

The Personality Assessment Inventory (PAI) Profiles of Crime Victims

Sung-Eun Beak¹⁾

Sunyoung Park²⁾

Misun Yi^{1)†}

¹⁾Dongyang University, South Korea

²⁾California Lutheran University, USA

This study confirmed the utility of the Personality Assessment Inventory (PAI) in assessing crime victims' psychopathological symptoms. The t-scores of 22 PAI scales (4 validity scales, 11 clinical scales, 5 treatment scales, and 2 interpersonal scales) of 258 victims and 1,442 non-victims were compared. The victim group was found to have significantly higher scores for all scales except dominance (DOM) (no difference) and treatment rejection (RXR) (significantly lower), with an especially larger effect size in anxiety (ANX), anxiety-related disorders (ARD), depression (DEP), and suicidal ideation (SUI). Regarding the validity scales, the likelihood of the t-score being at or above the manual-based cut-off was 10.25 times inconsistency (ICN), 1.17 times infrequency (INF), and +5.15 times negative impression (NIM) higher in the victim group than in the non-victim group. These results may compromise the validity of profiles of victims' clinical scales. Nevertheless, the PAI was found to be an adequate instrument for measuring several of the PTSD-related features that a victim of crime may experience. The need for a new standard for interpreting validity scales that considers the unique characteristics of crime victims was then discussed.

Key words : Personality Assessment Inventory, PAI, Psychological assessment, Victims of crime

† Corresponding Author: Misun Yi, 145 Dongyangdaero Punggi, Yeongju, Gyeongbuk, South Korea

E-mail: msy23@dyu.ac.kr

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited. Copyright ©2023, The Korean Association of Psychology and Law

The Psychological Injuries of Crime Victims

A criminal event is a traumatic experience that could directly threaten the survival of its' victim/s. A victim is defined as a person who has suffered harm including physical or mental injury, emotional suffering, economic loss, or substantial impairment of their fundamental rights, as a result of a crime (United Nations, 1986). In addition to physical and economic consequence, a victim is often traumatized (Frieze, Hymer, & Greenberg, 1987; Morey, 1991; Karmen, 2015; Riggs, Dancu, Gershuny, Grennberg, & Foa, 1992). Feelings of insecurity, anger, fear or anxiety are common for victims who suddenly and unexpectedly experience a crime (Ditton, & Farrall, 2017; Karmen, 2015; Riggs, et al., 1992). They might feel guilty if they wrongly believe themselves to have caused or enabled the incident (Friedman, 1985; Smale & Spickenheuer, 1979), they also may suffer from depression, suicidal thoughts, or drug or alcohol abuse, resulting in long-term negative effects and maladjustment in their life (Briere, & Runtz, 1986; Garnefski, & Arends, 1998; Kaysen, Simpson, Dillworth, Larimer, Gutner, & Resick, 2006; Kilpatrick, & Acierno, 2003; Myers, Templer, & Brown, 1984; Riggs, et al., 1992; Roland, 2002). Post-traumatic stress disorder (PTSD) is the most prevalent psychological injury experienced by victims (Kilpatrick, & Acierno, 2003; Krupnick &

Horowitz, 1981; Weaver, & Clum, 1995). Its ' associated features include anxiety, depression, behavioral impulsivity complicated by emotional liability, self-defeating behaviors, and suicidal impulses (DSM-5, American Psychiatric Association, 2013). In addition to the clinical criteria involving exposure to events beyond the normal range of human experience, PTSD involves the persistent re-experiencing of the traumatic events, the avoidance of stimuli associated with the events, negative changes in cognition and emotions associated with the events, and persistently increased arousal (APA, 2013).

The severity of the psychological damage caused by crime should be considered in sentencing, legal decision making, the scope of compensation, and furthermore, it is essential in determining effective therapeutic approaches. However, unlike loss of properties or physical injury, psychological damage is largely invisible and thus controversial, so professional and objective evaluation is indispensable. The Personality Assessment Inventory (PAI) can be useful for assessing the psychological injuries of crime victims (Cherepon & Prinzhorn, 1994), with particular value in diagnosing PTSD (Morey, 1991; Holmes, Williams, & Haines, 2001; McDevitt-Murphy, Weathers, & Adkins, 2005), as it can accurately measure many of the relevant symptoms (Morey, 1991).

