This measure is considered an "offline risky behavior" as an internet connection is not required to send and receive explicit images if an individual has a smart phone device. To examine explicit messaging, specifically through sending and receiving explicit images, a categorical variable was created. Respondents were asked if they had "ever (sent/received) sexually explicit images (to/from) someone online or through text messaging?" Respondents who replied "no" to both items were categorized as (0) "No explicit messaging" (29.01%), respondents who had either received explicit messages or images, but had not sent them, were coded as (1) "Received only" (19.23%), (2) "Sent only" respondents had sent explicit messages or images, but had not received them (3.36%), and (3) "Both sent and received" had both sent and received either explicit messages or images (46.16%).

Alcohol consumption independent of sexual behaviors was measured using five-items based on prior literature (Felson & Burchfield, 2004; Franklin, 2011; Ullman, Karabatsos, & Koss, 1999). Respondents were asked a series of categorical questions including, (a) "How often have you consumed the following alcohol beverages in the last

three months?" separately asking about beer and liquor/hard alcohol; (b) "How often did

you consume five or more alcoholic beverages in a single drinking occasion in the last

three months?" and (c) "How often did you drink to the point of passing or blacking out

in the last three months?" The five items loaded onto one factor and were therefore

combined into an index scale, averaging individual responses for the five items, with a

potential range of 0-6 ($\alpha = 0.76$, $M = 1.97$, $SD = 1.32$). Factor loadings for drinking

behaviors are presented in Table 8.

Table 8
Drinking Behaviors – Item Factor Loadings and Scale Reliability

Scale	Factor Loading	Reliability
Drinking Behaviors (Eigenvalue = 2.052)		0.760
How often have you consumed…in the last three months?	0.656	
Beer	0.398	
Wine	0.723	
Liquor/Hard Alcohol		
How many alcoholic beverages did you consume in a typical setting the last three months?	0.829	
How often did you consume five or more alcoholic beverages in a single drinking occasion in the last three months?	0.505	

Substance use was measured using five items. The first was a dichotomous item

measuring any lifetime use of illegal substances, with 36.61% of respondents reporting

ever using illegal substances. This was followed by four substance-specific questions

asking about frequency of use, in the last three months, of marijuana, ecstasy, cocaine,

and Adderall. These substances were chosen based on reports of the current most

frequently used illicit substances among the college age population (DrugRehab.com,

2016; National Institute on Drug Abuse, 2016). The most frequently reported illicit

substance used by respondents in the last three months was marijuana (23.59%), followed

by Adderall (6.79%), cocaine (3.28%), and ecstasy (2.37%).[16] For model analysis, drug

use was measured as a dichotomous variable for any history of drug use.

Table 9
Descriptive Statistics for Independent Variables

	Mean	SD	Range	Sample Range
Self-control	2.47	0.41	1-3.61	1-4
Risky behaviors				
Sexual behavior scale	0.92	0.82	0-4	0-4.5
Sexual compulsivity	1.31	0.45	1-3.90	1-4
Sexual deception	1.73	2.45	0-15	0-15
Alcohol scale	1.97	1.32	0-5.33	0-6
	N	**%**	**Range**	
Sexually explicit messaging			0-1	0-1
No explicit messaging	380	29.01		
Received only	252	19.23		
Sent only	44	3.36		
Both sent and received	605	46.18		
Drug use	442	33.74		

Key Exploratory Variables.

Use of Online Dating Platforms. Survey respondents were presented with two

separate screening questions to gauge use of any online dating applications: 1) "Did you

use any online dating applications in high school (such as Tinder)?" and 2) "Have you

used any online dating applications since entering college?" If respondents answered

"no" to both of these questions, they were instructed to skip to the next section of the

survey. High school use was measured to see how certain applications may appeal to

different age groups and also to capture the use of younger students who may be in their

first year of college. All descriptive statistics for use of online dating platforms will be

presented in the following chapter.

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[16] Of the 336 respondents reporting substance use in the last three months, 73.81% only used one substance, with over 90% of respondents using marijuana exclusively.

Media coverage of online dating applications has focused almost exclusively on

Tinder, along with its negative connotations (Alter, 2015; Beck, 2016; Sales, 2015).

Therefore, specific application use was measured to explore whether this application was

still monopolizing the online dating world, despite its media reputation. To measure

specific application being used, the top ten online dating applications were listed,

according to recent media reports (McAlone, 2016).[17] By far the most common

application among respondents was the mobile application, Tinder. Of all respondents

who reported using any online dating applications, 85.71% had used Tinder either by

themselves or as a group on Tinder Social.[18] Additional descriptive statistics for online

dating application behaviors will be discussed in the next chapter to explore the risky

online behaviors of application users

Profile Characteristics and Information Disclosure. To capture individual risky

lifestyles and online routine activities, participants were asked a series of questions about

their typical behaviors and amount of disclosure present in their most active online dating

profiles.[19] The items were designed to explore the core concepts of L-RAT as they apply

to the online environment. Based on prior studies examining online routine activities and

lifestyles (e.g., Marcum et al., 2010 and Reyns et al., 2011), exposure is measured

generally as the amount of time spent online or number of online-only contacts. In the

present studies, items included "how often do you check your messages account?" with

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[17] Application options included Tinder, Tinder Social, OkCupid, Plenty of Fish, Match.com, eHarmony, Bumble, Zoosk, Badoo, Grindr, and Date My School, as well as an open option.
[18] Tinder Social was released in the Summer of 2016 and allows users to combine profiles for an evening in order to meet other individuals as a group.
[19] The section was predicated with the statement, "For the next set of questions, please think about the dating applications that you use MOST OFTEN (or did use most often, if you are no longer using them)." To avoid having multiple sets of the same questions for respondents with multiple applications and profiles, questions in this section asked respondents to think about their "typical" use.

five ordinal categories ranging from multiple times a day to less than a week, and the

number of people they communicated with through the applications they most frequently

used. The latter will be detailed below.

Target suitability is assessed by the amount of information an individual shares in

the online environment, including personal details and photos (Reyns et al., 2011). Items

for this section were initially based on measures of target attractiveness from Reyns,

Henson, & Fisher (2011) and Marcum and colleagues (2010), with the list adjusted and

expanded upon based on the platforms studied in this project. Respondents were asked

how many photos they have visible on their profiles, along with what they typically

display publicly, both through photos and text, selecting from 19-items.[20] Descriptive

statistics for all online dating behaviors will be explored in the next chapter.

Traditionally, lack of guardianship references an individual's "ability to prevent a

crime from occurring" (Marcum et al., 2010b, p. 384). In the cyber world, guardianship

has been referred to as the privacy or account settings of a profile (Reyns et al., 2011). As

mentioned, guardianship in the online world is most frequently operationalized as

protective or security measures taken. For example, having a public vs. private profile,

number of "friends" an individual has online (that they do not know in a real-world

context), and location where a computer is accessed (Marcum et al., 2010; Reyns et al.,

2011). To measure guardianship in the present study, respondents were asked four

questions regarding their account settings and device on which they most frequently

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[20] The list included: first name, last name, *telephone number,* "*actual age,*" physical address, links or information about social media accounts, *who they live with*, sexual comments, emotional distress, family conflicts, *drinking alcohol, using drugs, children* and types of photos they display on their profiles (*pictures in a bathing suit, with their shirt off, in underwear, using drugs or alcohol openly, with friends*). Items in italics were original to the current study.

accessed the applications (Bossler et al., 2012; Marcum et al., 2010; Reyns et al., 2011).

Account settings included "is the GPS function active on your profile?" with potential

responses including "yes," "no," and "unsure." This was followed by if the automatic

notifications were enabled, a dichotomous variable. Lastly, to explore guardianship,

respondents were asked "where do you most frequently access these applications?" with

categories including "to find a serious relationship," "to find a casual relationship or

sexual partner," "to find new friendships (nothing romantic)," "entertainment/boredom

(no real reason)," and an open-ended "other" option.

 Promising Relationships. The amount of time spent and information an individual

gives online is best understood through motivations of the user. For many people who use

online dating applications, the ultimate goal is to meet a potential friend or partner in

person (Lenhart, 2014). To gauge respondents' intentions and behaviors regarding

meeting offline, they were asked two separate questions regarding how many individuals

they had spoken with using the applications: 1) "How many people have you talked to

online (through the app) that *you messaged first?"* [emphasis added], 2) How many

people have you talked to online (through the app) that *messaged you first?"* [emphasis

added], and 3) "How many people have you met in person using this app?" While the

first two questions seem similar, they distinguish between application users being

proactive or reactive. Proactive users are recognized as more willing to initiate

conversations, while reactive users will simply wait for someone to message them first.

 It is hypothesized that proactive users are more likely to move a relationship from

online to offline, a decision that requires many factors. To examine respondents offline

meeting behaviors, a series of items were created asking respondents to "think about the

people you spoke with online who you were <u>most interested in</u>" [emphasis added].[21]

Respondents were asked if they usually give out their phone number, social media information, and physical address to people they begin talking with online, along with how long after the first message this typically happens (less than one hour, 1-12 hours, 12-24 hours, 1-2 days, within one week, more than one week). These time frames were intended to explore not only which risky behaviors that respondents were engaging in, but also as a measure of user impulsiveness.

Lastly, regarding dating applications, if respondents indicated that they had agreed to meet someone in person, they answered questions about the characteristics of these meetings, including the geographic proximity to their residence, the type of place they chose to meet at, driving arrangements, and time of day in which the meetings usually take place. These questions highlighted offline routine activity variables. For example, individuals farther from their home may be seen as more suitable targets by an offender. Type of location focuses on public locations vs. private residences and whether or not alcohol is served. There is abundant research on the relationship between alcohol and sexual assault (S. A. Brown, Goldman, Inn, & Anderson, 1980; George & Norris, 1991; Franklin, 2011), along with how certain environments can increase feelings of aggression, such as bars which promote binge drinking (Parks & Zetes-Zanatta, 1999).

To begin, users who agreed to meet a contact offline were asked "where do you usually meet for the first time?" with the possible responses of "in the town where you live," "within 30 miles of the town where you live (half hour drive)," and "more than 30

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[21] Again, to avoid repetitive questions and gather information about the greatest number experiences, as opposed to asking respondents to single out their last offline meeting, the words "usually" and "typically" were used in many questions.

miles of the town where you live." Second, they were asked "what type of place do you usually meet at?" with responses including "a bar that serves alcohol only (no food)," "a restaurant/bar that serves alcohol and food," "a coffee shop or restaurant that does not serve alcohol," "at their residence," "at your residence," and "at a party/hand out at someone else's residence."

Despite increased suitability and exposure, Cohen and Felson (1979) argue that if guardianship exists, the likelihood of a criminal event will decrease. Guardianship has also been discussed in reference to self-control as individuals with low self-control are less likely to consider the potential negative consequences of their actions (Schreck, 1999). To examine guardianship, respondents were asked if they took any precautions when meeting people in person, including having a fully charged cell phone, carrying some form of physical protection, telling a friend or family member about their plans, or posting their plans on social media.

Online Deception. One of the most common concerns for people using online dating applications or social media is deception, or being presented with false information about a potential partner or acquaintance (Albright, 2007; Gibbs et al., 2006). This would suggest that asking online dating users about being deceived by others will result in a more accurate estimate of this behavior. As such, deceptive behavior was measured by asking respondents if they "have you EVER intentionally presented false information to someone online or through your online (social media) dating profile" [emphasis added] and "have you ever found out that someone online intentionally presented you with false information?" If yes, they were asked to choose from a series of

options they have been dishonest about or that others have been dishonest about, selecting all that were applicable.[22]

Finally, studies examining online deception have reported that people feel extremely confident in being able to detect when they are being deceived online (Caspi & Gorsky, 2006; Gibbs et al., 2006); therefore, a likert-style question was added to measure confidence in detecting deception asking "How confident are you in your ability to tell when someone is deceiving you?" with responses ranging from (1) not at all confident to (4) extremely confident. It is hypothesized that individuals who are more confident in detecting deception will engage in more risky behaviors due to an increased feeling of assuredness. Descriptive statistics for online deceptive behaviors will be presented and discussed further in the following chapter.

Control and Comparison Variables.

General Demographics. The following demographic items were asked of respondents: sex, race, employment status, student organization membership, and age. The majority of respondents in the sample were female (61.30%), which is consistent with the overall population of the university (61.15% female; Office of Institutional Effectiveness, 2016b). Full descriptive statistics for all control variables, along with variables to be used for comparison of application users vs. non-users are presented in Table 10 below.

Due to the employment cycles of college students, respondents were first asked if they were employed during the summer only, during the school year only, year round, or were unemployed, followed by whether they were employed full- or part-time. Both of

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[22] Options included name, age, gender, relationship status, sexual orientation, appearance, income/job, education, relationship intentions, religion, having/wanting children, smoking/alcohol/drug use, and other.

these items were combined into a single dichotomous variable. Responses were coded

(0), or unemployed, if respondents checked "unemployed" for either item, or were

"employed during summer only." "Employed" (1) respondents indicated that they were

employed part-time or full-time, during the entire year or during the school year only

(51.37%), as this survey was administered after the semester had started.

Prior research has indicated that active involvement in student organizations can

alter an individual's routine activities as well as their personal beliefs and attitudes

(Abbey, 2002; Koss & Gaines, 1993; Martin & Hummer, 1989). Student organization

membership was measured by a series of dichotomous items regarding involvement with

university sports (8.24%), Greek life (10.00%), honors college or honors society (7.71%),

or other, with an open-ended option (25.34%). Lastly, age was measured as a continuous

variable with respondents writing their age in years, with an average respondent age of

20.80 (SD=2.31).

Relationship Characteristics. Current relationships status and sexual orientation

of respondents were measured as these have been shown to affect whether or not

someone engages in online dating (Couch & Liamputtong; Daneback et al 2007; Hogan

et al., 2011; Knox et al., 2001; Rosenfield & Thomas, 2012).

Question responses were given a wide range of possible answers due to the

exploratory nature of college sexuality and relationships. Sexual orientation included the

response categories of "heterosexual (straight)," "homosexual (gay/lesbian)," "bi-sexual,"

"pansexual," "unsure/questioning," and "other" with an open option. This item was

recoded into a dichotomous variable for (0) heterosexual (90.53%) and (1) LGBTQ

(9.47%). Sexual orientation has been reported to be a correlate of some forms of

victimization (Hequembourg, Livingston, & Parks, 2013; Rothman, Exner, & Baughman, 2011) and has the potential to further inform research on dating violence.

