

Journal of Interpersonal Violence

<http://jiv.sagepub.com/>

Psychopathy and Victim Selection: The Use of Gait as a Cue to Vulnerability

Angela Book, Kimberly Costello and Joseph A. Camilleri

J Interpers Violence 2013 28: 2368 originally published online 19 February 2013

DOI: 10.1177/0886260512475315

The online version of this article can be found at:

<http://jiv.sagepub.com/content/28/11/2368>

Published by:



<http://www.sagepublications.com>

On behalf of:

American Professional Society on the Abuse of Children

Additional services and information for *Journal of Interpersonal Violence* can be found at:

Email Alerts: <http://jiv.sagepub.com/cgi/alerts>

Subscriptions: <http://jiv.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

Citations: <http://jiv.sagepub.com/content/28/11/2368.refs.html>

>> [Version of Record](#) - Jun 20, 2013

[OnlineFirst Version of Record](#) - Feb 19, 2013

[What is This?](#)

Psychopathy and Victim Selection: The Use of Gait as a Cue to Vulnerability

Journal of Interpersonal Violence
28(11) 2368–2383
© The Author(s) 2013
Reprints and permissions:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/0886260512475315
jiv.sagepub.com


Angela Book, PhD,¹ Kimberly Costello, PhD,¹
and Joseph A. Camilleri, PhD²

Abstract

Previous research has shown that victims display characteristic body language, specifically in their walking style (Grayson & Stein, 1981). Individuals scoring higher on the interpersonal/affective aspects of psychopathy (Factor 1) are more accurate at judging victim vulnerability simply from viewing targets walking (Wheeler, Book, & Costello, 2009). The present study examines the relation between psychopathy and accuracy in assessing victim vulnerability in a sample of inmates from a maximum security penitentiary in Ontario, Canada. Forty-seven inmates viewed short video clips of targets walking and judged how vulnerable each target was to victimization. Higher Factor 1 psychopathy scores (as measured by the PCL-R; Hare 2003) were positively related to accuracy in judging victim vulnerability. Contrary to research with noninstitutional participants (Wheeler et al., 2009), inmates higher on Factor 1 of psychopathy were more likely to rationalize their vulnerability judgments by mentioning the victim's gait. Implications of these findings are discussed.

Keywords

psychopathy, vulnerability, victim selection, gait, body language

¹Brock University, Catharines, Ontario, Canada

²Westfield State University, Westfield, MA, USA

Corresponding Author:

Angela Book, Department of Psychology, Brock University, 500 Glenridge Avenue, St. Catharines, Ontario, L2S 3A1, Canada.

Email: abook@brocku.ca

Serial killer Ted Bundy once stated that “he could tell a victim by the way she walked down the street, the tilt of her head, the manner in which she carried herself, etc . . .” (as cited in Holmes & Holmes, 2009, p. 221). The assertion that vulnerability can be judged by our everyday body language is compelling. Do our bodies betray our insecurities? Research has found that nonverbal behavior can influence perceptions of others. Specifically, nonverbal cues can inform judgments about other’s personality, life satisfaction (Yeagley, Morling, & Nelson, 2007), and sexual orientation (Ambady, Hallahan, & Conner, 1999). Nonverbal behavior is also symptomatic of an individual’s level of vulnerability, and thus impacts perceptions of dominance/submissiveness (Richards, Rollerson, & Phillips, 1991), powerfulness (Montepare & Zebrowitz-McArthur, 1998), self-confidence (Murzynski & Degelman, 1996), vulnerability to assault (Grayson & Stein, 1981; Gunns, Johnston, & Hudson, 2002; Sakaguchi & Hasegawa, 2006), and genuine victimization history (Wheeler et al., 2009).

Although nonverbal cues appear to be reliable indicators of vulnerability, some people are naturally more attuned to decoding body language than others (Ambady, Hallahan, & Rosenthal, 1995). Psychopathic individuals, in particular, should be skilled in nonverbal sensitivity given their adeptness at deceiving, manipulating, and exploiting others (Hare, 2001). Attention to body language, which is indicative of vulnerability, would give psychopathic perpetrators a definite advantage in selecting “easy” victims. In support, previous research indicates that psychopathic traits are associated with better memory for exploitable behavior (Camilleri, Kuhlmeier, & Chu, 2010) and greater accuracy in judging others’ assertiveness (Book, Quinsey, & Langford, 2007) and vulnerability to victimization (Wheeler et al., 2009). While the first study (Wheeler et al., 2009) employed an undergraduate sample to test whether psychopathic traits are associated with increased accuracy in victim selection, we extend the scope by utilizing a sample of violent inmates. Furthermore, we examine whether psychopathic inmates pay conscious attention to body language cues, particularly a victim’s gait, when making vulnerability judgments. While this was not true in the student sample, we expect that individuals who have experience in victim selection (i.e., violent offenders) will be more practiced in paying attention to cues relating to vulnerability. That is, we expected psychopathic offenders to be more likely to mention gait as a reason for their assessment of vulnerability.