PAI in a Legal Context

PAI is a self-reporting personality test that measures traits related to psychopathology, stress coping methods, and interpersonal relationships, etc. (Morey, 1991). It consists of 344 items to evaluate 22 scales, including 4 validity scales, 11 clinical scales, 5 treatment consideration scales, and 2 interpersonal relationship scales (Morey, 1991) (see Table 1). Since the PAI was introduced approximately 30 years ago (Morey, 1991), it has found applications in diverse contexts worldwide, including in forensic settings (Belter & Piotrowski, 2001; Morey, 1991; White, 1996). This is likely because the questions are easily understandable, as the respondent is directly asked about the constructs being measured. Additionally, the lowest educational attainment required to take the PAI is the 4th grade of elementary school, so it can be used even for subjects with relatively poor academic backgrounds (Morey, 1991). Considering that the educational level of prison inmates is likely to be lower than that of the public (Harlow, 2003), the PAI test can be utilized advantageously in correctional settings. From the PAI, not only is it easy to identify characteristics that are closely related to crime, such as aggression, antisocial personality disorder, and substance abuse (Gacono, Meloy, Sheppard, Speth, & Roske, 1995; White, 1996), but it is also simple to determine whether an inmate is trying to gain benefits by pretending to have

psychiatric problems (Cashel, Roger, Sewell, & Martin-Cannici, 1995; Rogers, Sewell, Cruise, Wang, & Ustad, 1998; Liljequist, Kinder, & Schinka, 1998).

Although little attention has been paid to the evaluation of psychological characteristics of crime victims through the PAI, previous studies have indicated that the PAI has the potential for use in PTSD assessment (Holmes et al., 2001; McDevitt et al., 2005; Morey, 1991). Victims with abuse experiences have been found to have significantly higher PAI scores for the depression (DEP), anxiety (ANX), anxiety-related disorders (ARD), suicidal ideation (SUI), borderline features (BOR), and schizophrenia (SCZ) scales (Cherepon & Prinzhorn, 1994). Furthermore, Morey (1991) confirmed that there were significant features in the PAI profiles of veterans with PTSD. Particularly, in the PTSD group, the scores for anxiety-related disorders (traumatic stress; ARD-T) were very high compared to those without PTSD, while the scores for depression (cognitive; DEP-C), schizophrenia (thought disorder; SCZ-T), borderline features (affective instability; BOR-A), and aggression (verbal; AGG-V) were also elevated (Morey, 1991). Holmes et al. (2001) compared three groups of people: those with PTSD, those with acute stress disorder (ASD), and motor vehicle accident survivors. The PTSD group showed different features to the other two groups, with significantly higher scores on the scales assessing somatic complaints, anxiety, anxiety related

Table 1. Scales and a brief description of PAI

Scales	A brief description	
Validity scales	Inconsistency (ICN)	Consists of pairs of highly correlated items to determine whether the client consistently answered throughout inventory.
	Infrequency (INF)	Determines if client is responding in an inattentive, random, or very idiosyncratic way.
	Negative Impression (NIM)	High scores suggest an attempt to make an overly bad impression or malingering.
	Positive Impression (PIM)	High scores suggest an attitude of trying to present of a favorable impression or deny admitting minor flaws.
Clinical scales	Somatic Complaints (SOM)	Focuses on preoccupation with health issues related to somatization or conversion disorders. Subscales include Conversion (SOM-C), Somatization (SOM-S), and Health Concerns (SOM-H).
	Anxiety (ANX)	Focuses on the observable signs of anxiety in different response modalities. Subscales include Cognitive (ANX-C), Affective (ANX-A), and Physiological (ANX-P).
	Anxiety-Related Disorders (ARD)	Focuses on symptoms and behaviors related to specific anxiety disorders, such as obsessive-compulsive disorder, phobias, and traumatic stress. Subscales include Obsessive-Compulsive (ARD-O), Phobias (ARD-P), and Traumatic Stress (ARD-T).
	Depression (DEP)	Focuses on symptoms and symptoms of depressive disorders. Subscales include Cognitive (DEP-C), Affective (DEP-A), and Physiological (DEP-P).
	Mania (MAN)	Focuses on the affective, cognitive, and behavioral symptoms of mania and hypomania. Subscales include Activity Level (MAN-A), Grandiosity (MAN-G), and Irritability (MAN-I).
	Paranoia (PAR)	Focuses on the symptoms of paranoid disorder and paranoid personality disorder. Subscales include Hypervigilance (PAR-H), Persecution (PAR-P), and Resentment (PAR-R).
	Schizophrenia (SCZ)	Focuses on the broad spectrum of symptoms in schizophrenic disorders. Subscales include Psychotic Experiences (SCZ-P), Social Detachment (SCZ-S), and Thought Disorder (SCZ-T).
	Borderline Features (BOR)	Focuses on the attributes of borderline personality disorder, including unstable interpersonal relationships, impulsivity, emotional instability, and uncontrollable anger. Subscales include Affective Instability (BOR-A), Identity Problems (BOR-I), Negative Relationships (BOR-N), and Self-Harm (BOR-S).
	Antisocial Features (ANT)	Focuses on the characteristics of antisocial personality disorder, such as history of illegal acts, conflict with authority figures, egocentrism, lack of empathy, instability, and sensation-seeking. Subscales include Antisocial Behaviors (ANT-A), Egocentricity (ANT-E), and Stimulus-Seeking (ANT-S).
		Alcohol Problems (ALC)
	Drug Problems (DRG)	Focuses on drug use problems and drug dependence tendency.
Treatment Consideration scales	Aggression (AGG)	Focus on attitudes related to anger, hostility, and aggression. Subscales include Aggressive Attitude (AGG-A), Verbal Aggression (AGG-V), and Physical Aggression (AGG-P).
	Suicidal Ideation (SUI)	Focuses on a feeling of helplessness, suicidal ideation and a focus on specific plans for suicide.
	Stress (STR)	Focuses on current or recent stressors in major life areas.
	Nonsupport (NON)	Focuses on perceived lack of social support, including the level and quality of available support.
	Treatment Rejection (RXR)	Focuses on indications of a lack of motivation for change in psychological and emotional aspects.
Interpersonal scales	Dominance (DOM)	Assesses the degree to which personal control and independence are maintained in interpersonal relationships.
	Warmth (WRM)	Assesses the level of support and empathy in interpersonal relationships.