Current relationship status is arguably the most important determinant of an individual using online applications to pursue new relationships, as single individuals are more likely to use online dating (Sautter et al., 2010). Respondents were asked to classify their current relationship status, with seven potential options.[23] Language used to create this item was selected based on current relationship status and relationship intentions present on social media and online dating application profiles. Relationship status was condensed into a four-item variable with (0) single, not seeking a relationship (21.37%), (1) single, seeking a relationship (26.71%), (2) casual or open relationship(s) (21.22%), and (3) serious, monogamous relationship, including marriage (30.38%). Satisfaction with this status was measured with a single question, "How satisfied are you with your current relationship status?" Responses were measured on a Likert scale from not satisfied (1) to satisfied (4) (M=3.35, SD=0.89).

Table 10
Sample Characteristics – Control and Comparison Variables (N = 1310)

	N	%	Range
Sex (Female)	803	61.30	0-1
Race			1-4
White	659	50.31	
Hispanic	312	23.82	
Black	269	20.53	
Other	70	5.34	
Employed	673	51.37	0-1
Missing	1	0.00	
Student Organizations			0-1
University sports	108	8.24	
Greek life	131	10.00	

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[23] The seven options provided were: "single, actively seeking a relationship," "single, sexually active, but not seeking a relationship," "single, not sexually active, and not seeking a relationship," "in a casual relationship with one person," "in multiple casual relationships (at the same time)," "in an open relationship (including marriage)," and "in a serious, monogamous relationship (including marriage)."

Honors college/society	101	7.71	
Other organization	332	25.34	
Sexual Orientation			0-1
Heterosexual	1185	90.46	
LGBTQ	121	9.47	
Missing	1	0.00	
Current Relationship Status			0-3
Single, not seeking a relationship	280	21.37	
Single, seeking a relationship	350	26.71	
Casual or open relationship(s)	278	21.22	
Serious, monogamous relationship	398	30.38	
Missing	4	00.31	

	Mean	**SD**	**Range**
Age	20.80	2.31	17-30
Relationship Characteristics			
Satisfaction with relationship status	3.35	0.89	1-4

Research Questions

Research Question #1: *In what ways are college students using new online technology to pursue relationships?*

> **R1a:** *What are the communication behaviors between users who have only met through online applications, including amount and pace of personal information shared?*

> **R1b:** *When deciding to move relationships from online to offline, what are the characteristics of these meetings in regards to potential risk?*

Due to relatively recent advancements in online dating platforms from algorithms designed to help an individual find a long-term partner to GPS and picture-based applications aimed at the college age population, basic descriptive information about online dating users remains few and far between. Most recently, Timmermans and De Caluwé (2017) explored personality characteristics of Tinder users in Belgium. Marret

and Choo (2016) examined factors predicting online dating behaviors and offline

victimization among Malaysian high school students.

Aside from this limited academic research on the increasing popular use of online

dating applications, little is known about how people actually use the applications to form

relationships, such as how quickly meetings are occurring and in what contexts. Before

attempting to predict victimization risk or risky behaviors among these users, it is

necessary to understand how respondents are using the applications.

Hypothesis 1: *College students are using online dating applications to pursue*

relationships, most commonly through the application Tinder.

H1a: *Respondents are engaging in a variety of risky online behaviors, including*

quickly disclosing personal information with online only contacts.

H1b: *Online dating users are using applications to facilitate face-to-face*

meetings, which occur in potentially risky contexts.

Research Question #2: *Does an individual's level of self-control correspond with*

their risky technological and online behaviors? Such as…

R2a: *Willingness to share personal information and move relationships from*

online to in-person?

R2b: *Pace at which meetings occur?*

R2c: *Admitted deception?*

R2d: *Explicit messaging behaviors?*

Self-control has repeatedly been linked to an individual's likelihood of

participating in risky behaviors. In the present study, risky behaviors include how quickly

a respondent moves a potential relationship offline and the environment they choose to

do this in. It is hypothesized that individuals with lower levels of self-control will be more proactive in their online dating and engage in more risky dating behaviors when deciding to meet a potential partner offline.

As discussed at length in the previous chapter, individuals low in self-control are less likely consider potential long term consequences of their actions and less likely to avoid potential risks (Schreck, 1999). In relation to the variables examined in the present study, it is hypothesized that low self-control individuals who decide to meet offline will do so in riskier places, such as private residences or public establishments that serve alcohol. Lacking in diligence, they are expected to be less likely to take precautions prior to these meetings.

Related to the formation of relationships and frequently discussed in literature about online self-presentation, both use of deception online and explicit messaging are commonly discussed amongst users. It is hypothesized that use of deception and sexually explicit messages will be directly related to an individual's level of self-control. Individuals who use deception online, especially in regards to appearance and age, are quickly exposed upon an in-person meeting which can cause instant distress for the deceptee (Albright, 2007). It is hypothesized that individuals who use deception have lower levels of self-control compared to users who did not engage in this behavior. Furthermore, users who report being deceived are hypothesized to have lower levels of self-control, as they may be less likely to diligently investigate potential deception or even notice that there is a possibility for deception.

Hypothesis 2: Lower levels of self-control are correlated with increased risky behaviors among respondents, including a faster pace of sharing personal

information, faster pace of offline meetings occurring, greater use of deception,

and increased sexually explicit messaging behaviors.

Research Question #3: *Do self-control, risky behaviors, or a history of in-person*

victimization increase vulnerability to cyberstalking victimization?

> **R3a:** *Is cyberstalking victimization affected by online risky behaviors or prior*
>
> *victimization, as measured among a sub-sample of online dating application*
>
> *users?*

In limited research on cyberstalking victimization, offenders use these behaviors

as a way to continue exerting power and control over a victim after an in-person

victimization event as occurred (Woodlock, 2016, Zweig et al., 2013). Others have noted

the ease and increasing opportunities for cyberstalking to occur, particularly among

technology and social media-dependent young adults (Melander, 2000; Sheridan &

Grant, 2007). Furthermore, repeat victimization arguments suggest that victims are not

only inherently different from non-victims in terms of vulnerability (Hindelang et al.,

1978), but also that this vulnerability is persistent throughout the life-course (Tseloni &

Pease, 2003). It is hypothesized in this study that cyberstalking victimization will be

correlated with past in-person victimization.

Based on the current context of the dating environment among the college age

population, including growth of the hook-up culture and instant gratification behaviors, it

is hypothesized that individuals using online dating platforms are relatively quick to meet

potential partners in an offline environment, indicating an individual with decreased

levels of self-control. Low self-control individuals may have increased eagerness to form

offline relationships, decreasing the amount of time spent becoming familiar with or comfortable with someone before meeting them in person.

As discussed in a recent *Vanity Fair* article (Sales, 2015), these quick meetings most often take place in environments with copious amounts of alcohol. Under context of meeting a stranger for a potential sexual encounter, individuals drink more alcohol to help themselves feel more uncomfortable. Victimization literature states that when women openly drink alcohol, sexual miscommunications increase (Franklin, 2011) as women are perceived as more sexual by men (Abbey & Harnish, 1995; George, Cue, Lopez, Crowe, & Norris, 1995), increasing the possibility of sexual assault (Franklin, 2011). The comparison of offline meeting behaviors through online dating applications and social media applications will be an important distinction, as social media applications do not necessarily provide the same assumptions of sexual interactions, which may decrease feelings of uneasiness, resulting in less risky behaviors.

> **Hypothesis 3:** *Respondents with lower levels of self-control, increased risky behaviors, and a history of in-person victimization will be at a greater risk of cyberstalking victimization.*
>
> **H3a**: *Online dating users who engage in risky online behaviors and risky meeting behaviors will have a greater risk of cyberstalking victimization, compared to those users who do not engage in these behaviors.*

Analytic Strategy

The analytic plan revolves around multiple sub-samples of the full data set. These differences are presented in Figure 1. Current research on the use of online platforms for meeting people is severely limited, especially in relation to negative offline

consequences. The majority of information regarding the average user and user behaviors is available strictly from media reports or from press releases created by the application developers. Therefore, the initial exploratory component of this study, as presented in research question one will report aggregated characteristics of the average user of online dating platforms, along with descriptive statistics for reported disclosure of personal information, communication behaviors, and offline meeting practices. Moreover, this work will explore these behaviors as expressed in the use of social media applications.

Self-Control Comparisons. In further developing the analysis, two-sample t-tests and chi-square distribution tests will be calculated to compare self-control among a variety of potentially risky behaviors online or through technology. Comparisons will be made between respondent self-control and potentially risky online dating behaviors, including disclosure of personal information, pace of meeting, and risky meeting behaviors.

Multivariate Models. A series of regression models will be used to examine correlates of victimization risky through risky behaviors and self-control. Repeat victimization arguments will be explored using victimization history covariates. For models exploring cyberstalking victimization risk among the full sample, the analytic strategy will be path analysis with logistic regression (Menard, 2010). This method allows for a visual and statistical representation of potentially causal relationships among variables. Specifically, a weakly ordered recursive model will be used. This allows for sets variables to be entered into the path at the same level (e.g. demographics, risky lifestlyes). To account for potential issues with temporal ordering, sexual assault and stalking will be explored as covariates in the cyberstalking model, following propositions

of state dependence. In general, the model is tested through a series of regressions, presenting results through both direct and indirect effects. The model is presented generally in Figure 2.

In Figure 2, self-control, sex, race, and age act as the exogenous variables, or those which are not being predicted. Self-control is considered exogenous in the sense that the underlying assumption of its explanation lies outside of the model (Menard, 2010). Cyberstalking victimization is explored as an endogenous variable with risky lifestyles and victimization history as intervening. Results will present both direct and indirect effects of self-control on cyberstalking victimization risk. The substantive significance of the full model will be measured using McFadden's R^2, presented as R_L^2. Also known as the likelihood ratio R^2, R_L^2 is the closest conceptually to the standard R^2 used to estimate variance in OLS models and "indicates how much the inclusion of the independent variables in the model reduces variation" among the dependent variables (Menard, 2010, p. 478).

To explore the effect of self-control on cyberstalking victimization risk through risky lifestyles variables and victimization covariates, a correlation coefficient, r, will be calculated. This measure is used as "the fundamental theorem of path analysis states the correlation between any pair of variables, such as X and Z, can be expressed as the sum of all the nonredundant paths between the two variables" (Menard, 2010, p. 151). The correlation coefficient for this model will be calculated by: (1) measuring the direct effects of both exogenous and intervening variables on cyberstalking victimization risk; (2) measuring direct effects of self-control on risky lifestyle and victimization covariates; (3) obtaining the standardized coefficients, $b*$ for the previous two sets of data; (3)

calculating indirect effects of self-control on cyberstalking victimization through each

individual risky lifestyle and victimization covariate; and lastly, (4) combining the direct

effect with all indirect effects to produce the final overall effect of self-control on

cyberstalking victimization (Menard, 2010). All calculations are done through use of

standardized coefficients, presented as *b**.

As risky online dating behaviors are a key exploratory component of this study,

victimization risk among the subsample of online dating users will be examined using a

series of backwards stepwise regressions. Greater detail of these modeling strategies will

be covered in the following chapter.
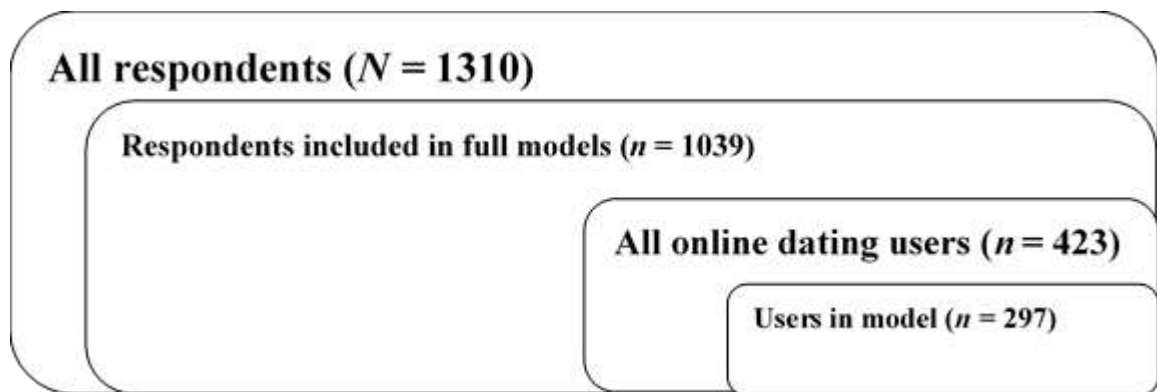
Figure 1. Graphic Representation of Samples.
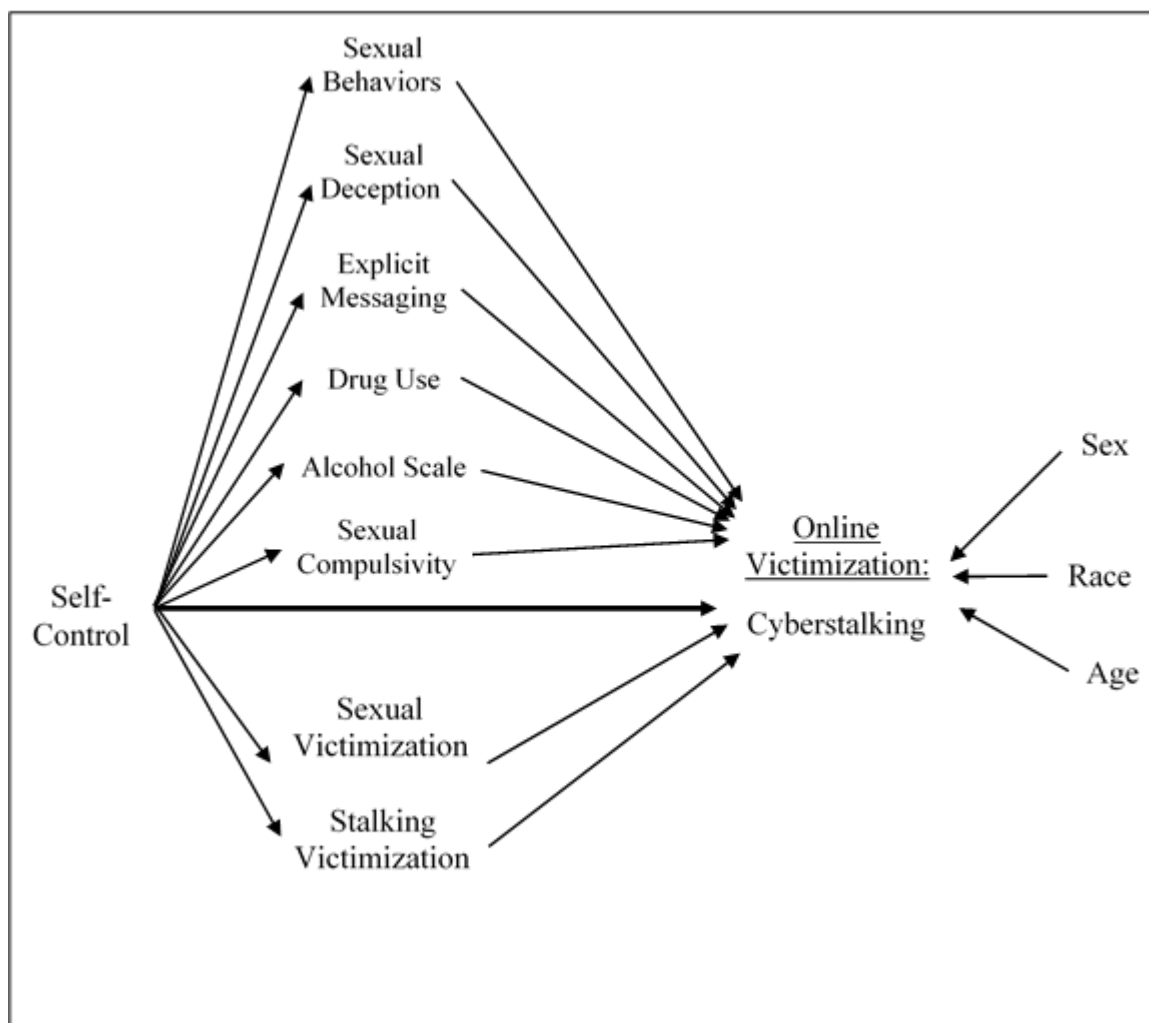
Figure 2. Full Model for Self-Control, Risky Lifestyles, and Victimization.