Psychopathy

Psychopathy is largely conceptualized as a personality construct involving a cluster of disordered traits, including (but not limited to) a lack of empathy

and remorse, glibness, manipulation, poor behavioral controls, and callousness (Cleckley, 1941; Hare, 1991). Psychopathy as a personality construct is most commonly measured using the Psychopathy Checklist Revised (PCL-R; Hare, 1991). The PCL-R is a clinical assessment tool that assesses two main factors of psychopathy, each consisting of 2 facets. Factor 1 of the PCL-R captures the core interpersonal (e.g., glibness) and affective (e.g., lack of empathy and remorse) traits of psychopathy. Factor 2 of PCL-R captures the unstable lifestyle (e.g., impulsivity) and antisocial behavior (e.g., delinquency) symptoms of psychopathy. There is debate about whether antisocial behaviors are an essential component of psychopathy or rather a consequence of the core psychopathic traits. As such, a three-factor model for the underlying structure of psychopathy has been proposed excluding the antisocial facet of the PCL-R (Cooke & Michie, 2001; Cooke, Michie, & Skeem, 2007). For purposes of the present study, we retain the original hierarchical two-factor structure of psychopathy as measured by the PCL-R (Hare, 1991).

Psychopathy is associated with a host of negative outcomes, including a heightened propensity for antisocial behavior, violence, and interpersonal exploitation (Hare, 2003). In fact, psychopathic individuals make up 15% to 25% of a typical prison population and are responsible for 50% of violent crime (Hare & Jutai, 1983). As such, psychopathic individuals have been labeled as “social predators,” characterized by manipulativeness, superficial charm, and use of deception (e.g., Book et al., 2007; Hare, 2001; Mealey, 1995; Wheeler et al., 2009). Being labeled a “social predator” necessitates the assumption that psychopathic individuals are particularly skilled in exploiting the weaknesses of others. Such reasoning is in line with Frank (1988), who proposed that to be successful in exploitation an individual needs to be adept at recognizing cues of vulnerability in potential victims. Successful predation therefore is thought to be dependent on the availability of reliable cues to victim vulnerability/weakness.

Cues to Vulnerability

Body language cues have been found to be reliable predictors of vulnerability. Some evidence for this association comes from research investigating the relationship between body language and perceived dominance/assertiveness. For example, in a study by Richards and colleagues (1991), men were more likely to select “submissive” women as potential victims after viewing short videos of the woman in a conversational context. As rated by a separate sample of judges, the women targets in this study who were perceived to be submissive tended to use “smaller” or more subtle gestures involving their

hands and feet. In contrast, the women who were perceived to be dominant used more assertive or expansive gesturing involving their arms and legs (Richards et al., 1991). Furthermore, a meta-analysis by Hall, Coats, and Smith-Le Beau (2005) confirmed that nonverbal behaviors, such as eye contact, body posture, and body gestures, are indeed related to actual and perceived ratings of targets' dominance.

One specific type of body language that reliably distinguishes victims from nonvictims is gait. In an early study by Grayson and Stein (1981), inmates who had been convicted of sexual assault identified individuals as vulnerable when they displayed certain motions within their walk. These motion cues to vulnerability included long or short strides, nonlateral weight shifts, gestured versus postural movements, and feet lifting. Overall, targets who were judged to be vulnerable to victimization (mugging/assault) exhibited less synchronous movement in their walk (Grayson & Stein, 1981). The relation between perceived vulnerability and gait was further corroborated by findings that targets with less fluid gaits were perceived to be more weak/vulnerable regardless of their sex or age (Montepare & Zebrowitz-McArthur, 1998).

