Computer criminal behavior is related to psychopathy and other antisocial behavior

Kathryn C. Seigfried-Spellar[a,*], Nicolás Villacís-Vukadinović[b], Donald R. Lynam[c]

[a] Purdue University, Knoy Hall of Technology, Department of Computer & Information Technology, 401 N Grant St, West Lafayette, IN 47907, United States
[b] Purdue University, Department of Computer & Information Technology, 401 N Grant St, West Lafayette, IN 47907, United States
[c] Purdue University, Department of Psychological Sciences, 703 Third Street; West Lafayette, IN 47907, United States

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ABSTRACT

Psychopathy is a personality disorder that can be conceived of as a collection of traits from general models of personality. The present study examined the relations between psychopathy assessed via the Elemental Psychopathy Assessment Short Form (EPA-SF) and basic personality, antisocial behavior, and computer crime in a sample of 235 participants recruited through Amazon's Mechanical Turk (MTurk). Results indicated relatively strong support for the validity of the EPA-SF as it bore expected relations to personality, antisocial behavior, and computer crime. Results also underscored the utility of differentiating among the various components of psychopathy, and revealed the relative importance of Interpersonal Antagonism and Disinhibition and the relative insignificance of emotional stability. Finally, results suggested computer criminal behaviors, like other forms of antisocial behavior, correlated with violent and nonviolent antisocial behavior and psychopathy. Implications for the use of the EPA-SF in the assessment of psychopathy and the utility of considering computer crime as an indicator of general antisocial behavior are discussed.

1. Introduction

Psychopathy is a personality disorder that includes traits such as callousness, egocentricity, dishonesty, impulsivity, and irresponsibility and is associated with a variety of negative outcomes such as crime, aggression, and substance use. Much of the interest in psychopathy is driven by its relatively strong relations with antisocial behaviors (e.g., Hare & Neumann, 2008; Lykken, 1995), particularly violence and criminality. The family of measures drawn from the Hare Psychopathy Checklist (PCL; see Hare, 1991/2003) yields moderate to large effect sizes for predicting violent recidivism among both juvenile and adult offenders (Rice & Harris, 2013).

Due to the strong theoretical and empirical overlap between psychopathy and criminal behavior (e.g., Hare, 1999), psychopathy is emerging as an important construct in criminology (e.g., Polaschek & Daly, 2013). DeLisi (2009, 2016) argued that psychopathy should be considered the unified theory of crime because of its embodiment of the "pejorative essence of antisocial behavior" as well as its ability to accommodate both dimensional and categorical conceptualizations of antisocial behavior across diverse populations. Criminologists initially eschewed the concept of psychopathy (and personality in general), even though psychopathy overlapped to some

degree with other constructs within criminology. Much of this concern was related to the fact that some psychopathy measures include explicit assessments of antisocial and other externalizing behaviors, which leads to a potential tautology in which one measure of antisocial behavior is used to predict another measure of antisocial behavior.

More recent assessment work, however, has obviated these concerns by using traits drawn from basic personality research to understand and capture the personality features of psychopathy. Much of this research demonstrates that psychopathy is a multi-dimensional construct that can be conceptualized as a configuration of maladaptive or extreme variants of general personality traits (e.g., Lynam & Miller, 2015; Miller, Lynam, Widiger, & Leukefeld, 2001). In fact, a significant literature now exists that deconstructs psychopathy into a smaller number of constituent traits. In general, the traits most strongly and consistently related to psychopathy are those related to the domains of antagonism (or meanness) and disinhibition (Decuyper, De Pauw, De Fruyt, De Bolle, & De Clercq, 2009; Lynam & Widiger, 2007; O'Boyle, Forsyth, Banks, Story, & White, 2015).

1.1. Elemental Psychopathy Assessment

Working from this trait perspective with the Five Factor Model of

personality (FFM), Lynam and colleagues developed the Elemental Psychopathy Assessment (EPA; Lynam et al., 2011) which was based on a consensus FFM psychopathy profile. Specifically, the EPA consists of 18 subscales, all of which proved to be reliable and unidimensional, and remained true to their five factor origins in the derivation study (Lynam et al., 2011). Several studies attest to the construct validity of the EPA including demonstrations of its convergence with other psychopathy scales and predicted relations to antisocial behavior, various types of aggression, angry social information processing, other personality disorders, and other measures of personality (e.g., Miller et al., 2011; Sherman & Lynam, in press; Wilson, Miller, Zeichner, Lynam, & Widiger, 2011).

In addition, Lynam et al. (2013) examined the underlying factor structure of the EPA in two large undergraduate samples. The EPA was underlaid by four factors—Interpersonal Antagonism (i.e., E1: coldness, A1: distrust, A2: manipulation, A3: self-centeredness, A6: callousness), Emotional Stability (i.e., A1: unconcern, N3: self-contentment, and N6: invulnerability), Disinhibition (i.e., N5: urgency, E5: thrill-seeking, A4: opposition, C3: disobliged, C5: impersistence, and C6: rashness), and Narcissism (i.e., N2: anger/hostility, N4: self-assurance, E3: dominance, and A3: arrogance). The factors related, as expected, to scales from alternative self-report conceptualizations of psychopathy and externalizing behaviors; EPA factors also provided incremental validity in the prediction of the alternative psychopathy measures and externalizing behaviors.