CHAPTER V

Results

Chapter five – Results will present, in order, the research questions proposed in chapter four, first exploring general use of online dating applications along with user profile characteristics, communication behaviors of individuals using the applications, and meeting behaviors for those respondents who decide to move a relationship from online to offline. The second major research question will require a comparison of measured self-control levels among respondents, across a series of online and technologically risky behaviors. Lastly, a series of models will be presented exploring cyberstalking victimization risk. This will be examined first using the full sample, followed by online dating users only.

RQ #1: In what ways are college students using new online dating technology to pursue relationships?

Approximately one-third of respondents ($N = 423$, 32.29%) reported using online dating applications at some point,[24] with the majority using the applications in college only. Respondents were presented with a list of popular dating applications and asked to select which ones they had used in either high school or college. As suggested by prior research into online dating communities, sexual minorities were significantly more likely to report using online dating applications ($\chi^2 = 5.90$, $p < 0.01$). Approximately 42% of sexual minority respondents had used online applications at some point, compared with 31% of heterosexual respondents.

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[24] Many mobile dating applications require the user to be 18; however, it possible that users could enter a false date of birth to gain access.

Male respondents were also significantly more likely to report a history of use (40.04%) when compared to female respondents (27.40%; $\chi^2 = 22.72$, $p < 0.01$). The overwhelming majority of respondents ($n = 354$, 83.69% of users) reported using the application Tinder, illustrating the popularity of this application among the college age population. Descriptive statistics for online dating application users are presented in Table 11. After separating users from non-users, the remaining tables for research question one focus solely on the sub-sample of respondents who reported a history of online dating application use ($N = 423$).

Table 11
Online Dating Profile Characteristics (N = 1310)

	n	**%**
Any history of use	**423**	**32.29**
High school only	50	11.82
College only	283	66.90
Both HS and college use	88	20.80
	Users Only (N = 423)	
Sex		
Male	203	47.99
Female	220	52.01
Sexual Orientation		
Heterosexual	371	87.71
Sexual minority	52	12.29
Most popular applications		
Tinder ever	354	83.69
Used in last month	155	36.64
Most frequent use location		
Cell phone	388	91.73
Personal computer	14	3.31
Other computer	0	0.00
Missing	*10*	*2.36*
GPS Active	152	35.93
Unsure	72	17.02
Reason for use		
To find relationships	201	47.52
To find friendships	92	21.75
Entertainment/boredom	207	48.94

(continued)

Frequency of use

Multiple times a day	125	29.55
Once a day	72	17.02
Once every few days	72	17.02
Once a week	25	5.91
Less than once a week	96	22.70
Missing	*28*	*6.62*

	Mean	**SD**	**Range**
Number of photos	4.53	2.08	0-10
Risky profile indicators	4.10	1.86	0-14

As most users indicated that Tinder was their application of choice, it is not

surprising that 91.73% ($n = 388$) of respondents used their personal cell phone as the

primary access point for the application. Presently, Tinder is strictly a mobile application,

available on tablets or cell phones, but not through a traditional desktop or laptop.

Interestingly, nearly half of respondents ($n = 224$, 52.95%) reported that their cell phone

GPS was enabled or that they were unsure if it was enabled during their application use.

The average user profile contained 4-5 photos with a range of 0-10 ($M = 4.53$, *SD*

$= 2.08$). Specifically, for the application Tinder, the maximum photos allowed is six.

However, the maximum number of profile photos varies by application, which could

skew results if Tinder, or similar applications with lower picture allowances, are the most

popular among respondents. Users were provided a list of 19 profile characteristics and

asked to identify which were present on their online profile. These included personal

information, types of pictures, and types of written commentary. The average user profile

contained four of the listed characteristics ($M = 4.10$, $SD = 1.86$). The most common

profile traits included the users first name (94% of profiles), user age (80%), photo with

friends (73%), last name (41%) and social media information (21%). It should not be

assumed that information presented is truthful or accurate. Deceptive behaviors will be explored later in the chapter, including the most common forms of false information.

Further exploration of user behaviors suggests a distinction between proactive users of dating applications compared to with reactive users. In providing a reason for using the applications, approximately half of respondents ($n = 201$, 47.52%) reporting using the application to find new relationships or sexual partners, perhaps representing proactive users. The other half of respondents ($n = 207$, 48.94%) reported using the applications for entertainment, boredom, or no reason at all, indicating reactive users who are enjoying the game-like design of such applications. As users occasionally selected more than one reason for use, a smaller portion of respondents reporting using the applications to find friendships. Exploring this variable by respondent sex revealed only minor differences, with male users significantly more likely to be using applications to find casual relationships or sexual partners compared to female users.

When exploring frequency of use, there is also a distinction between proactive and reactive users. Approximately one-third of respondents ($n = 125$, 29.55%) reporting checking their account multiple times during the day while another one-third ($n = 121$, 28.61%) were less frequent users, checking their account only once a week or less.

As mentioned in previous chapters, and seen through the number of respondents using the applications for entertainment purposes only, it is possible that online dating users are not actually using the application to communicate with new contacts. To examine communication behaviors, respondents were asked both about the conversations they initiated, along with conversations initiated by other users, and finally number of

people the user decided to meet in person. Communication behaviors among online dating users are presented in Table 12.

In general, users report initiating less conversations compared with conversations initiated by other users, suggesting that they are more reactive than proactive. The average user initiated between 1-5 conversations through an online dating application (n = 195, 46.10%), with 17% (n = 72) of users having never initiated a conversation through a dating application. Comparatively, a similar proportion of users (n = 78, 18.44%) of users had initiated conversations ten or more conversations. Male respondents initiated a significantly greater number of conversations through dating applications compared with female users (t = 6.32, p < 0.001).

With respect to reactive conversations, the distribution of respondents is skewed by heavy users. Similar to proactive conversations, the average user responded to 1-5 new contacts (n = 174, 41.13%). However, a higher proportion of users reported engaging in ten or more reactive conversations (n = 133, 31.44%) when compared to proactive conversations. Female respondents were more likely to be reactive users compared with males (t = -4.55, p < 0.001), suggesting the presence of traditional gender-based dating stereotypes continuing in the online dating world.

Table 12 also displays if and how quickly users share personal information with online only contacts. Over half of respondents (n = 275, 65.01%) have given their phone number to someone they first made contact with through an online dating application, with 40% (n = 109) doing so within 24 hours of the first message being exchanged. A small portion of users (n = 44, 10.40%) shared their physical address with an online only

contact with 23% of those individuals (n = 10) doing so within 24 hours of the first

message being exchanged.

Table 12
Online Dating Communication Behaviors (N = 423)

	n	%	Cumulative %
Number of users R messaged first			
More than 10	78	18.44	18.44
6 – 10	57	13.48	31.92
3 – 5	97	22.93	54.85
1 – 2	98	23.17	78.02
0	72	17.02	95.04
Missing	*21*	*4.96*	*100.00*
Number of users who messaged R first			
More than 10	133	31.44	31.44
6 – 10	60	14.18	45.62
3 – 5	89	21.04	66.66
1 – 2	85	20.09	86.75
0	33	7.80	94.55
Missing	*23*	*5.45*	*100.00*
Phone number given	**275**	**65.01**	**100.00**
< 1 hour	20	7.27	7.27
1 – 12 hours	54	19.64	26.91
12 – 24 hours	35	12.73	39.64
1 – 2 days	43	15.64	55.27
Within 1 week	77	28.00	83.27
> 1 week	46	16.73	100.00
Physical Address given	**44**	**10.40**	**100.00**
< 1 hour	5	11.36	11.36
1 – 12 hours	2	4.55	15.91
12 – 24 hours	3	6.82	22.73
1 – 2 days	3	6.82	29.55
Within 1 week	10	22.73	52.27
> 1 week	21	47.73	100.00

Lastly, the decision to meet a contact offline is a behavior of particular interest.

Descriptive statistics for the how many individuals a user has met, and how quickly, are

presented in Table 13. The majority of users (n = 294, 69.50%) in the present sample

reported meeting at least one person from an online dating application. The remaining

respondents further illustrate a sub-section of application users who purely use online

dating applications for entertainment purposes. Most commonly, users reported having

met 1-2 new contacts offline ($n = 156$, 36.88%), followed by users meeting 3-5 new

contacts ($n = 90$, 21.28%), and the smallest portion of respondents reporting more than

five in-person meetings ($n = 49$, 11.58%). Female users reported meeting a slightly

smaller of portion of users in an offline setting compared with male users ($t = 3.16$, $p <$

0.001).

Most commonly, users waited more than a week to meet a potential partner in an

offline setting ($n = 136$, 46.26%). Approximately one in five ($n = 52$, 17.68%) users

meeting offline chose to do so within 24 hours of the first message being exchanged.

Characteristics of these meetings are discussed below.

Table 13
Online Dating and the Decision to Meet Offline (N = 423)

	n	**%**	**Cumulative %**
Number of people met			
More than 10	22	5.20	5.20
6 – 10	27	6.38	11.58
3 – 5	90	21.28	32.86
1 – 2	156	36.88	69.74
0	109	25.77	95.51
Missing	*19*	*4.49*	*100.00*
Met in Person	**294**	**69.50**	**100.00**
< 1 hour	12	4.08	4.08
1 – 12 hours	19	6.46	10.54
12 – 24 hours	21	7.14	17.68
1 – 2 days	25	8.50	26.18
Within 1 week	81	27.56	53.73
> 1 week	136	46.26	100.00

Offline Meeting Characteristics. To explore characteristics of offline meetings,

users who had moved communications from online to offline ($n = 294$) were asked about

their "typical" meeting place, how they got to said place, time of meetings, and

precautions taken. Descriptive statistics of these meeting characteristics are presented in

Table 14.

Table 14
Offline Meeting Behaviors (N = 294)

	n	**%**
Geographic location		
In town where R lives	212	72.11
Outside of R's town	86	29.25
Type of place		
Public place with alcohol	126	42.86
Public place without alcohol	95	32.65
Private residence	***114***	***38.78***
R's residence	48	16.33
Other user's residence	42	9.93
Third party residence	47	15.99
Driving situation		
Drive together	68	23.13
Drive separately	232	78.91
Meeting time		
Before 6:00 PM	112	38.10
Between 6:00 – 9:00 PM	151	35.70
After 9:00 PM	71	24.15
Precautions Taken		
Fully charged phone	250	85.03
Tell family/friends	219	74.49
Physical protection	119	40.48
Posts on social media	13	4.42

Note: Percentages for each variable may equal more than 100% as many respondents
checked multiple options for each item.

Geographic meeting location was measured as in or outside of the respondent's

town of residence. Either option could be considered a risky behavior, depending on the

context of the meeting. For instance, users meeting farther from their home may be

leaving their comfort zone and increasing isolation. If alcohol is consumed during the

meeting, they may be more easily persuaded to stay at their date's residence. However,

users meeting in their home town may be pressured by out-of-town dates to let the date

spend the night, especially after alcohol is consumed. The majority of respondents ($n =$ 212, 72.11%) of respondents typically met their dates in their town of residence.

To reiterate a point from chapter one, these in-person encounters are frequently partnered with a sexual expectation, resulting in greater uneasiness and increased alcohol consumption. In general, offline meetings were most likely to happen in a public place that served alcohol ($n = 126$, 42.86%). The second most common meeting place was a private residence ($n = 114$, 38.78%), encompassing either the respondent's residence, their date's private residence, or a third-party residence in the context of a party or group get-together. The least common meeting place for first dates was a public place that does not serve alcohol ($n = 95$, 32.65%), which would arguably be the safest environment for a first encounter.

The majority of respondents ($n = 232$, 78.91%) drove separately to their first encounters, with a smaller portion ($n = 68$, 23.13%) riding together to their final destination.

In regards to time of day, respondents most commonly ($n = 151$, 51.36%) scheduled their offline meetings in the evening between 6:00-9:00 PM, with 25% ($n =$ 71) occurring after 9:00 PM. As a reminder, respondents were asked about their "typical" behaviors, not isolated incidents. Therefore, some respondents could regularly be meeting high numbers of online contacts late at night when alcohol consumption may be more likely and sexual expectations even higher.

Lastly, respondents were presented with four possible guardianship precautions to increase safety on their dates. The majority of respondents reported carrying a fully charged cell phone ($n = 250$, 85.03%) and/or telling a friend or family member about

their plans (*n* = 219, 74.49%). A smaller number of respondents carried some form of physical protection, such as pepper spray (*n* = 119, 40.48%), increasing their physical guardianship.

RQ #2: Does an individual's level of self-control correspond with their risky technological and online behaviors?