Other research indicates that gait characteristics are indicative of vulnerability to sexual assault in particular. For example, Murzynski and Degelman (1996) found that women who had less-synchronous walks were perceived to be less confident and more vulnerable to sexual assault. In another study, Gunns and colleagues (2002) had participants view video clips of targets displaying either a vulnerable or nonvulnerable gait after which they rated the target's vulnerability to rape (and mugging). Overall, gait characteristics accounted for a large proportion of the variance in the perceived vulnerability ratings, with slow walking speed and foot movement uniquely predicting both. In keeping with Gunns et al. (2002), Sakaguchi and Hasegawa (2006) found that women exhibiting slower walking speed as well as shorter strides were judged by men to be more vulnerable to sexual exploitation.

Psychopathy and Victim Selection

Previous research, then, has established a clear link between body language (specifically, gait) and vulnerability to victimization. This opens the door to examining whether certain individuals are better than others at perceiving these cues. An obvious candidate for such a skill would be a psychopath, who is described as "social predator" (Book et al., 2007; Hare, 2001; Mealey,

1995; Wheeler et al., 2009). Indeed, a psychopath's ability to detect the suitability of victims based on their body language would be an adaptive skill that allows him to quickly hone in on vulnerable and "easy" victims.

Some researchers have examined whether psychopathic traits are correlated with the ability to remember targets that may be more or less exploitable. For example, Camilleri et al. (2010) found that psychopathic traits were associated with better memory for "helpers" (i.e., objects that assisted another object in attaining a goal), versus "hinders" (i.e., objects that prevented another object from attaining a goal). This study offers initial support for earlier descriptions of psychopaths as effective social predators (Hare, 1991; Mealey, 1995), suggesting that psychopaths may be more likely to target "altruistic" people given their increased exploitability. It should be noted, however, that others have not found the same effect when using different operational definitions (see Barclay & Lalumière, 2006).

Perhaps these conflicting findings can be explained by the failure to consider the unique impact of Factor 1 and Factor 2 of psychopathy. There is reason to believe that the interpersonal/affective characteristics (e.g., manipulateness, superficial charm, and lack of empathy) prototypical of Factor 1, are more central to effective victim selection, whereas Factor 2 characteristics (e.g., poor behavioral control and impulsivity) inhibit the planning and attention to detail required for predatory victim selection. Indeed previous research indicates that Factor 1 traits are associated with instrumental violence, whereas Factor 2 traits are negatively related to the level of instrumentality in crime, and instead predict reactionary aggression (e.g., Cunningham & Reidy, 1998; Woodworth & Porter, 2002). Two previous studies deal with the issue of victim selection directly and also consider the unique impact of Factor 1 and Factor 2 of psychopathy. Given that Factors 1 and 2 often correlate differently with a variety of dependent variables, possibly because Factor 2 scores may identify antisocial people who are not psychopathic, failing to consider the factors separately can result in null findings.

In the first study, Book et al. (2007) examined the ability of psychopathic criminals to judge vulnerability in others based solely on observing the target in a natural conversation with a confederate. Inmate's ratings of the target's perceived assertiveness were compared with those of the actual target. Only Factor 1 (interpersonal/affective traits) of the PCL-R was positively correlated with accuracy in judging other's assertiveness (Book et al., 2007). In a second study, Wheeler et al. (2009) examined whether psychopathic traits in a noninstitutional sample of undergraduate students were associated with accuracy in judging vulnerability to victimization. In this study male students

viewed short video clips of targets walking from behind and then rated each target's vulnerability to assault. Male students scoring higher on self-reported interpersonal/affective traits of psychopathy in particular, were more accurate in assessing target vulnerability. Across both studies, Factor 2 was unrelated to accuracy in victim selection.

If psychopathic inmates exhibit superior accuracy in identifying victims, do they also pay conscious attention to the targets' body language, or gait in particular, when judging vulnerability? Wheeler et al. (2009) examined student's explanations for vulnerability ratings but found no relationship between psychopathy and the frequency for which gait was used by participants to explain vulnerability judgments. In other words, students scoring higher on psychopathic traits did not consciously base their vulnerability judgments on the victim's gait. It is possible that this null finding is a product of the student sample used in Wheeler et al. More specifically, the participants were unlikely to have experience in victim selection. An examination of the relationship between psychopathy and victim selection in an institutional population may yield different results, given that the participants would have more experience in selecting victims. For this reason, we chose to focus on a sample of violent offenders in the present study.

The goal of the present study, therefore, is to examine the relationship between psychopathy and perceived victim vulnerability in a sample of violent inmates. In keeping with Wheeler et al. (2009) and previous descriptions of psychopaths as social predators (Book et al., 2007, Hare, 2001), we predicted that inmates scoring higher in Factor 1 of psychopathy (interpersonal/affective symptoms) would be more accurate in victim vulnerability ratings. Furthermore, inmates higher in Factor 1 were also expected to pay more conscious attention to reliable vulnerability cues, specifically a target's gait. In other words, there should be a positive correlation between Factor 1 traits and the number of times gait is mentioned as a reason for vulnerability ratings.