A brief description of the PAI scales is made with reference to Morey & Boggs (2004).

disorders, depression, non-psychotic symptoms of schizophrenia, and negative relationships. McDevitt et al. (2005) replicated these findings in patients with PTSD, who received high scores on the ANX, DEP, ARD, and somatic complaints (SOM) scale, as well as on one validity scale - negative impression (NIM). More recently, Reidy, Sorensen, & Davidson (2016) examined over 15,500 PAI profiles of imprisoned offenders and determined that ANT and AGG were strongly related to general rule infractions. Another study (Ingram, Sharpnack, Mosier, & Golden 2021) utilizes latent profile analysis to evaluate patterns of symptom endorsement to see if PTSD is detectable on the PAI using a sample of treatment seeking veterans. Results indicated that the observed class models support the notion that the PAI clinical scales are a useful aid in detecting broad patterns of distress common to those with trauma exposure (e.g., depression, suicidal thoughts, avoidant behaviors, etc.).

Detecting random responses and impression management

PAI test can be considered advantageous because it can increase construct validity since the content to be measured is clear (Morey, 1991). However, this can also pose a problem with the validity of the interpretation of the results since the examinees can easily grasp the intention of the test and alter their profile in

their desired direction. The four PAI validity scales are ICN, INF, PIM, and NIM (Morey, 1991). ICN measures whether the examinee responds consistently and comprises 10 pairs of questions with high static or negative correlation. The increase in the use of the ICN scale can be attributed to a variety of causes, including the carelessness of examinees, reading problems, mental confusion, and scoring errors (Kim et al., 2002). The INF scale is a measure used to identify careless, wireless, and unusual responses and comprises questions that most people either admit to, to the extreme or do not acknowledge. Similar to ICN, it is useful in distinguishing subjects who respond non-typically due to carelessness, mental confusion, reading comprehension problems, and random responses (Kim et al., 2002). Meanwhile, it has been confirmed that a profile corresponding to a specific PAI configuration, such as Morey's (1991) cluster 2, is not affected by the deviant response style and can be treated as valid (Morey, 1991) as it reflects the respondent's unique personal experience or pathology. NIM is associated with overly poor impressions or pretentious attitudes and has been shown to be useful in detecting examinees' attempts to distort tests (Morey, 1991; Kucharski, Toomey, Fila, & Funcan, 2007). On the other hand, NIM can be interpreted as a sign of an appeal for assistance by exposing one's psychological pain (Kim et al., 2002). Contrarily, PIM measures attitudes related to perfection and the denial of even minor

flaws.

Previous studies have been conducted on PAI random response and impression management detection and discrimination scores with the general public, clinical groups (Baer & Wetter, 1997; Morey, 1991; Rogers et al., 1993; Rogers et al., 1996), and inmate groups (Cashel, et al., 1995; Rogers et al., 1998). Morey (1991) found that it is distinguished between a normal group and a group that attempted impression distortion if their NIM score was eight points (60T) or higher, and they successfully distinguished between the two groups if their score was 11 points (75T) or higher. A study of Rogers et al. (1993) was also able to distinguish among groups pretending to have schizophrenia, depression, and anxiety-related disorders when they scored eight points or higher, similar to Morey (1991). Moreover, Baer and Wetter (1997) confirmed the discriminatory power of the PIM scale for college students. When a PIM score of 56T was used as the basis, the rate of accurately distinguishing whether a positive impression was formed was 88%.