A key theoretical framework used for this study is Schreck's (1999) vulnerability thesis, suggesting that an individual's self-control is correlated with their potential vulnerability to victimization. Self-control has been related to a variety of analogous behaviors that could be deemed risky. The present research question will explore self-control as correlated with online and technologically risky behaviors including giving out personal information to an online only contact, agreeing to meet an online contact in person, using online deception, and exchanging sexually explicit images. For variables measured as whether an individual gave personal information or met in person, t-tests were used to compare mean self-control scores. How quickly meetings occurred and explicit messaging behaviors were coded using four potential response categories and are compared using analysis of variance (ANOVA) f-statistics and mean self-control scores. The first set of comparisons, self-control comparisons among individuals who shared personal information through an online dating application, are presented in Table 15.

Table 15
Self-Control and Risky Technological/Online Behaviors

	Online Dating Users Only (N = 423)		
	Mean	**SD**	***f***
Phone number disclosure			
Has given out phone no.	2.40	0.39	0.06
Has not given out	2.40	0.42	
Physical address disclosure			
Has given out address	2.29	0.42	1.86*
Has not given out	2.41	0.40	
Meeting someone in person			
Has met in person	2.40	0.38	0.30
Has never met in person	2.42	0.42	
Pace of meeting			
< 1 day	2.24	0.38	
1 – 2 days	2.32	0.43	3.29**
Within one week	2.39	0.39	
>1 week	2.47	0.42	
Type of place			
Public place w/o alcohol	2.47	0.43	
Public place w/alcohol	2.41	0.38	8.91**
Private residence	2.28	0.42	
Time of day			
Before 3:00 PM	2.47	0.40	
Between 6:00-9:00 PM	2.38	0.41	5.43**
After 9:00 PM	2.28	0.43	

$* p < 0.05$ $** p < 0.01$

Table 15 explores behaviors among only the sub-sample of online dating users ($N = 423$). There were no significant differences in self-control ($t = 0.06, p > 0.05$) between users who had given out their phone number to an online only contact ($M = 2.40, SD = 0.39$) and those that had not engaged in this behavior ($M = 2.40, SD = 0.42$). There were also no significant differences ($t = 0.30, p > 0.05$) between users who decided to meet someone in an offline setting ($M = 2.40, SD = 0.38$) and those who had not ($M = 2.42, SD = 0.42$).

Self-control did show significant differences in regards to users disclosing their physical address online and the pace at which offline meetings occurred. While only a

small subset of users gave out their physical address online, these individuals had lower levels of control ($M = 2.29$, $SD = 0.42$) compared with users who had not given out their address to an online only contact ($M = 2.41$, $SD = 0.40$; $t = 1.86$, $p < 0.05$).

The pace of meeting an offline contact, coded as less than one day, one to two days, within one week, and more than week, also displayed significant between-group differences in regards to self-control ($F = 3.29$, $p < 0.01$). After running post hoc analysis through Tukey's HSD, which simultaneously compares means between all groups for significant differences. One significant between group difference was found, that between individuals who met within one day of the first message being exchanged ($M = 2.24$, $SD = 0.38$) and those who waited more than one week after the first message was exchanged to meet in person ($M = 2.47$, $SD = 0.42$).

Differences in self-control were also significant in regards to type of place and time of day that meeting occurred. In regards to type of place where meetings occurred, riskier meeting places were correlated with lower levels of self-control ($F = 8.91$, $p < 0.01$). Individuals who met for the first time in a public place without alcohol had the highest reported levels of self-control ($M = 2.47$, $SD = 0.43$), followed by those who met in a public place serving alcohol ($M = 2.41$, $SD = 0.41$). Individuals who met an online contact for the first time at a private residence, perhaps unsurprisingly, reported the lowest levels of self-control ($M = 2.28$, $SD = 0.42$). Post hoc test revealed significant differences in self-control between individuals who generally met in a public place, compared to those who chose to meet for the first time at a private residence. No between group differences were revealed between individuals who met in a public place that served alcohol versus an establishment that did not serve alcohol.

Similar patterns of self-control were found when exploring times when meetings occurred, with significant differences between groups ($F = 5.43$, $p < 0.01$). Individuals who met during daytime hours had the highest levels of self-control for this item ($M = 2.47$, $SD = 0.40$) with individual meeting after 9:00 PM reporting the lowest levels ($M = 2.28$, $SD = 0.43$). Between group differences were significant when comparing self-control among individuals who met before 3:00 PM and those who met for the first time after 9:00 PM.

Deceptive Behaviors. A considerable concern of using online dating applications is the potential for deception. Therefore, it seemed imperative to explore if users had engaged in deception, if they felt they had been deceived, and how self-control is related. Descriptive statistics and self-control comparisons using t-tests are presented in Table 16.

Table 16
Use of Deception on Online Dating Applications

	Online Dating Users Only (N = 423)		
	n		**%**
Ever used deception	**75**		**17.73**
Age	47		62.67
Name	33		44.00
Relationship intentions	24		32.00
Ever been deceived	**223**		**52.72**
Age	161		72.20
Appearance	119		53.36
Relationship status	113		50.67
	Mean	**SD**	**Range**
Confidence in detection	2.97	0.79	1-4
Self-Control and Deception	**Mean**	**SD**	**t**
Has used deception	2.23	0.41	3.62**
Has not used deception	2.43	0.41	
Has been deceived	2.35	0.41	2.42**
Has not been deceived	2.44	0.41	

** $p < 0.01$

To begin, a significantly higher proportion of individuals reported being deceived as compared to those who reported engaging in deception ($\chi^2 = 13.35$, $p < .01$). Only 18% ($n = 75$) of online dating users reported using deceptive behaviors, most commonly altering their age ($n = 47$, 62.67%), name ($n = 33$, 44.00%), and/or relationship intentions ($n = 24$, 32.00%). Comparatively, over half ($n = 223$, 52.72%) of users felt that they had been deceived, most commonly through age ($n = 161$, 72.20%), appearance ($n = 119$, 53.36%), or relationship status ($n = 113$, 50.67%). While no sex differences were present for use of deception, male users were significantly more likely than female users to report being deceived ($\chi^2 = 5.57$, $p < .05$).

Application users were also asked about their confidence in detecting deception using a likert scale ranging from (1) not at all confident to (4) extremely confident. In general, users were confident in their abilities to see through deception presented to them through online dating applications ($M = 2.97$, $SD = 0.79$), with no significant sex differences.

Users were also compared on their self-control levels as correlated with deceptive behaviors and experiences. Individuals who engaged in deception had significantly lower levels of self-control ($M = 2.23$, $SD = 0.41$) when compared to individuals who had not engaged in this behavior ($M = 2.43$, $SD = 0.41$; $t = 3.62$, $p < 0.01$). Similarly, individuals who had been deceived had lower levels of self-control ($M = 2.35$, $SD = 0.41$) compared with individuals who had not experienced deception ($M = 2.44$, $SD = 0.41$; $t = 2.42$, $p < 0.01$).

Sexually-Explicit Messaging. Sexually-explicit messaging is growing increasingly common among young adults (Rosin, 2014), demonstrating the increasing

comfort of this population to incorporate technology into relationships. Sending and receiving of explicit images was measured among the entire sample of respondents ($N =$ 1,310), not just online dating users. The messaging component in many online dating applications does not allow for photos to be exchanged, possibly due to obscenity concerns, and an internet connection is not required to send or receive mobile images. For these series of items, respondents were coded as never having sent or received explicit images, receiving only, sending only, or both. Lastly, self-control levels were compared among categories. Descriptive statistics for sexually explicit messaging behaviors and self-control t-tests are presented in Table 17.

Table 17
Sexually-Explicit Messaging Behaviors among Respondents (N = 1310)

	n	%
Never sent/received images	380	29.00
Received images only	252	19.23
Sent images only	44	3.36
Both sent/received images	605	46.18
Missing	*29*	2.21

Self-Control and Sexting	**Mean**	**SD**	*f*
Never sent/received	2.60	0.42	
Received only	2.45	0.37	20.66**
Sent only	2.50	0.43	
Both sent/received	2.40	0.41	

** $p < 0.01$

Only a minority of the full sample reported never receiving or sending explicit images ($n = 380$, 29.00%), supporting the growing nature of this behavior among young adults. Most commonly, respondents had both received and sent explicit images at some point ($n = 605$, 46.18%), followed by respondents who had received messages only ($n = 252$, 19.23%), and those who had sent messages only ($n = 44$, 3.36%). Interestingly, of the respondents who had only sent, but never received images, 84% were females,

perhaps supporting the idea of females being more likely to be pressured into sending "consensual but unwanted" images (Drouin & Tobin, 2014).

Explicit messaging behaviors are the last self-control comparison presented in this section. An ANOVA test revealed significant between group differences for self-control ($F = 20.66$, $p < 0.01$). Perhaps unsurprisingly, individuals who had never sent or received explicit images had the highest levels of self-control ($M = 2.60$, $SD = 0.42$) and the lowest levels of self-control were among individuals who had both sent and received explicit images ($M = 2.40$, $SD = 0.41$). Post hoc tests revealed two significant between group differences. Individuals who had never sent or received sexually explicit images had significantly higher levels of self-control when compared to those who had received images only as well those who had both sent and received images.

RQ #3: Do self-control, risky behaviors, or a history of in-person victimization increase vulnerability to cyberstalking victimization?

For the final research question, all cases with data missing from key variables were removed, resulting in a sample of 1039, or a 21% reduction from the initial full sample.[25] Descriptive statistics for this sub-sample, along with chi-square and t-test comparisons to the full sample, are presented in Table 18. The full sample and sub-sample were not significantly different in regards to victimization history (cyberstalking, $\chi^2 = 0.013$, $p > 0.10$; sexual assault, $\chi^2 = 0.475$, $p > 0.10$; stalking, $\chi^2 = 0.959$, $p > 0.10$). There were no significant differences between key independent variables with the

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[25] Little's Missing Completely at Random (MCAR) test, revealed that there were significant patterns to the missing data. The most common patterns were missing victimization variables followed by drug use. Victimization questions were the last sections of the survey. The most likely explanation is that respondents ran out of time to complete the survey during the time period. Multiple professors only allotted 35 minutes or less for completion while the average survey took approximately 40-45 minutes to complete. The item measuring substance use was most likely missing due to survey design, as it followed a skip pattern.

exception of sexual compulsivity (t = -2.203, p < 0.05) and alcohol scales (t = -4.826, p <

0.01). The sub-sample reported slightly lower levels of sexual compulsivity (M = 1.27,

compared to the full sample at M = 1.31) and lower levels of alcohol use (M = 1.70,

compared to the full sample at M = 1.97).

Table 18
Descriptive Statistics for Respondents Included in Models (N = 1039)

	n	**%**	**Range**	**Full Sample Comparison**
Victimization				
Sexual assault	329	31.67	0 – 1	χ^2 = 0.475
2+ stalking behaviors	357	34.36	0 – 1	χ^2 = 0.959
Cyberstalking	498	47.93	0 – 1	χ^2 = 0.013
Sex (Female)	658	63.33	0 – 1	χ^2 = 1.018
Race (White)	536	51.49	0 – 1	χ^2 = 0.382
Explicit Messaging			0 – 3	χ^2 = 0.989
No explicit messaging	327	31.47		
Received only	194	18.67		
Sent only	35	3.37		
Both sent and received	483	46.49		
Any drug use	372	35.80	0 – 1	χ^2 = 0.173
	Mean	**SD**	**Range**	
Age	20.83	2.30	17 – 30	t = 0.313
Self-control	2.49	0.41	1 – 3.61	t = 0.121
Sexual behaviors	0.90	0.81	0 – 4	t = 0.590
Sexual compulsivity	1.27	0.42	1 – 3.90	t = -2.203*
Sexual deception	1.72	2.51	0 – 15	t = -0.097
Alcohol scale	1.70	1.38	0 – 5.33	t = -4.826**

* p < 0.05 ** p < 0.01

As detailed in the analytic strategy, four steps are taken to analyze the model

presented in Figure 2: (1) direct effects of self-control and intervening variables on

cyberstalking victimization; (2) direct effects of self-control on risky lifestyles and

victimization covariates; (3) indirect effects of self-control through intervening variables

on cyberstalking victimization; and (4) calculation of the overall effect of self-control on

cyberstalking victimization. Standardized coefficients, b^*, will be presented in text as these will be used to calculate indirect and overall effects.

To begin, the direct effects of self-control, risky lifestyles variables, and victimization covariates are tested on cyberstalking victimization with the inclusion of exogenous control variables. These results are presented in Table 19. Overall, the direct effects model explains approximately 29% of the variance in cyberstalking victimization risk ($R_L{}^2 = 0.289$, $p < 0.01$). Self-control does not have a significant direct effect on cyberstalking victimization risk ($b^* = 0.010$, $p > 0.10$). Of the six risky lifestyle variables included in the model, only one was significant, with increased sexually explicit messaging behaviors correlated with increased risk of cyberstalking victimization ($b^* = 0.120$, $p < 0.01$). Both victimization covariates were significant correlates for cyberstalking victimization risk, with sexual assault producing a stronger effect ($b^* = 0.485$, $p < 0.01$) compared with stalking history ($b^* = 0.168$, $p < 0.01$). Lastly, female ($b^* = 0.115$, $p < 0.01$) and younger respondents ($b^* = -0.085$, $p < 0.05$) were at greater risk for cyberstalking victimization.

Table 19
Direct effects of self-control, risky lifestyles, and victimization on cyberstalking victimization risk

Dependent Variable	Independent Variable	*b*	SE	*b**	
Cyberstalking	Self-Control	0.056	0.212	0.010	
	Risky Lifestyles				
$R_L^2 = 0.289$**	Sexual behaviors	-0.031	0.137	-0.011	
	Sexual compulsion	0.205	0.226	0.035	
	Sexual deception	0.172	0.148	0.055	
	Explicit images	0.216	0.066	0.120	**
	Drinking behaviors	-0.001	0.069	-0.001	
	Drug use	0.098	0.180	0.020	
	Victimization				
	Sexual	2.461	0.183	0.485	**
	Stalking	0.872	0.190	0.168	**
	Sex (Female)	0.574	0.182	0.115	**
	Race (White)	-0.143	0.157	-0.030	
	Age	-0.089	0.037	-0.085	*

* p < 0.05 ** p < 0.01

The second step of the analysis is to explore direct effects of self-control on risky lifestyle variables and victimization covariates. These relationships are presented in Table 20. Each variable includes a measure of variance explained, either as R^2 for continuous variables or McFaddens, R_L^2, for dichotomous or categorical variables (Menard, 2002).