Method

Participants

Participants included forty-seven male inmates from a maximum security institution in Ontario, Canada ($M_{age} = 35.55$, $SD = 10.1$). All participants had at least one conviction for a violent offence and the majority were convicted of multiple offences ($n = 39$). Other offence convictions included sexual ($n = 5$), drug ($n = 12$), and property ($n = 35$). Clinical diagnoses included

substance abuse ($n = 39$), schizophrenia ($n = 2$), personality disorder ($n = 2$), and mood disorder ($n = 6$). Most inmates had a moderate to high IQ ($n = 41$).

Procedure

On arriving in the institution's psychology department, inmates were informed of the purpose of the study and asked to sign a consent form if they chose to participate. By signing the consent form, inmates allowed researchers to review information from their institutional files including clinical diagnoses, PCL-R scores, and criminal histories. Participants then viewed 12 video clips of people walking. After each clip participants rated the target on their vulnerability to being victimized and then provided rationales for their ratings. Participants were given as much time as they needed to rate each video and comment on reasoning.

Materials

Twelve video clips of unsuspecting targets walking from Wheeler et al. (2009) were used in the present study. The targets were undergraduate students, of whom 8 were women and 4 were men. As described in Wheeler et al., targets were unknowingly videotaped from behind as they walked from room A to B, to capture natural gaits. The targets indicated whether they had ever been victimized and how many times they had been victimized in the past (after the age of 18). The wording of the question was very broad, given the numerous types of victimization that can occur, and the effects of any victimization are relative. If participants asked for clarification, they were asked to think of victimization as being equal to or greater than bullying. Each target's gait was coded by two independent judges according to the Grayson and Stein's criteria (1981). As discussed in the original Wheeler et al. study, interjudge reliabilities were high for all gait characteristics ($\kappa = .77$ to 1.00). Essential to the idea that body language cues indicate vulnerability, targets coded as displaying vulnerable body language in the Wheeler et al. were more likely to have self-identified as a victim, $\rho(11) = .68, p < .05$.

Measures

Psychopathic traits. Psychopathic traits were assessed using the Psychopathy Checklist-Revised (PCL-R; Hare, 2003). The PCL-R has been shown to be reliable and valid in many contexts and populations (see Hare, 2003 for a

review). The PCL-R total, Factor 1, and Factor 2 scores were on file for all participants ($M_{total} = 21.83$, $SD = 8.16$, in line with other institutional samples; Hare, 2003).

Perceived vulnerability. Participants viewed each of the 12 video clips and rated each target's vulnerability to being victimized on a 10-point rating scale (1 = *not at all vulnerable to victimization*, 10 = *completely vulnerable to victimization*). Victimization was defined as "assault with the intent to rob or steal from the victim." This wording is similar to that used by Grayson and Stein (1981), who used mugging and assault in the instructions for their participants. Participants then responded to an open-ended item prompting them to provide reasoning for their vulnerability judgments.

Results

Data Preparation

In keeping with Wheeler et al. (2009), accuracy in victim selection was determined by categorizing participant's ratings of target vulnerability into correct or incorrect judgments based on the target's actual self-reported history of victimization. Participants were considered to be accurate in their judgments if they gave "nonvictims" a vulnerability score between 1 and 5 and if they gave "victims" a vulnerability score between 6 and 10. The midpoint of the scale was used because the values from 1 to 5 described the person as not being vulnerable to victimization, while values from 6 to 10 described the target as vulnerable to victimization. The number of correct assessments across the 12 videos was added to compose an overall measure of accuracy in victim selection, higher scores reflecting greater victim selection accuracy.

Psychopathy and Victim Selection

Descriptive statistics and correlations among key variables are presented in Table 1. Because we had directional hypotheses for Factor 1's relationships with victim vulnerability and the number of times gait was mentioned, these tests were one-tailed. All other statistical tests were two-tailed. Correlations between factor scores and dependent variables were partial (controlling for the other factor), allowing us to isolate the unique effects of each factor. We predicted that inmates higher in the core interpersonal/affective traits (Factor 1) of psychopathy would be better at distinguishing victims from nonvictims. As indicated in Table 1, accuracy in judging other's vulnerability to victimization

Table 1. Descriptive Statistics and Bivariate Correlations Among Key Variables.