Most recently, Lynam et al. (2013) reduced the original 178-item EPA down to an 88-item version using item response theory. The EPA short form (EPA-SF)[1] reproduced the factor structure of the original, as well as reproducing, in direction and magnitude, the correlations between the original EPA and a variety of criterion measures (e.g., other psychopathy scales, the FFM, and a number of externalizing behaviors). Importantly, the relations were reproduced not just at the total score, but at the level of the subscales as well. The current study seeks to provide additional evidence for the validity of the EPA-Short Form, further demonstrate the utility in distinguishing between the different aspects of psychopathy, and to extend validity criteria to include computer crime—a type of crime not yet studied in relation to psychopathy.

1.2. Computer crime

The term hacking has evolved over the years, but in general, it refers to the use of a computer to gain unauthorized access to information systems or to exploit the vulnerabilities of computer networks (Holt, Bossler, & Seigfried-Spellar, 2015). However, in the hacker community, the term hacker refers to individuals who are motivated by intellectual curiosity, whereas the term cracker (i.e., criminal hacker) identifies individuals with malicious intent and destructive motivations (see Barber, 2001).[2] Examples of computer crime include denial of service attacks (e.g., when a website is disrupted so that legitimate users can no longer access it), password cracking, website defacement, and identity theft, just to name a few.

Escalating cyber threats and vulnerabilities are a serious concern for both small and large organizations, as well as the private sector and general public. In 2014, Symantec reported an increase in "trojanized" software updates, malware, ransomware, and social media scams; in fact, there were 317 million new forms of malicious software created this past year (Symantec, 2015). In addition, experts predict increasingly creative cybersecurity hacks for 2017, which include ransomware, extortion, insider threat (i.e., the cyber threat comes from employees

within an organization), and Internet of Things (IoT) security threats (e.g., computing devices embedded in everyday objects that connect to the internet, such as the Amazon Echo; Patterson, 2016). The traditional response to cybersecurity threats and cybercrime has been the creation of better technological tools; however, research is beginning to focus on understanding the people who engage in computer criminal behavior (Crossler et al., 2012; Rogers, Seigfried & Tidke, 2006; Seigfried-Spellar & Treadway, 2014). We are shifting away from outdated stereotypes of computer hackers (see Schell & Holt, 2009) to the empirical inquiry of those individuals who engage in computer hacking behavior. This study contributes to the scientific body of knowledge on the relationship between computer hacking behaviors, psychopathy, personality, and other antisocial behaviors (e.g., illicit substance abuse).

As of June 2016, approximately 48% of the world has access to the Internet (Internet World Stats, 2016); however, not everyone who has access to the Internet engages in cybercriminal behavior. According to Loch and Conger (1996), "individual characteristics all appear to be important in determining ethical computing decisions" (p. 82). Few empirical studies exist examining the personality characteristics of computer criminals, instead, relying on outdated stereotypes and anecdotal evidence (Campbell, Kennedy, Bosworth, Kabay, & Whyne, 2014). For instance, traditional stereotypes of hackers include portrayals of socially awkward teenagers or loners who are addicted to computers (see Schell & Holt, 2009; Yar, 2005), and such stereotypes and anecdotes have led to "convoluted, overgeneralized, and inaccurate portrayals" of hackers (Campbell et al., 2014, p. 2).

To date, we located only one empirical study which assessed the relationship between internet hacking and psychopathy; however, this study assessed whether or not media preferences for internet hacking were related to the Dark Triad, which refers to three closely-related personality traits: narcissism, psychopathy, and Machiavellianism (Williams, McAndrew, Learn, Harms, & Paulus, 2001). With a sample of undergraduate students, Williams et al. examined whether the dark triad was related to a variety of entertainment preferences, which included the factor, anti-social Internet media. The factor, anti-social internet media, was comprised of internet hacking and internet pornography entertainment preferences. Williams et al. found anti-social internet media preferences significantly correlated with psychopathy in their sample of undergraduate students (Williams et al., 2001).

Previous research, not explicitly concerned with psychopathy, has examined the relation between computer crime and specific personality traits. This research suggests computer criminals score high on exploitive manipulative amoral dishonesty (Rogers, Smoak & Liu, 2006), low internal moral values (Rogers et al., 2006), low social moral values (Rogers et al., 2006); and low extraversion (Rogers et al., 2006; Shaw, Post, & Ruby, 1999) compared to non-criminals. In addition, a number of criminology research studies suggest low self-control is correlated with various forms of computer criminal behavior, such as computer hacking (Bossler & Burruss, 2010) and digital pirating (Higgins, 2005; Higgins & Makin, 2004; Higgins, Wolfe, & Ricketts, 2009; Marcum, Higgins, Wolfe, & Ricketts, 2011). Overall, these traits appear to describe traits analogous to psychopathy.

Additional research has examined the personality correlates of specific types of computer crimes. Seigfried-Spellar and Treadway (2014) found low agreeableness predicted self-reported hacking; high scores on neuroticism and low scores on internal moral values predicted identity theft; and low scores on internal moral values predicted virus writing. In addition, Seigfried-Spellar and Bowen (2017) found individuals who self-reported denial of service attacks (DoS) scored low on agreeableness and hedonism compared to computer criminals who did not engage in DoS attacks. Also, identity thieves scored low on social moral values; malware users scored low on social moral values and high on neuroticism, openness to experience, and conscientiousness; password crackers scored low on neuroticism, agreeableness, and social moral values; and individuals who monitored network traffic

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[1] An 18-item super-short form of the EPA that provides a total score and scores on three higher-order factors (Antagonism, Disinhibition, and Emotional Stability) was also recently published (see Collison, Miller, Gaughan, Widiger, & Lynam, 2016).

[2] Please note that the term hacker will be used broadly in this paper to refer to both hackers and crackers.