Self-control was significantly correlated with all intervening variables explored in the model. Specifically, respondents with higher levels of self-control also had decreased sexual behaviors ($b* = -0.186$, $p < 0.01$), decreased sexual compulsivity ($b* = -0.324$, $p < 0.01$), decreased use of sexual deception ($b* = -0.293$, $p < 0.01$), decreased explicit messaging behaviors ($b* = -0.228$, $p < 0.01$), decreased drinking behaviors ($b* = -0.286$, $p < 0.01$), and were less likely to have a history of drug use ($b* = -0.194$, $p < 0.01$). With respect to the two victimization covariates, higher levels of self-control were significantly

correlated with a decreased likelihood of both sexual assault ($b* = -0.166$, $p < 0.01$) and stalking ($b* = -0.124$, $p < 0.01$) victimization history.

Table 20
Direct effects of self-control on risky lifestyles and victimization covariates

Risky Lifestyles	Independent Variable	b	SE	$b*$
Sexual behaviors $R^2 = 0.035**$		-0.368	0.060	-0.186 **
Sexual compulsion $R^2 = 0.105**$		-0.326	0.030	-0.324 **
Sexual deception $R^2 = 0.086**$		-0.549	0.056	-0.293 **
Explicit images $R_L^2 = 0.021**$		-1.027	0.149	-0.228 **
Drinking behaviors $R^2 = 0.082**$	Self-Control	-0.957	0.099	-0.286 **
Drug use $R_L^2 = 0.038**$		-0.868	0.163	-0.194 **
Victimization				
Sexual $R_L^2 = 0.016**$		-0.738	0.166	-0.166 **
Stalking $R_L^2 = 0.009**$		-0.549	0.161	-0.124 **

** $p < 0.01$

Lastly, indirect effects of self-control, through each risky lifestyle variable and victimization covariates are calculated and presented in Table 21. To determine the overall correlation of self-control on cyberstalking victimization, considering the addition of intervening variable effects, the direct of self-control is summed with the eight indirect effects. The result is a significant negative correlation between self-control and cyberstalking victimization risk ($r = -0.392$, $p < 0.01$).

Table 21
Indirect and overall effects of self-control on cyberstalking victimization risk

	Variable	Indirect Effect	Total Effects
	Risky Lifestyles		
	Sexual behaviors	0.002	
	Sexual compulsion	-0.011	Total indirect
	Sexual deception	0.016	-0.402
Self-Control	Explicit images	-0.027	
(*b* = 0.010*)	Drinking behaviors	-0.287	Overall effect
	Drug use	-0.004	*r = -0.392***
	Victimization		
	Sexual	-0.081	
	Stalking	-0.021	

Taken together, these findings suggest that individuals with higher self-control at

a decreased risk of cyberstalking victimization risk; however, this relationship is working

through a an individual's victimization history and risky behaviors. The full model for the

tables above is presented in Figure 3.
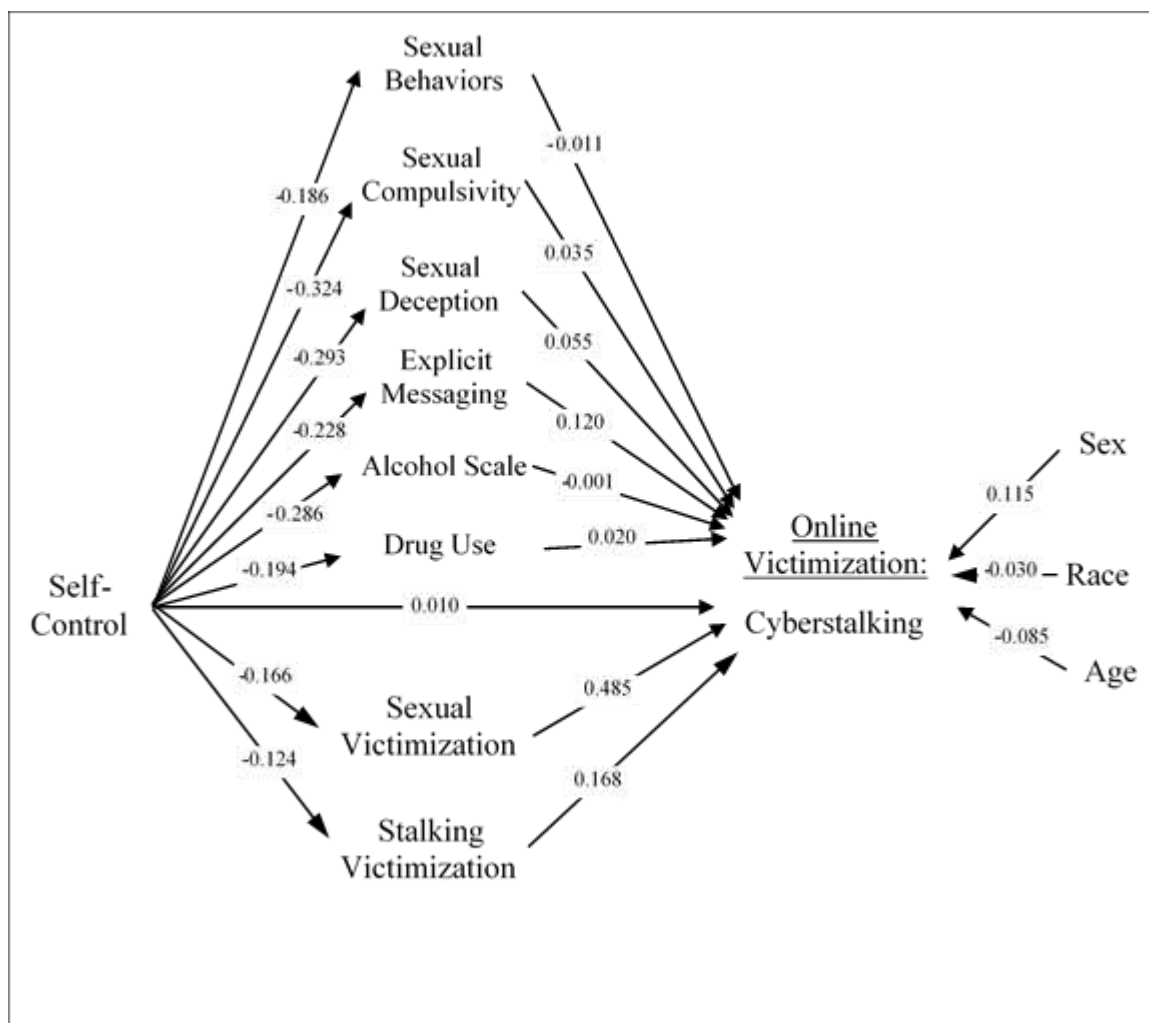
Figure 3. Full Model with Standardized Coefficients.

Victimization Risk Among Online Dating Users. A key component of this research is to explore risk factors for cyberstalking victimization among online dating users, specifically through their online risky behaviors or meeting behaviors. As this is a new potential pathway to victimization, analysis was a two-step process: (1) a correlation matrix was created between cyberstalking victimization and risky online behaviors, (2) significant correlations were entered into a backwards stepwise regression. Correlations significant at the conservative $p < 0.1$ level were entered into a logistic regression for cyberstalking victimization, with the model running multiple times and removing all

variables that were not significant at the *p* < 0.1 level. A final backwards model was

conducted, using the same steps as above, for only individuals who agreed to meet in an

online contact in an offline setting adding in risky meeting variables.

Variables for the first models were chosen based off the full models above, self-

control, risky behaviors, and control variables, along with significant correlates between

cyberstalking victimization and potentially risky online dating behaviors. The

correlations for this comparison are presented in Table 22. Online behaviors included

number of risky profile characteristics, reason for use, proactive use (how many

conversations the user initiated), reactive use (how many conversations the user

participated in that they did not initiate), disclosure of personal information, and whether

or not they had met another user offline.

Table 22
*Bivariate Correlations between Cyberstalking Victimization and Online Risky
Behaviors (Online Dating Users Only)*

Self-control	Pearson	-0.113	Profile	Pearson	0.036
	Sig.	0.029	characteristics	Sig.	0.498
Sexual behaviors	Pearson	0.219	Reason:	Pearson	0.002
	Sig.	0.000	Relationship	Sig.	0.964
Sexual deception	Pearson	0.371	Reason:	Pearson	0.082
	Sig.	0.000	Casual/Sex	Sig.	0.123
Explicit images	Pearson	0.268	Reason:	Pearson	0.032
	Sig.	0.000	Friendship	Sig.	0.545
Alcohol behaviors	Pearson	0.059	Reason:	Pearson	-0.025
	Sig.	0.261	Entertainment	Sig.	0.630
Drug use	Pearson	0.177	**Proactive Use**	Pearson	0.101
	Sig.	0.001		Sig.	0.055
Sexual compulsivity	Pearson	0.188	**Reactive Use**	Pearson	0.248
	Sig.	0.000		Sig.	0.000
Age	Pearson	-0.045	Disclosure:	Pearson	0.053
	Sig.	0.384	Phone No.	Sig.	0.311
Sex	Pearson	0.170	Disclosure:	Pearson	0.073
	Sig.	0.001	Address	Sig.	0.163
Race	Pearson	-0.057	**Ever met**	Pearson	0.114
	Sig.	0.268	**offline**	Sig.	0.030

The correlations suggested that self-control, five out of six offline risky behaviors, proactive use, reactive use, and offline meeting were significantly related to victimization risk. These variables were inserted into a backwards stepwise logistic regression model, with removal of non-significant variables at $p < 0.1$. Cyberstalking victimization risk was explored using the variables included in the two previous models, in addition to incorporating sexual assault and stalking victimization as covariates, similar to the model used for the full sample of respondents.

The model level of explained over 30% variance in cyberstalking risk ($R_L^2 = 0.315$, $p < 0.01$). Cyberstalking victimization risk was significantly correlated with six variables from the full list of variables explored. Results are presented in Table 23. For the first time in any of the risky lifestyle models, self-control was a significant correlate for cyberstalking risk, but in the opposite direction expected ($b = 0.967$, $p < 0.05$). It is possible that self-control is what helps alert online dating users to potential predators, keeping those contacts online instead of moving into an offline context, preventing escalation of cyberstalking to any form of offline victimization. Female respondents were once again more likely to experience cyberstalking victimization ($b = 0.559$, $p < 0.10$). Other risk factors in the model included higher levels of sexual compulsivity ($b = 0.708$, $p < 0.10$) and engaging in riskier explicit messaging behaviors ($b = 0.247$, $p < 0.10$), perhaps supporting the idea that explicit images are shared with online only contacts, increasing risk of technological victimization. Lastly, prior sexual assault and stalking victimization were significantly correlated with increased risk of cyberstalking (respectively, $b = 0.750$, $p < 0.05$; $b = 2.751$, $p < 0.01$). A prior exploration of the cyberstalking model, without the inclusion of prior victimization covariates, decreased

explained variance by nearly 20%, further supporting the prevalence of multi-form

victimization among the sample.

Table 23
Backwards Stepwise Logistic Regression for Cyberstalking Among OD Users (N = 297)

	b	SE	b*
Self-control	0.967	0.411	0.159 *
Risky Offline Behaviors			
Sexual compulsivity	0.708	0.386	0.137 +
Explicit images	0.247	0.133	0.116 +
Victimization			
Sexual assault	0.750	0.337	0.146 *
Stalking	2.751	0.355	0.543 **
Sex (Female)	0.559	0.329	0.111 +
		$R_L^2 = 0.315**$	

$+ p < 0.1$ $* p < 0.05$ $** p < 0.01$

Users Who Met Offline. The final model of analysis consists only of users who

agreed to meet in an offline context. After casewise deletion for users missing data on

any variables to be used in the model, 199 users remained in the model. Of this group,

approximately 59% (*n* = 117) reported a history of victimization.[26]

The final model using a backwards stepwise logistic regression. Variables

included self-control, risky offline behaviors, the significant risky online behaviors from

the previous section,[27] risky meeting behaviors, and demographic controls. Risky meeting

behaviors included number of meet met offline, how quickly these meetings occurred,

geographic location of the meetings, type of place, time of meetings, driving

arrangements, if meetings were attended alone, and precautions taken.

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[26] Approximately 44% of respondents reported sexual assault victimization, 44% reported stalking, and 57% reported cyberstalking victimization history.
[27] Proactive use and reactive messaging behaviors.

Six variables remained in the model after removal of all items with significance greater than $p < 0.1$, resulting in 34% of variance explained. Results are presented in Table 24. Self-control was a significant risk factor in the models for users who had met online contacts in an offline setting ($b = 1.557, p < 0.01$). Of the fourteen risky only and meeting behaviors explored, only one was significantly related to increased risk of cyberstalking victimization, with users who had been deceived online experience a greater likelihood cyberstalking ($b = 0.705, p < 0.1$). In regards to previously used risky offline lifestyle variables, only increased sexually explicit messaging behaviors were related to increased risk of cyberstalking victimization in the sub-sample ($b = 0.331, p < 0.1$). As seen in the previous models, respondents with a history of sexual victimization were at increased risk of cyberstalking victimization ($b = 0.968, p < 0.05$) as well as respondents with a history of stalking victimization ($b = 2.738, p < 0.01$) and female respondents ($b = 0.693, p < 0.1$).

Table 24

Backwards Stepwise Logistic Regression for Cyberstalking Victimization Among OD Users Who Have Met Offline (N = 199)

	b	SE	b*	
Self-control	1.557	0.520	0.246	**
Explicit messaging	0.331	0.176	0.140	+
User has been deceived	0.702	0.396	0.131	+
Victimization				
Sexual assault	0.968	0.421	0.182	*
Stalking	2.738	0.446	0.514	**
Sex	0.693	0.407	0.131	+
		$R_L^2 = 0.343**$		

+ $p < 0.1$ * $p < 0.05$ ** $p < 0.01$

Summary

Chapter four presented a variety of data exploring the relatively unstudied population of online dating users. As young adults increasingly use these applications to

form connections and pursue relationships, an understanding of behaviors and potential risk factors will become increasingly relevant. In general, the sample statistics show that the young adult population is using online dating applications to an extent and is engaging in potentially risky behaviors, such as quickly disclosing personal information, quickly meeting with online only contacts, and doing so in inherently risky contexts. In the descriptive statistics, it was found that the majority of users were meeting in an offline context, with almost half of these meetings taking place at a private residence, many within 24 hours of the first message being exchanged.

Self-control was related to a number of risky behaviors both offline and through technology. Furthermore, these relationships created an indirect effect of self-control on a variety of victimization risks when examining the full sample. The most consistent correlations of victimization risk among the series of models presented were a history of sexual or stalking victimization as well as sexual explicit messaging behaviors, the latter a behavior with relatively limited exploration in criminological studies. Very few of the risky online behaviors or risky meeting behaviors were significantly related to increased risk of victimization among the subsample of online dating users. This finding is surprising and does not support the general hypotheses of this research. These results will be discussed at length in the following chapter, along with potential policy implications and directions for future research.