	<i>M</i>	<i>SD</i>	Range	Factor 1	Factor 2	Victim Accuracy	Gait
PCL-R total	21.83	8.16	4-34	.78**	.90**	.38**	.10
Factor 1	8.13	3.63	2-15	—	.48**	.47 _p **	.26 _p *
Factor 2	11.77	5.23	0-19		—	-.04 _p	-.13 _p
Victim accuracy	6.35	2.65	0-12			—	.17

Note. *N* = 47. PCL-R = Psychopathy Checklist–Revised. Subscript_p = partial correlation.

p* < .05. *p* < .01.

was positively correlated with Total psychopathy and with Factor 1 (interpersonal/affective traits) of the PCL-R, after controlling for Factor 2. In contrast, no significant relationship emerged between victim accuracy and Factor 2 (antisocial/lifestyle) of the PCL-R, after controlling for Factor 1. These results indicate that psychopathy in inmates, particularly the core interpersonal and affective traits (Factor 1), enables successful victim selection.

Attention to Body Language

Open-ended responses for vulnerability rating rationales were coded by two independent judges for mention of 11 vulnerability cues: gait, body posture (body movements not related to gait), age, sex, attractiveness, build, clothing, attention, fitness, environment (e.g., lack of lighting), and whether target was alone. The category labels and examples are listed in Table 1. For each target video, participants received a score of 1 if the vulnerability cue was mentioned or 0 if the cue was not mentioned. Often, participants gave multiple reasons for their vulnerability assessment, and thus their response would be coded into as many categories as they had given. Prior to resolving discrepancies via discussion, interjudge agreement for coding vulnerability rating rationales was excellent (Kappas ranged from .86 to .99). Of particular interest to the present investigation was mention of gait, which had the highest interrater reliability.

Psychopathy and Attention to Gait Cues

As mentioned above, Factor 1 was expected to correlate positively with the number of times gait in particular was given as a reason for vulnerability ratings. We did run correlations between the two factors of psychopathy and

Table 2. Category Coding and Frequencies for Vulnerability Rating Rationales.

Examples		Frequency	F1	F2	PCL-Total
Category					
Fitness	<i>Greater probability of fighting back; Able to defend self</i>	38	.18	-.01	.06
Body type	<i>In good physical shape; Heavy set and will be slow</i>	34	.17	-.23	-.11
Sex	<i>Because she's a woman; Female (wouldn't mug a girl)</i>	33	.19	-.03	.16
Walk/gait	<i>Walks with confidence; Walks like an easy target</i>	31	.26*	-.13	.10
Attention	<i>Not paying attention to; Appears to be cautious</i>	29	.03	.04	.06
Clothing	<i>Expensive clothing; Clothes restrict warding mugger off</i>	23	-.06	-.07	-.14
Body posture	<i>Fidgeting with hair; Hands in pockets</i>	21	.15	-.08	.05
Alone	<i>No one around; Being alone increases vulnerability</i>	19	-.01	.14	.15
Environment	<i>Too much light in vicinity; Secluded places to hide</i>	17	-.09	-.09	-.15
Age	<i>Victim is too young; Young male</i>	14	.09	-.26	-.18
Attractiveness	<i>Looks are enticing to mugger; She is attractive</i>	5	-.01	-.01	-.03

Note. All correlations are two-tailed with the exception of F1 and walking/gait (because of specific prediction). For correlations with Factor scores, the values are partial correlations (removing the impact of the other factor score). $N = 47$.

* $p < .05$.

all of the categories described above. All tests were two-tailed, with the exception of the relationship between Factor 1 and mentioning walking/gait, because of the specific prediction regarding this relationship. Correlations can be seen in Table 2. Consistent with predictions, inmates higher on Factor 1 of psychopathy were more likely to rationalize their vulnerability judgments by mentioning the victim's gait, $r(44) = .26, p < .05$. Factor 1 was not significantly related to any of the other cues to vulnerability. None of the partial correlations between Factor 2 and the various reasons for vulnerability judgments were significant.¹

Discussion

Overall, results are in keeping with previous research (Book et al., 2007; Wheeler et al., 2009) and support predictions that psychopathy enables accurate victim selection. Whereas Wheeler et al. examined psychopathic traits in students with little experience in victim selection, we explored the relationship between psychopathy and victim identification among violent inmates with extreme histories of victimizing others. We found that inmates with higher psychopathy scores demonstrated greater accuracy in distinguishing victims from nonvictims. The association between psychopathy and accuracy in victim selection was driven solely by the core Interpersonal/Affective traits underlying Factor 1 because Factor 2 was unrelated to accuracy in judging victim vulnerability. These findings make logical sense because traits underlying Factor 1, such as manipulateness, superficial charm, and lack of empathy can facilitate the exploitation of others. On the other hand, Factor 2 traits could arguably inhibit a person's ability to strategically prey on victims (e.g., impulsivity/irresponsibility) but not among psychopaths who also score high on Factor 1 as is evidenced by the correlation between total PCL-R scores and accuracy. These findings are also in line with recent suggestions that Factor 1 traits are at the core of psychopathy and that some traits falling under Factor 2 are less integral to the construct, such as antisocial behavior (Skeem & Cooke, 2007) and impulsivity (Poythress et al., 2011).

Previous research indicates that walking style in particular is a reliable indicator of vulnerability (Grayson & Stein, 1981; Wheeler et al., 2009). Is attention to body language, or gait in particular, conscious? Much of the previous research would suggest not. For example, a study by Amir (1971) found that convicted criminals were unaware of the criteria they used to select their victims. In the present study, the most commonly listed criteria for selecting victims were the target's sex, build, and ability to retaliate (i.e., fitness), with gait listed less often. However, inmates scoring higher on Factor 1 of the PCL-R were much more likely to consciously attend to a target's gait when making their vulnerability judgments. This finding is in contrast to Wheeler et al. (2009) who found that psychopathic traits were unrelated to the tendency to mention gait in judging reasoning. The lack of relationship is likely due to the student participants who had lower psychopathy scores and little experience in victim selection, while the present sample is made up of violent offenders who arguably have loads of experience in victim selection.

There are limitations to the present research that need to be discussed. First, the targets in the video stimuli included 8 women and 4 men. Most previous studies have used exclusively female targets (e.g., Murzynski & Degelman, 1996, given their focus on sexual assault. While our mixed

sample could be seen as a limitation, it also adds to the literature by including male targets. We were unable to examine whether the target's sex had an effect on ratings, given the small number of targets, but future studies should examine this issue to determine whether body language cues and ratings of vulnerability are similarly related in each sex.

Our second limitation is the relatively small sample of inmates who participated in the present study. There are unique challenges involved in collecting data from specialized populations especially within maximum security penitentiaries. The overall response rate for participation was relatively low (approximately 50%) and data collection was slowed due to unexpected lockdowns and disruptions within the institution. That being said, the sample in the present study was comparable in terms of PCL-R scores to other studies conducted with inmate populations (e.g., Hare, 2003) and it was well suited to our research question, as most participants had committed violent crimes, and psychopathy scores were relatively high.

As in Wheeler et al. (2009), our results may be limited to the type of crime participants were instructed to focus on, specifically targets' vulnerability to mugging. While our results and methodology are in line with Grayson and Stein (1981), most of the research on body language and vulnerability has focused on sexual assault (e.g., Murzynski & Degelman, 1996). Nonetheless, care needs to be taken when generalizing the results of the present study (involving mugging/assault victims) to sexual assault victims. Indeed, Sakaguchi and Hasegawa (2007) demonstrated that perpetrators use different criteria to assess victim vulnerability based on the type of crime scenario. Future research can consider this possibility by including multiple crime scenarios. Moreover, the results do not negate the influence of vulnerability cues other than gait. Recall that most participants noted the size, fitness, and sex of the target as factors influencing their vulnerability judgments. Relatedly, Gunns et al. (2002) found that restrictive clothing such as tight pants and high heels positively influenced vulnerability ratings (but see Sakaguchi & Hasegawa, 2006). Therefore, other cues such as age and sex may impact vulnerability judgments in general, but psychopaths in particular are more sensitive to gait cues. Nonetheless, it would be worthwhile to systematically control for these other cues to vulnerability (i.e., clothing, attractiveness, etc.) in future studies to ensure that it is gait, not correlates of gait, that participants are attending to.

Although responsibility for victimization always lies with the perpetrator, our findings have implications for the prevention of future and repeated victimization. Targets who displayed vulnerable body language were more likely to report past histories of victimization, and psychopaths identified these individuals as being more vulnerable to future victimization. These

findings may account for why some individuals become repeat victims; social predators are attracted to external displays of vulnerability (Fattah, 1991). As such, individuals at risk for victimization can be instructed on how to avoid displaying vulnerable body language (see Johnston, Hudson, Richardson, Gunns, & Garner, 2004) and in turn reduce their likelihood of being chosen as a victim. That being said, the effects of such training appear to be temporary, and the natural gait reasserts itself over time.