CHAPTER VI

Discussion

The present study encompasses two main components, one exploring correlates of cybervictimization, and another exploring increasingly popular online dating applications among young adults. Using frameworks from the lifestyles-routine activity approach and the vulnerability thesis, victimization risk was explored through risky lifestyle variables encompassing both attitudes and behaviors as well as individual self-control. The following chapter will review overall study results within the frameworks detailed in chapter two, along with policy implications, limitations of the current study, and directions for future research.

Summary of Research

Lifestyles-Routine Activity Theory (L-RAT) along with the vulnerability thesis have produced a dearth of research exploring correlates of victimization risk through risky lifestyle behaviors and attitudes (Averdijk, 2011; Fisher et al., 2010; Pratt et al., 2014). While this research is abundant, it has traditionally focused on offline behaviors such as sexual history/behaviors and substance use, among others (e.g., Pratt et al., 2014). An increased use of technology and a move towards online lifestyles among young adults suggests the need for these seminal theories of victimization to be explored through the incorporation of a digital component.

The current study has expanded prior research by exploring the relationship between cyberstalking, individual vulnerability and risky behaviors/attitudes. Specifically, risky behaviors and attitudes were conceptualized using traditional measurements, such as substance use and sexual history, but also through incorporation

of behavioral scales from fields outside of criminology along with technologically risky behaviors. Most unique to the current study is an exploration of risky online behaviors, as presented through increasingly popular online dating applications. Mobile dating applications have presented an entirely new set of potentially risky behaviors that could increase victimization risk, as the applications are often accompanied by a sexual overtone and encourage users to meet in an offline context. Therefore, the present study adds to the current research through minor theory additions, but also through application of classic theories to a new digital landscape, the world of online dating.

Review of Results

   Online Dating Application and Users. Approximately one-third of respondents in the present sample had a history of using online dating applications, with the majority using in college only. A smaller proportion of respondents reported using online dating applications in high school, suggesting that these applications are rapidly expanding their age range of users. As the founders of Tinder noted when they designed the application, the end goal was to create a product that many types of people wanted to use, regardless of whether or not they were proactively pursing a relationship. This was supported by the current data with respondents using the applications to find relationships almost equal to the number of respondents using out of entertainment or boredom.

   Many respondents reported they used the application without their GPS-enabled. However, an enabled GPS is a requirement for Tinder use. Once a user opens the application, they are prompted to "allow access" to their GPS setting and are unable to move about the application until the user permits. It is possible that many users are not

aware of what they are approving or how the application is designed, suggesting a lack of diligence among many users.

Female users in the sample appeared to be more reactive to initiated conversations than proactive, indicating that they were less likely to initiate a conversation, but were more likely to respond once someone had messaged them first. Male users were more likely to be proactive in initiating conversations. This could demonstrate how gender stereotypes continue to exist in the world of online dating, where female users are more likely to wait for a male user to "make the first move." Furthermore, female users reported engaging in less conversations overall when compared to their male counterparts. This finding may suggest that the applications used among the current sample have a higher amount of female turnover or female users actively using the application for only short periods of time before deactivating. As noted in previous chapters, Tinder is gaining a reputation for being a "sleazy" application where male users display overt sexism and respond with offensive messages (Beck, 2016), therefore this high female turnover is relatively unsurprising.

In the majority of cases, messaging through the application led to personal information being exchanged, most commonly in the form of a personal phone number. Text messaging, as opposed to using the application for communication, allows for more options than are normally available within online dating applications, including the ability to exchange images. A positive of messaging functions within a mobile application is the ability to "unmatch" a user for any reason, ending communication. Unfortunately, a phone number cannot be taken back once exchanged, decreasing control over communication. If one individual begins engaging in harassing behaviors or

excessive communication efforts, the only possible option for the victim is to block the offender through the phone carrier or be forced to change phone numbers, both requiring significantly more effort than the push of a button.

One-quarter of respondents noted on their survey that they while they used the application, they had never met another user in an offline context and had no intention of doing so. This percentage is much lower than the number of users reporting using the applications out of boredom or for entertainment only, perhaps suggesting that even those users not interested in a relationship are willing to socially experiment with online to offline relationships at least one time.

When deciding to move communications from online to offline, meetings most frequently occurred at a public place with alcohol or at a private residence, proposing that meetings are occurring in potentially risky places. As noted in the introduction, it has been suggested that alcohol plays a significant role in dates facilitated through online dating applications. Due to potential sexual expectations that are present at Tinder-initiated dates, users are more likely to drink alcohol for social lubrication. Unfortunately, this serves to increase sexual expectations (Abbey & Harnish, 1995; George et al., 1995) along with the potential for sexual miscommunication (Franklin, 2011). These expectations and the potential for sexual miscommunication could increase further if one dater is driving from a different town. If both daters are drinking alcohol, this could increase pressure to spend the night together to avoid drinking and driving.

A seemingly greater risky behavior is meeting an online only contact for the first time at a private residence. Many respondents reported engaging in this behavior. Meeting a stranger for the first time, at a private residence, most likely with at least one

party expecting sex, seems to fit quite well into the L-RAT framework. One respondent reported having four different women separately arrive at his residence in the span of an evening for sex, all strangers he had met from online dating applications.

Meetings of these nature could have two conflicting possibilities. The first is that the risk of victimization is greatly increased. This may be especially true if the parties involved have differing expectations, a common thread of sexual assault facilitated through online dating applications (National Crime Council, 2016). Another possibility is that the context of the meeting is not what one user expects. For instance, neither party is aware of what is awaiting them once they agree to meet in a private location and guardianship is significantly deceased. User A may agree to meet User B at their residence assuming that User B will be the only one there, when, in reality, User A cannot be sure of the context until they arrive. On the other hand, meetings at private residences may be more transparent in terms of sexual expectations and agreement over the intentions of both users, such as the purpose for a one-time sexual encounter. This context may therefore decrease risk of in-person victimization and any potential follow-up behaviors. As noted in multiple media reports, these brief sexual encounters are becoming more common among the young adult population for both men and women, and Tinder is said to be attracting high numbers of sex addicts who use the application for this purpose (Llcea, 2017; Sales, 2015).

Self-Control and Risky Online/Technologically Risky Lifestyles. Individual self-control appears to play some factor in decisions made through online dating applications, specifically in regards to disclosure of physical address, how quickly meetings occur, and the context in which meetings occur, supporting the hypothesis that

self-control is related to risky online dating behaviors. Self-control was not correlated with whether or not a respondent agreed to meet an online contact, presumably because this "yes/no" item does not explore the context of meetings. Arguably, the riskiest meeting behaviors for each item were meeting for the first time within 24 hours of the first message being exchanged, meeting at a private residence, and doing so after 9:00 PM. For pace of meeting, type of place, and time of day, respondents choosing the riskiest meeting behaviors had lower levels of self-control, compared to users who chose less risky meeting options. This finding supports the link between self-control and risky behaviors in a new context, from online to offline. While it may seem that individuals who meet strangers from an online dating application must have lower levels of self-control, these results suggest that the act is not what should be examined, but the context in which the meeting takes place.

In relation to the vulnerability thesis, users choosing these riskier meeting behaviors are displaying Schreck's (1999) concepts of future orientation, risk avoidance, and empathy. Users with greater levels of impulsivity may be unwilling to spend more time getting to know a potential partner through less direct means, such as the application's messaging function, leading to decreased consideration of possible risks or consequences. Scheck also notes that decreased self-control increases vulnerability through lack of empathy, which can be related to the inability to evaluate intentions of potential offenders.

The final exploratory variable for online dating applications is use of deception, a common concern of users, perhaps due to media fascination and sensationalism of high profile deception cases. Results of this sample suggest that elaborate deception is not a

widespread problem, with significantly more respondents reporting being deceived compared to those reporting having intentionally used deception. This finding shows support for "foggy mirror syndrome" or respondents using what they believe is slight deception to highlight their positive features, while the individual on the receiving end finds the deception more severe. Both use and being a victim of deception were related to self-control.

The latter finding could indicate that individuals with low self-control are more likely to continue conversations and relationships that result in discovering deception, while higher self-control individuals detect potential deception early into an interaction and do not continue to engage. This can be related back to two of Schreck's (1999) components of vulnerability, diligence and preference for mental activity. Individuals with low self-control lack carefulness and persistence, two traits that are often necessary for detecting deception. For instance, Tinder displays common Facebook connections between matches, increasing the ability to investigate a potential date before meeting. In regards to persistence, low self-control users may be less likely to challenge conflicting information or push for clarification. Furthermore, individuals "who prefer physical activity are less likely to use their cognitive ability to assess a risky situation" (p. 635).

Lastly, sending and receiving of sexually explicit messages was significantly correlated with individual self-control. There are many reasons an individual may engage in this behavior, both positive and negative. However, once sent, the sender no longer has control over the image, demonstrating a lack of future orientation and consideration of long-term consequences. Potential negative outcomes of this behavior will be discussed further in the following section.

Furthermore, these data support the idea of females being more likely to send messages, as suggested by (Gordon-Messer et al., 2013; Lounsbury, Mitchell, & Finkelhor, 2011; Reyns et al., 2014). Of the small number of respondents who reported only sending, but never receiving, explicit images, the vast majority were females. This is surprising given common conversations and media discussions of young males sending pictures of their genitalia, regardless of whether or not the pictures were wanted. However, this finding may be due to increased pressure women face to send explicit images (Burkett, 2015).

In general, the results for research question two, exploring differences in individual self-control among a variety of risky behaviors, provides support for the hypothesis that low self-control may increases an individual's vulnerability to victimization and other negative circumstances through increased risky lifestyle behaviors.

Self-Control, Risky Lifestyles, and Victimization Risk. The final research question explores two distinct models of victimization risk, the first examining victimization among the full sample through "offline risky lifestyle" variables and the second examining victimization among online dating users only with the addition of potentially risky online dating behaviors. Among the full sample of respondents, self-control was significantly related to all six of the risky lifestyle variables: sexual behaviors, sexual compulsivity, sexual deception, explicit messaging behaviors, alcohol consumption, and a history of drug use. In addition, a history of in-person victimization was significantly correlated with risk of cyberstalking victimization. Taken together, the final model suggests that self-control has a significant correlation with cyberstalking

victimization risk, but is acting through a series of risky behaviors and attitudes. These will be discussed respectively.

Only one risky lifestyle variable was directly correlated with increased risk of cyberstalking victimization: sexually explicit messaging behaviors, supporting prior research in this area (Reyns et al., 2013). The significant relationship between explicit messaging and victimization has multiple implications. The first being the possible relationship between explicit messaging and sexual miscommunication, especially in an age where young adults are sending nude or provocative images of themselves as a normative step in a blossoming relationship. It is very possible that the relationship cycles of young adults have veered even further from the path of traditional dating than originally suggested, with the new pathway being first to meet online, then exchange phone numbers, followed by the exchange of nude pictures, and later to decide whether or not to meet in person, thus further supporting the idea of new dating trends as a new pathway for victimization.

As the technological component of relationships increases, it will become increasingly difficult to dismiss technologically risky behaviors, regardless of whether the victimization occurs online or offline. An individual does not need an internet connection or a social media account to send and receive explicit images. Once again, these behaviors are not and should not always be considered as deviant as they become increasingly normative in young adult relationships. Regardless of the "unwanted, but consensual" argument presented earlier, if an individual, over the age of 18, takes a nude photo of themselves for a significant other, the image is most likely to be considered consensual (Powell & Henry, 2016). At the time of sending, this individual may not be

considering the potential consequences of their actions, such as the image being shared or posted online. A report by cyber-security giant McAfee stated that "94% of Americans believe their data and revealing photos are safe in the hands of their partners" (Eichorn, 2013).

It is often difficult to imagine a current partner sharing private images while in the relationship. Once a relationship ends or a triggering event occurs, the once consensual images can quickly be used against the person in the pictures for a variety of purposes. One potential consequence of sharing explicit images is known as "blackmail grooming," occurring when an offender uses "the threat of distributing imagery and information provided by the victim to coerce non-consensual sexual activity" (Bluett-Boyd, Fileborn, Quadara, & Moore, 2013, p. 32). This concept could provide a path for future research to explore the correlation between sexual assault victimization and explicit messaging.

Another negative outcome of this trend is the potential for non-consensual distribution. When a private image is shared, a potentially never-ending chain of sharing is initiated. In this case, victims may experience high levels of distress as they may literally never know who is in possession of their private images (Powell & Henry, 2016). It is important to know that while this behavior is inherently risky in some sense, if an individual shares a consensual image with a partner, they are placing trust in the receiver to not maliciously use the images for their own personal gain. While sending a photo may be consensual, distribution by the receiver is typically not. Explicit messaging behaviors were the only risky lifestyle variable in the study to correlate with risk of cyberstalking victimization once controlling for in-person victimization history, further demonstrating

the inclusion of technologically risky behaviors in models of victimization, particularly among young adults.

Both victimization history covariates, sexual assault and in-person stalking, were correlated with risk of cyberstalking victimization among the sample. This finding supports the state dependence argument that individuals who experience an initial victimization event are at an increased risk of future victimization. This may suggest that offenders use cyber-harassment and cyberstalking as a way to continue exerting control and fear over a victim even after the initial offense has occurred. Cyberstalking is becoming increasingly easy for offenders due to the vast number of avenues available. Prior to technological advances, perpetrators would have to expend great effort to keep tabs on a victim. Fast forward to the present when the average young adult carries a smart phone, exchanges hundreds of text messages a day, has at least one active email account, and runs multiple social media profiles. The possibilities for monitoring and harassing are greater than ever and sharing private information is now instantaneous (Powell & Henry, 2016). Furthermore, young adults are not generally fearful about online interpersonal victimization, even after experiencing these events already (Henson et al., 2013). Implications of these findings are discussed below.

Lastly, the model also supported Hindelang and colleagues (1978) argument of population heterogeneity, suggesting that individuals who experience victimization are inherently different from those who do not. Female respondents and those who are younger experienced a greater risk of cyberstalking victimization in the full model. Self-control was also significantly correlated with cyberstalking victimization risk through indirect effects and risky behaviors. Gottfredson and Hirschi (1990) argue that self-

control is formed by age 10 and remains stable across the life-course. In this study, it appears that underlying differences in self-control increase vulnerability to victimization as acting through individual lifestyle.