Another interesting direction for future research is the nature of vulnerability itself. Some researchers have suggested that the identification of oneself as a victim is more influential on body language than is actual history of victimization (as asserted by Theriot, Dulmus, Sower, & Johnson, 2005). Past victimization, therefore, may only lead to an increased chance of future victimization if victims perceive themselves as vulnerable to victimization. If a target's vulnerability (display of vulnerable body language) is not elucidated by actual victimization but rather a vulnerable self-concept, then Cognitive Behavioral Therapy (CBT) addressing self-perceived vulnerability may be useful for reducing vulnerability to victimization and may outperform instruction on nonvulnerable walking characteristics. Indeed, training victims in how to walk assertively works, but the effect seems to disappear with time (Johnston et al., 2004). Addressing perceptions of vulnerability through CBT may therefore be a more effective way to prevent revictimization.

To conclude, we found support for the notion that psychopaths are "social predators" (Book et al., 2007; Hare, 2001; Mealey, 1995; Wheeler et al., 2009). Total PCL-R scores and Factor 1 traits were positively correlated with both accuracy in judging vulnerability to victimization and with the tendency to mention gait as a reason for that judgment. In other words, inmates scoring higher on the core psychopathic personality traits (as measured on Factor 1 of the PCL-R) are more accurate in judging victim vulnerability and they are more likely to consciously attend to a target's gait when selecting a victim. It would seem, then, that Ted Bundy may have hit the nail on the head.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study was funded by a grant to Angela Book from the Social Sciences and Humanities Research Council of Canada.

References

- Ambady, N., Hallahan, M., & Conner, B. (1999). Accuracy of judgments of sexual orientation from thin slices of behavior. *Journal of Personality and Social Psychology, 77*, 538-547. doi:10.1037/0022-3514.77.3.538
- Ambady, N., Hallahan, M., & Rosenthal, R. (1995). On judging and being judged accurately in zero-acquaintance situations. *Journal of Personality and Social Psychology, 69*, 518-529. doi:10.1037/0022-3514.69.3.518
- Amir, M. (1971). *Patterns in forcible rape*. Chicago, IL: University of Chicago Press.
- Book, A. S., Quinsey, V. L., & Langford, D. (2007). Psychopathy and the perception of affect and vulnerability. *Criminal Justice and Behavior, 34*, 531-544. doi:10.1177/0093854806293554
- Camilleri, J. A., Kuhlmeier, V. A., & Chu, J. Y. Y. (2010). Remembering helpers and hinderers depends on behavioral intentions of the agent and psychopathic characteristics of the observer. *Evolutionary Psychology, 8*, 303-316.
- Cleckley, H. (1941). *The mask of sanity: An attempt to clarify some issues about the so-called psychopathic personality*. St. Louis, MO: Mosby.
- Cooke, D. J., & Michie, C. (2001). Refining the construct of psychopath: Towards a hierarchical model. *Psychological Assessment, 13*, 171-188. doi:10.1037/1040-3590.13.2.171
- Cooke, D. J., Michie, C., & Skeem, J. (2007). Understanding the structure of the psychopathy checklist-revised. *British Journal of Psychiatry, 190*, 39-50. doi:10.1192/bjp.190.5.s39
- Cunningham, M. D., & Reidy, T. J. (1998). Antisocial personality disorder and psychopathy: Diagnostic dilemmas in classifying patterns of antisocial behavior in sentencing evaluations. *Behavioral Sciences and the Law, 16*, 333-351.
- Fattah, E. A. (1991). *Understanding criminal victimization: An introduction to theoretical victimology*. Scarborough, Ontario, Canada: Prentice-Hall.
- Frank, R. H. (1988). *Passions within reason: The strategic role of emotions*. New York, NY: Norton.
- Grayson, B., & Stein, M. I. (1981). Attracting assault: Victims' nonverbal cues. *Journal of Communication, 31*, 68-75.
- Gunns, R. E., Johnston, L., & Hudson, S. M. (2002). Victim selection and kinematics: A point-light investigation of vulnerability to attack. *Journal of Nonverbal Behavior, 26*, 129-158. doi:10.1023/A:1020744915533
- Hall, J. A., Coats, E. J., & Smith-Le Beau, L. (2005). Nonverbal behaviour and the vertical dimension of social relations: A meta-analysis. *Psychological Bulletin, 131*, 898-924. doi:10.1037/0033-2909.131.6.898