Surprisingly, models exploring the sub-sample of online dating users, particularly those with users who had met in an offline setting, did not generally show a correlation between victimization risk and risky meeting behaviors. However, in these final models, self-control presented a significant direct correlation with risk of cyberstalking victimization. This suggests that self-control is playing a different role among online dating users and should be explored further in future studies, particularly under the context of population heterogeneity. In both user only models, explicit messaging behaviors and victimization history were significant correlates of cyberstalking victimization risk, extending the state dependence argument to this sub-sample.

Unfortunately, only a small proportion of respondents met all requirements necessary to be included in the final model and at the moment, comparison studies for these results do not exist. Repetition of this study, especially among a larger sample, may produce different results. Similarly, results may differ as time progresses and a new generation of technology-dependent adolescents enters young adulthood.

Research Implications

These findings suggest the need for further exploration of online and offline risky behaviors, the potential for a new pathway to victimization risk, as well as inclusion of additional behavior/attitude scales and measurements for technologically risky behaviors. Increasingly, young adults are using the internet to pursue and maintain relationships. This can be seen through skyrocketing numbers of social media profiles and the nearly

constant invention of new applications to facilitate communications online. It is imperative that these advancements are not simply considered a trend among young adults, but as a new lifestyle. This transition is becoming more obvious as more businesses develop a social media presence and cell-phone carriers compete with the best plan for unlimited data.

These new online lifestyles are not only accompanied with new opportunities for victimization online, such as online harassment and cyberstalking, but also increased exposure to exponentially more predators with decreased guardianship opportunities. Adolescents and young adults frequently collect "friends" or "followers" through social media and allow access to personal information and photos. Consideration of these risky online behaviors in criminological research has only recently begun to take place. While social media is one medium for online risky activities, these behaviors are perhaps more pronounced among increasingly popular mobile dating applications, which often carry much different overtones and expectations among users.

Applications, such as Tinder, may be creating new pathways to victimization by exposing users to potential predators with access to all photos, of all users, within a search radius as small as one mile. Unfortunately, these applications are often laughed off as a brief trend or simply not even considered among researchers due to inexperience with the concept. Tinder alone has amassed over 100 million downloads since its inception in 2012 and has opened the flood gates for similar applications. In general, relationships are increasingly being formed online, stressing the need for inclusion of online behaviors among relationship-based research.

Arguably, the easiest connection to make between online relationship formation and victimization is through cyberstalking. Cyberstalking is becoming an increasingly common form of victimization which is exceedingly difficult to police. While cyberstalking behaviors are briefly mentioned in federal code, mainly through telephone communications (47 U.S.C. 223), the internet is often considered by criminal justice practitioners as "a parallel universe that they see as untouchable" (Powell & Henry, 2016, p. 11). Due to constantly evolving technology and confusion over responsibility, stakeholders are often unsure of what to tell victims of online interpersonal harassment and stalking behaviors (Powell & Henry, 2016). Chapter three briefly mentioned a journalist who received death and rape threats over social media (Hess, 2014). Her account of the events detailed her struggle to receive help. Law enforcement informed her that they had no jurisdiction, since the offender(s) could be located anywhere, and suggested she contact the social media company. The social media company sent her back to law enforcement and said they could only delete the threatening posts, but not provide further repercussions for the offender(s). Law enforcement further suggested that she simply delete her account and stop checking it, a common response from uninformed stakeholders (Powell & Henry, 2016).

Simply informing a victim to delete their account or block the user is poor advice for multiple reasons. First, victims are hesitant and often unwilling to simply "quit" social media. There are many positive aspects of this technology that users enjoy. Deleting profiles and accounts makes victims feel as though they are being punished for the acts of someone else while the offender sees no repercussions. Even after a cyber-offense occurs, "many victims are reluctant to disengage with social networking and mobile phone use"

(Bluett-Boyd et al., 2013, p. 38). It is almost unreasonable for most individuals to completely remove themselves from social media as businesses and families are becoming increasingly connected through these mediums. Second, with the myriad possibilities to connect through technology, deleting one profile or changing account names does not, in anyway, guarantee that harassment will cease.

Perhaps unsurprising based on media accounts, once cyberstalking behaviors begin, the most common response of victims is to simply ignore or avoid the offender in hopes that the behaviors will eventually end (Tokunaga & Aune, 2015). Victims of these incidents don't know what to do or where to turn for help. As noted earlier in Drebing and colleague's (2014) study of victims, cyberstalking behaviors can continue for years before an offender stops attempting to make contact. While it may be assumed that years of cyberstalking victimization would increase victim distress, Bennett and colleagues (2011) found that an increase in online harassment and cyberstalking behaviors actually decreases victim distress suggesting that victims may just become desensitized over time and continue to ignore the offender. This argument fully supports the concept of state dependence.

Overall, official responses to cyberstalking are often bleak with victims being expected to make life changes to avoid the offender as opposed to focus being on how to stop the offender from continuing to engage in such behaviors. In comparison to traditional interpersonal crimes, this would be the equivalent of telling a stalking victim to quit their job and move to another city so their offender cannot contact them any further. Placing responsibility on the victim for managing their own victimization implies that the victim is at fault for the incident. Similar to rape myths placing responsibility on

victims of sexual assault, current criminal justice responses may be facilitating a new victimization myth: cyberstalking and online harassment happens to individuals who communicate online or express controversial thoughts through social media.

Despite what seems to be a lack of concern among applications regarding harassment and stalking behaviors among respondents, one application claims to have taken the concerns of women users and implemented them into a new female-centered option. The application, named Bumble, has been referred to as the "feminist Tinder" (Mei, 2015), with the application founder claiming the company is "100 percent feminist" (Yashari, 2015). Bumble was created by Whitney Wolfe, an original key player of Tinder. Wolfe was instrumental to Tinder's original marketing strategy by persuading sorority members to sign up for the new application, then using these new members as incentive for fraternity members to join. In 2014, Wolfe left Tinder, for many reasons, most notably harassing and offensive messages and communications from a Tinder founder and ex-boyfriend (Bennett, 2017).

Based on her experiences, Wolfe created the female-led Bumble, an application that puts women in charge of their online dating experience. Women are presented with profiles, similar to Tinder, with mutual matches resulting in a prompt to begin messaging. That is where the similarities end. Once a match is made, women must initiate the first message and men must play the waiting game, a concept that stands in stark contrast to the dating tradition of men making the first move. Bumble also has strict policies regarding harassment of any form and is not private or subtle about permanently blocking users who break the rules, including those who use degrading names for women or engage in body shaming (Bennett, 2017).

Bumble is currently the second highest grossing dating application on Apple's iStore (behind Tinder) and is quickly becoming a place where women feel understood and protected. The application even features a "BFF" section, which allows women to search for and seek platonic girlfriends. Perhaps most impressive are Bumble's outreach efforts to help women in many aspects of their lives. As written in a recent *New York Times* article (Bennett, 2017) about the application:

> The company is also offering webinars for college users in which experts advise on subjects from 'how to do your taxes' to 'how to recognize sexual assault,' and getting ready to roll out a Suri-like character called Beatrice, which will call you during a date to make sure you're fine. Ms. Wolfe also said users would soon be able to chat with an on-call gynecologist.

This application is currently unmatched in giving not only empowerment to women, but also in potential as a lifestyle application, and women are taking notice. As mentioned by Wolfe, who used the same marketing strategy for Bumble that she used in the early days of Tinder, "where the women [go], men [will] follow" (Bennett, 2017). Despite this focus on female empowerment, underlying issues still exist even with this "feminist" application, mainly being that users were recruited through questionable means: "Wolfe shows up at sororities with yellow balloons, cartons of yellow Hanky-Panky underwear, and always, she says, 'a cute purse.' Then she hands out a thong to each sorority sister who sends out 10 invitations to Bumble" (Alter, 2015). Bumble has gotten tremendous praise in the press for its innovation, but in actuality could end up as Tinder in different packaging.

Limitations

This study is not without limitations. The first and most major limitation of this research is with the victimization items. First, due to questions being asked in a "never/ever" fashion, it is not possible to discern temporal ordering effects. Future drafts of the survey should include a question asking about how long ago the victimization occurred, allowing results to discern between childhood, adolescent, and young adult victimization resulting in a greater ability to assess predictors of in-person victimization experiences. One reason for this limitation is that a key component of sexual victimization questions, a timeframe in which the victimization occurred, was not included in the survey instrument. The updated 2007 Sexual Experiences Survey (Koss et al.) includes items for measuring victimization from age 14 to one year prior to the survey and "in the past 12 months" (p. 368). Future iterations of the survey will include these clarifications to address temporal ordering issues.

Furthermore, items should be altered to capture repeat victimization, especially in regards to stalking behaviors. Items in the present survey instrument measured stalking behaviors as "yes/no" and did not include wording to imply repeat behaviors. This issue was addressed in the present study by requiring two or more stalking behaviors before considering a respondent to be a victim of stalking. However, this is most likely underestimating the true prevalence of stalking in the sample, as respondents who experienced one type of behavior multiple times are not considered a stalking victim in this study, despite meeting the criteria based on stalking definitions. This was less of an issue with the cyberstalking measures used, as many of the measures have the word "repeat" embedded.

The sexual experiences survey used in the present study was based on Koss and colleagues 1987 work. A more recent version of this instrument was published in 2007 and should be used in all future surveys. The newer version of this survey includes more items and more potential to capture victimization. Therefore, the present study is most likely providing a conservative estimate of sexual assault victimization among the sample. For the present study, sexual assault victimization was treated as a dichotomous variable in an attempt to address this limitation with the current data set.

General structuring of the survey may have contributed to confusion among respondents and survey fatigue. Use of skip patterns on paper surveys is never an easy task and this study proved no different. The average survey required approximately 45 minutes to complete, despite pilot groups suggesting a 35-minute maximum. Instructor solicitations included this 35-minute suggestion, resulting in many professors only allotting 35 minutes to complete the survey. Due to time restrictions, many respondents did not complete the survey fully, resulting in a large number respondents not reaching the victimization questions at the end of the instrument. Approximately halfway through data collection, this issue was made apparent. As it was too late to change the solicitation email, if an instructor was unwilling to allot more time for completion, respondents struggling to finish the survey were instructed to complete the section they were currently on then skip to the final sections measuring victimization. The most common pattern of missing data in the sample was respondents not completing the final victimization sections. This was confirmed through Little's test for missing data and an exploration of missing data patterns among the full sample, with no differences in victimization rates when comparing respondents from the full sample and those included in the final model.

Lastly, the sample used for this survey may not be generalizable to other college age populations, requiring future research to repeat the study among different samples. The college surveyed in this study is considered a commuter college of first generation students, with the largest city over 60 miles away. Geographic-based applications, such as Tinder and Bumble, arguably would generate more "matches" in areas with greater population density, providing greater opportunity to meet in-person and possibly increase victimization risk. It is also possible that popular applications vary by campus or region. An ideal setting would be a college campus with a majority of students living on or near campus, to fully explore the importance of the geographical component of mobile dating applications.

Future Research

As noted in the limitations, this study was the first to explore the use of online dating applications for pursuing new relationships. The next step in this research is to create an updated survey instrument, attempting to address limitations, including use of the 2007 Sexual Experiences Survey (Koss et al.) and restructuring of the key components to decrease missing data patterns and confusion among respondents. Once the survey instrument is revised, the first goal is to collect more data. When studying victimization, especially among a subsample of the population, the biggest struggle is obtaining a statistically powerful pool of respondents. Prior to data collection, an original hypothesis was that online dating applications are increasing victimization risk, which would be supported through a disproportionate number of offenders from this medium. In general, a much larger sample of respondents would have been needed to explore this specific issue. When considering the data used in this study, 1,310 respondents made up

the full sample. Of these, approximately one-third used online dating applications, the core focus of this study, resulting in a small number of offenders from online dating applications. This decrease in sample is shown in Figure 4.
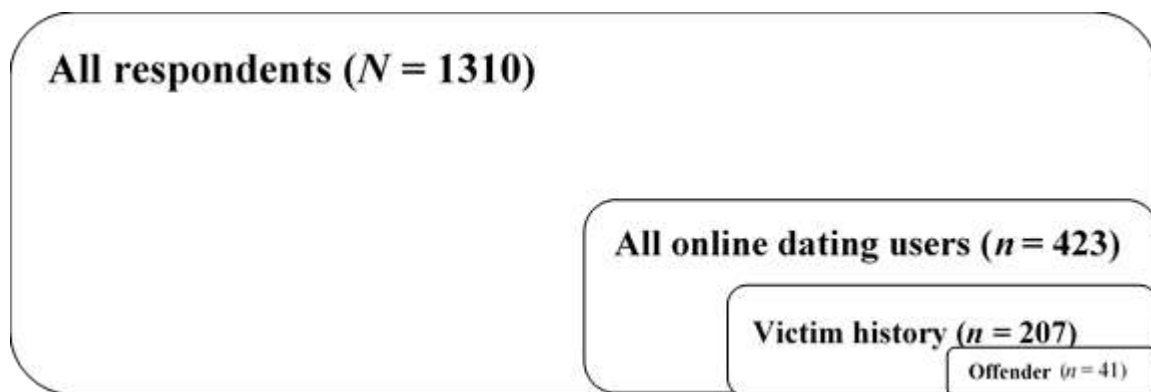

Figure 4. Illustration of Sample Decrease.

Additional survey changes will address limitations with victimization measures in order to improve temporal ordering and ideally explore the pathway between online risky behaviors and offline victimization, as facilitated through online dating applications. Peer-reviewed research specifically examining in-person victimization resulting from online communication is virtually non-existent at this time. Recently, Marrett & Choo (2016) surveyed the online to offline behaviors of Malaysian adolescents, age 12-18. Of the more than 3,000 respondents, over half had been invited to a face-to-face meeting by someone they initially began talking with through a chatroom or other social networking medium. Of those who were asked to meet in person, half of the respondents complied, with the vast majority of these adolescents having met more than six people. A total of 5.5% of survey respondents reported victimization as a result of an offline meeting, with 18 cases of reported rape. While these victimizations did not occur in the context of

online dating applications, they demonstrate the predatory nature and ease at which potential offenders facilitate offline meetings.

The issue of victimization facilitated through online dating applications has seen increased attention in the United Kingdom, with the government commissioning a study of the phenomenon. By looking at data from 2009-2014, the National Crime Agency (2016) reported that online dating initiated sexual offenses had increased six-fold. Of these offenses, 43% of initial meetings occurred within one week of the first communication with a full 20% of meetings happening within one day. In 41% of offenses, these initial meetings were at a private residence. Generally speaking, over half of the cases examined by the National Crime Agency (2016) were preceded by sexualized conversations. The report discussed the sexual expectations of offenders prior to the first meeting due to "perceived investment, increased sense of intimacy, previous dating experience, online flirty or sexually explicit messages/disclosures, rapid transition to face-to-face meeting, [and] invitation to other's residence" (p. 8).

In general, online dating applications have created a new series of potentially risky behaviors, along with exponentially greater exposure to potential offenders. As noted in Hindelang and colleagues (1978) publication "a patient offender can select from among potential victims a person who is most appropriate for the contemplated offense" (p. 264). While this quote is in reference to offenders hunting for victims in public places, it can directly be applied to the world of mobile dating applications. Potential predators no longer have to leave the comfort of their home to search for a victim. They can easily create multiple online profiles and search in the geographical range they are most

comfortable with. If one user isn't willing to meet in-person or in an offender's preferred setting, there are hundreds of other potential targets to pursue.

Ongoing data collection will be crucial to this area of research due to the constant updates and new applications being released. Approximately one month before data collection for this study took place, Tinder released a "social" component of its application, allowing users to form short-term group profiles of 2+ users who are hanging out together. Once a group profile is active, users are shown other group profiles, with the final goal of creating group togethers, facilitated through Tinder. Even in the eight months since data collection has completed, Tinder has released a variety of updates including "smart photos," which allow the application to constantly make sure that a user's most popular photo is the first one presented on their profile, or the option to recommend a potential date to a friend. It is important to note that the recommendation process does not require that the friend have a Tinder. If a profile is recommended to a non-Tinder user, a text message is sent to the friend, prompting them to create a Tinder account to see the profile. These simple changes could allow for future research by extending the idea of human guardianship into the online environment.

According to informal conversations with previous Tinder users, a move away from Tinder is occurring due to issues among both sexes. For women, they feel overwhelmed by the amount of messages being received and want more control over the communication process, facilitating a mass move to the new application, Bumble, as discussed above. For men, many agreed on the most pressing issue, bots. Bots, according to the male users, appear first as an attractive female profile who "matches" with the male user. These profiles are not actual women, but instead a computer program designed by

scammers and hackers. Once a match is made, the bot begins a conversation with the male user, quickly prompting him to visit her website through a link that often contains malware or requires a credit card to access. This revelation has led to more men moving off of Tinder and to Bumble, which users mention has yet to become a victim of bots, and also suggests the possibility of malware infection from an online dating site, which is a type of cybervictimization that was not considered at the beginning of this study. Future research on this type of cybervictimization should explore potential differences in victimization types, by sex, as a result of online dating applications.

A second direction for future research was suggested by the study's pilot groups. During testing, one respondent discussed her friend regularly being asked on dates or to meet through Instagram contacts, a picture-based social media application. The respondent mentioned that his happened quite frequently. Approximately 90% of young adults have a social media account of some form, most commonly Facebook (Greenwood et al., 2016). A quick scan of the typical Facebook profile of an 18-24 year old will reveal thousands of "friends." While it is entirely possible that a person has thousands of contacts they have met in an offline context, it seems more plausible that users frequently "friend" other users who they have never met in person. Social media is therefore opening up a separate avenue for people to first make contact online and potentially move these communications to an offline context. What is unknown is whether offline meetings as a result of social media applications carry the same expectations and connotations that often accompany online dating applications.

When exploring the use of social media for offline relationships, exploration should include the circumstances of these meetings and the general goals of the users. For

instance, female users may feel more comfortable meeting through social media as opposed to online dating applications, providing a false sense of security when attending an offline meeting. Social media, as a more popular option than online dating applications and as noted in the introduction, may also increase access to exponentially more offenders in regards to interpersonal cyber victimization. Generally, the potential for offline victimization as a result of online contacts, presents a new pathway to victimization that is open to exploration in a variety of ways.

Third, future research should explore a variety of attitude scales with online behaviors, particularly among male users. Entire websites and social media profiles are dedicated to sexist and abrasive male comments through online dating applications, including @TinderNightmares, an Instagram account with over 1.7 million followers. The account provides screenshots of overly sexual or aggressive comments, mostly made by male users. Future studies should explore the attitudes of male users while gaining insight into their messaging behaviors, specifically through the rape myths scale or adversarial heterosexual beliefs. Wording of questions for this research will be the most important as users most likely do not view their comments as harassment or even inappropriate.

In general, the possibilities for research in this area appear endless. With trends and technology constantly evolving, new research questions and potential studies seem infinite. Online dating applications will only become more normalized as time passes with more young adults finding comfort in the use of technology to find relationships (Beck, 2016). Tinder's most recent campaign suggests that the application is "fun for the whole family," with advertisements featuring a young man and woman using Tinder on

the living room television while opinionated family members weigh in how they should swipe. The normalization of this technology may be providing a false sense of security among our technology-hungry population of young adults, thereby increasing their risks of victimization.

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      Victimization History, Posttraumatic Stress Symptoms, and Women's Decision

      Making in Risky Social Situations: the Moderating Effect of Ethnicity. *Journal of*

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      Violence. *Journal of Youth and Adolescence*, *42*(7), 1063–1077.

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APPENDIX

Sam Houston
STATE UNIVERSITY
A Member of The Texas State University System

Subject Information Sheet

My name is Ryan Randa, and I am an Assistant Professor of the Criminal Justice and Criminology at Sam Houston State University. I would like to invite you to participate in a research study of "Dating in the Age of Technology." We hope that data from this research will provide information on the current status of dating culture among college students. You have been asked to participate in the research because we are interested in the opinions and behaviors of undergraduate students.

The research is relatively straightforward, and we do not expect the research to pose any risk to any of the volunteer participants. If you would like to participate in this research, you will be asked to complete an anonymous survey. Any data obtained from you will only be used for the purpose of dissertation and academic research publications. Under no circumstances will you or any other participants who participated in this research be identified. In addition, your data will remain confidential. This research will require about 25-35 minutes of your time. Participants will not be paid or otherwise compensated for their participation in this project.

The survey will ask about questions about dating styles, alcohol, sex, victimization, and crime. All answers will remain anonymous and will only be reviewed by the research team. Participation is voluntary. If you decide to not participate in this research, your decision will not affect your future relations with Sam Houston State University. Also, if at any point during the research you decide to withdraw, or do not wish to, participate in the remainder of the research you are free to withdraw your permission and to discontinue participation at any time without affecting that relationship. If you have any questions, please feel free to ask me using the contact information below. If you are interested, the results of this study will be available at the conclusion of the project.

If you have any questions about this research, please feel free to contact us, using our contact information below.

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☐ I understand the above and would like to participate.
☐ I do not wish to participate in the current study.
A copy of this permission form is available for your records.

VITA

ASHLEY K. FANSHER

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Office: (936) 294-3638 / Cell Phone: (417) 849-5062
Email: afansher@shsu.edu

EDUCATION

2013 – Present	Doctor of Philosophy, Criminal Justice
	Sam Houston State University, Huntsville, Texas
	Anticipated graduation date: May 2017
2009 - 2011	Masters of Science, Criminology
	Missouri State University, Springfield, Missouri
	Practicum Topic: "Perceptions of Team Members in Cases of Child
	Abuse and Neglect"
	Advisor: Dr. Brett Garland
2010 - 2011	
	Graduate Certificate, Forensic Child Psychology
	Missouri State University, Springfield, Missouri
	Advisor: Dr. Matthew Fanetti
2006 - 2009	
	Bachelors of Science, Criminology
	Missouri State University (Honors College), Springfield, Missouri

PEER-REVIEWED PUBLICATIONS

Fansher, A., Brinser, K., & Randa, R. (2016). Perceptions, profiles, and reality of kidnapping: An analysis of victim-offender characteristics. *Law Enforcement Executive Forum, 16*(3), 76-86.

Muftić, L. R., Deljkić, I., & **Fansher, A.** (2016). A nationwide evaluation of services provided to domestic violence survivors in Bosnia and Herzegovina. *Journal of Interpersonal Violence.* DOI: 0886260516645571

Fansher, A. & Del Carmen, R. "The child as witness": Evaluating state statutes on the court's most vulnerable population. *Children's Legal Rights Journal, 36*(1), 1-45.
   - Radio interview with Houston Public Radio (2016), press release published by Forensic Magazine, ScienceNewsline, and Phys.org.

MANUSCRIPTS UNDER REVIEW

Fansher, A. Casting a wider net: The effect of spirituality on recidivism. *Under review.*

Wells, W., & **Fansher, A.,** Campbell, B. A. The effects of CODIS in a sample of unsubmitted sexual assault kits. *Revise and resubmit to Crime & Delinquency.*

RESEARCH EXPERIENCE

2015 - 2016	*Advanced Interviewer: The LoneStar Project* **Study of Offender Trajectories, Associations, and Reentry** Funded by the National Institute of Justice Principle Investigators: Dr. Scott H. Decker & Dr. David Pyrooz Duties: Certified trained in Blaise computer assisted personal interviewing, conducted 70 baseline in-person prison interviews
2014 - 2015	
	Graduate Research Assistant: Sam Houston State University **Domestic Violence in Bosnia and Herzegovina** Supervisor: Dr. Lisa Muftić Duties: Data entry and translation of Bosnian survey instruments, contributed to literature review and results section
2014	
	Graduate Research Assistant: Sam Houston State University **Houston Police Department Unsubmitted Sexual Assault Action Research Grant** Supervisor: Dr. William Wells Duties: Met with task force members, conducted interviews and qualitative data collection from HPD Sex Crimes investigators, contributed to report and peer-reviewed publication writing
2011	
2011	*Master's Practicum*: Missouri State University **Perceptions of Team Members in Cases of Child Abuse and Neglect** Advisors: Dr. Matthew Fanetti, Dr. Brett Garland, and Kyle Collins Created survey instrument and completed an original quantitative study with the Greene County Juvenile Office
	Graduate Research Assistant: Missouri State University **Effectiveness of Greene County's Evening Reporting Center** Principle Investigator: Dr. Brett Garland Duties: Observational data collection, instrument creation for future evaluation of similar programs

PRESENTATIONS

Fansher, A. & Randa, R. (2017). Dating in the age of technology: Online risky behaviors and their potential for offline victimization. Paper presented at the Academy of Criminal Justice Sciences: Kansas City, MO.

Fansher, A. (2017). Online dating and offline victimization: Risky lifestyles, mobile applications, and the potential for victimization. Paper presented at SHSU 3-Minute Thesis competition.

Fansher, A. & Randa, R. (2016). Exploring the relationship between spirituality and victimization: Coping and resiliency. Paper presented at the American Society of Criminology: New Orleans, LA.

Fansher, A. & Randa, R. (2015). The effect of spirituality on recidivism. Paper presented at the American Society of Criminology: Washington, DC.
    Also presented at SHSU Woodlands Research Exchange (2016) and at Zhejiang Police College (2016)

Boillot-Fansher, A. (2015). A comparative analysis of state statutes for child witnesses in case of abuse and neglect. Paper presented at Academy of Criminal Justice Sciences: Orlando, Florida
    Also presented at SHSU Woodlands Graduate Research Exchange

Boillot-Fansher, A. (2011). Perceptions of team members in cases of child abuse and neglect. Paper presented at quarterly meeting of Greene County Child Welfare Agencies, Springfield, Missouri.

Boillot-Fansher, A. (2011). An introduction into the American foster care system. Paper presented at the Missouri State University 2nd Annual Criminal Justice Conference, Springfield, Missouri.

PROFESSIONAL EXPERIENCE

2016 - 2017	Doctoral Teaching Assistant Sam Houston University College of Criminal Justice Huntsville, Texas Advisor: Dr. Ryan Randa
2014 - 2015	Doctoral Research/Teaching Assistant Sam Houston State University College of Criminal Justice Huntsville, Texas Advisor: Dr. Lisa Muftić
2014	Doctoral Research Assistant Sam Houston State University College of Criminal Justice Huntsville, Texas Advisor: Dr. William Wells

2011	Graduate Intern
	Greene County Juvenile Office, Abuse & Neglect
	Springfield, Missouri
	Supervisor: Kyle Collins
2009	Undergraduate Intern
	Greene County Justice Center
	Springfield, Missouri

PROFESSIONAL DEVELOPMENT

2016-2017	SHSU Teaching Assistant Certification Series (12 hours)
2015	Journal Reviewer Training
	Conducted by Rosemary Barberet and Claire Renzetti
2015	Blackboard Learn Training Series (8 weeks)
2015	SHSU Teaching Conference – Attended multiple panels on teaching strategies and tools for success (6 hours)
2014-2015	SHSU Graduate Studies Leadership Training – Networked and trained with officers from all graduate organizations on campus (16 hours)

PROFESSIONAL SERVICE

2017	Peer Reviewer for Journal of Criminal Justice
2017	Faculty Sponsor for SHSU Undergraduate Research Exchange
	"Self-esteem, self-control, and substance use among a college
2016	population"
	Faculty Sponsor for SHSU Undergraduate Research Exchange
2015	"The link between the usage of alcohol or opioids and mental health
2014	among recently released inmates"
2014	Peer Reviewer for Journal of School Violence
2013 – Present	Peer Reviewer for Journal of Qualitative Criminology & Criminal Justice
2009 – 2011	Panel Chair – Sam Houston Graduate Research Exchange
	Criminal Justice Graduate Student Organization
2009 – 2010	Served as organization President from 2014 – present
2006 - 2009	

Alpha Phi Sigma – National Criminal Justice Honor
Society
  Chapter President

Missouri State University Student Athlete Tutors

Missouri State University Honors College

TEACHING EXPERIENCE

Fall 2016	Introduction to Criminology (Large lecture)
	  Overall IDEA Score: 4.6/5.0
	  Supervision of four honors college contracts

Summer 2016	Social Diversity and Criminal Justice (Online) Overall IDEA Score: 4.6/5.0

Spring 2016	Introduction to Criminology
	  Overall IDEA Score: 4.5/5.0
	Introduction to Methods of Research (Writing Enhanced)
	  Overall IDEA Score: 4.4/5.0

Spring 2016	Zhejiang Police College (Hangzhou, China) Introduction to Criminology and Research Methods

Fall2015	Introduction to Criminal Justice
	  Overall IDEA Score: 4.6/5.0
	Introduction to Criminology
	  Overall IDEA Score: 4.6/5.0

AWARDS

2017	Outstanding Teaching Assistant for SHSU 2016-2017 School Year
2015	
	Sam Houston State University Summer Research
2014	Fellowship ($6,000)
	Sam Houston State University Summer Research Fellowship ($6,000)

PROFESSIONAL AFFLIATIONS

American Society of Criminology
Academy of Criminal Justice Sciences