- Hare, R. D. (1991). *The Hare Psychopathy Checklist-Revised*. Toronto, Ontario, Canada: Multi-Health Systems.
- Hare, R. D. (2001). Psychopaths and their nature: Some implications for understanding human predatory violence. In A. Raine & J. Sanmartin (Eds.), *Violence and psychopathy* (pp. 5-34). New York, NY: Kluwer Academic/Plenum.
- Hare, R. D. (2003). *The Hare Psychopathy Checklist-Revised* (2nd ed.). Toronto, Ontario, Canada: Multi-Health Systems.
- Hare, R. D., & Jutai, J. W. (1983). Criminal history of the male psychopath: Some preliminary data. In K. T. Van Dusen & S. A. Mednick (Eds.), *Prospective studies of crime and delinquency* (pp. 225-236). Boston, MA: Kluwer-Nijhoff.
- Holmes, R. M., & Holmes, S. T. (2009). *Serial murder* (3rd ed.). Thousand Oaks, CA: Sage.
- Johnston, L., Hudson, S. M., Richardson, M. J., Gunns, R. E., & Garner, M. (2004). Changing kinematics as a means of reducing vulnerability to physical attack. *Journal of Applied Social Psychology, 34*, 514-537. doi:10.1111/j.1559-1816.2004.tb02559.x
- Mealey, L. (1995). The sociobiology of sociopathy: An integrated evolutionary model. *Behavioral and Brain Sciences, 18*, 523-599. doi:10.1017/S0140525X00039595
- Montepare, J. M., & Zebrowitz-McArthur, L. A. (1998). Impressions of people created by age-related qualities of their gaits. *Journal of Personality and Social Psychology, 55*, 547-556. doi:547-5560022-3514/88/
- Murzynski, J., & Degelman, D. (1996). Body language of women and judgments of vulnerability to sexual assault. *Journal of Applied Social Psychology, 26*, 1617-1626. doi:10.1111/j.1559-1816.1996.tb00088.x
- Poythress, N., & Hall, J. (2011). Psychopathy and impulsivity reconsidered. *Aggression and Violent Behavior, 16*, 120-134.
- Richards, L., Rollerson, B., & Phillips, J. (1991). Perceptions of submissiveness: Implications for victimization. *Journal of Psychology, 125*, 407-411.
- Sakaguchi, K., & Hasegawa, T. (2006). Person perception through gait information and target choice for sexual advances: Comparison of likely targets in experiments and real life. *Journal of Nonverbal Behavior, 30*, 63-85. doi:10.1007/s10919-006-0006-2.
- Sakaguchi, K., & Hasegawa, T. (2007). Personality correlates with the frequency of being targeted for unexpected advances by strangers. *Journal of Applied Social Psychology, 37*, 948-968.
- Skeem, J. L., & Cooke, D. J. (2010). Is criminal behavior a central component of psychopathy? Conceptual directions for resolving the debate. *Psychological Assessment, 22*, 433-445.

- Theriot, M. T., Dulmus, C. N., Sower, K. M., & Johnson, T. K. (2005). Factors relating to self-identification among bullying victims. *Children and Youth Services Review, 27*, 979-994. doi:10.1016/j.childyouth.2004.12.024
- Wheeler, S., Book, A., & Costello, K. (2009). Psychopathic traits and perceptions of victim vulnerability. *Criminal Justice and Behavior, 36*, 635-648. doi:10.1177/0093854809333958
- Woodworth, M., & Porter, S. (2002). In cold blood: Characteristics of criminal homicides as a function of psychopathy. *Journal of Abnormal Psychology, 111*, 436-445. doi:10.1037//0021-843X.111.3.436
- Yeagley, E., Morling, B., & Nelson, M. (2007). Nonverbal zero-acquaintance accuracy of self-esteem, social dominance orientation, and satisfaction with life. *Journal of Research in Personality, 41*, 1099-1106. doi:10.1016/j.jrp.2006.12.002

Author Biographies

Angela Book is an associate professor of psychology at Brock University, Canada. Her research interests include psychopathy and its relation to emotion perception, deception, and victim selection.

Kimberly Costello is a doctoral candidate in the Department of Psychology at Brock University, Canada. Her research interests include intergroup prejudice, psychopathy, and victimization.

Joseph A. Camilleri is an assistant professor of psychology at Westfield State University, USA. His research interests include the effects of psychopathy and sexual conflict on sexual coercion in relationships.