A study of clinical groups (Rogers et al., 1996) showed that when a score of nine points (65T) was used as the NIM cut-off score, the group pretending to have schizophrenia and the actual patient group were identified. Patients with posttraumatic stress disorder (PTSD) also tended to have higher NIM scores than the general population (Liljequist, Kinder, & Schinka, 1998; McDevitt-Murphy, Weathers, Adkins, &

Daniels, 2005), but 75% of false PTSD diagnoses were identified via NIM eight-point split scores. In addition, when a cut-off of 57T on the PIM scale was used, it was possible to identify the false positive impression formation attempts of 88% of the inmates (Casel et al., 1995), and for the NIM scale, when 77T was used as the cut-off, it could discriminate between those who tried to form a negative impression and those who answered honestly (Rogers et al., 1998).

In South Korea, a study was conducted to compare the distribution and division scores on the PAI validity scale among normal adults, clinical patients, and college students who were intentionally required to respond to wireless reactions and impression management (Hong et al., 2001). Similarly to the clinical and general groups, random responses could be reliably distinguished if the original scores on the ICN (69T) and INF (66T) scales were 10 or higher, respectively. For the NIM scale, the division scores of the normal adult group and the clinical patient group were nine points (62T) and 11 points (68T), respectively, which were higher in the clinical patient group, and for PIM, both groups scored equally (20 points, 58T).

When considering the results of previous studies, it can be confirmed that the PAI significantly identifies the impression management attempts of the general public, clinical groups, and correctional facility inmates. However, the

profile characteristics of the validity scale have not been confirmed for the victim group. In general, the random response detection scales (ICN, INF) are evaluated as measurement errors since they are less correlated with other scales and do not assess intentional responses for the impression management of examinees. Therefore, the increase in the use of the random response scale can be interpreted as a result of insincere attitudes (Kim et al., 2002). However, crime victims are emotionally unstable and experience lethargy when they deny the damage caused by the crimes in which they were involved (Frieze, Hymer, & Greenberg, 1987). This psychological state may cause the victim to struggle to focus on test questions or understand problems, resulting in an increase in ICN and INF scale scores. In addition, the evaluation of the psychological injuries of crime victims can be related to financial support and sentencing at trial (Lee, 2018). Accordingly, victims are likely to intentionally distort test results depending on their purpose, and similar to inmates or clinical patient groups, crime victims are likely to score higher on the NIM scale.

The Present Study

The purpose of this study was to confirm the utility of the PAI in assessing a victim's psychopathology by comparing the characteristics of the PAI profiles of victims with those of a non-victim group. Currently, in South Korea,

victims of crime are assessed using the PAI to evaluate the extent of the psychological injuries caused by the crime through a Victim Assessment Report (VAR) in the early stage of the police investigation (Park, 2015; Korean Police Agency, 2018). Similar to systems such as the Victim Impact Statement (VIS) used in the USA (Cassell, 2008), Canada (Roberts & Edgar, 2006), and Australia (Erez, 1991), or the Victim Personal Statement (VPS) used in the UK (Roberts & Manikis, 2011), the VAR is a statement that includes details on how the crime has damaged the victim and their family in terms of the crime's physical, psychological, economic, and social impacts. While a VIS or VPS is a verbal or written statement that the victim or one of their family members voluntarily submits, a forensic psychologist creates the VAR and conducts a structured interview, performs psychological tests, including a Korean version of the PAI (Morey, 1991; Kim, Kim, Oh, & Hong, 2001), and applies a Korean version of the Impact Event Scale-Revised (IES-R-K) (Horowitz, Wilner & Alvarez, 1979; Christianson & Marren, 2012; Eun et al., 2005) to comprehensively evaluate the extent of the victim's psychopathological damage (Park, 2015).

Based on the available literature, victims of crime are expected to have a characteristic PAI profile with similarities to diagnoses of PTSD. However, a limited empirical studies (Cherepon & Prinzhorn, 1994; Lee & Lee, 2009; Park,

Hong, Chung, & Kim, 2002; Sea & Kim, 2011) on the utility of the PAI in assessing victims of crime are available. In addition, crime victims could be emotionally unstable and confused, potentially denying the damage caused by the crime perpetrated against them (Frieze, Hymer, & Greenberg, 1987; Morey, 1991; Karmen, 2015). Emotional instability and confusion can lead to difficulty in concentrating on the test or comprehension problems. Malingering can also be an issue. That is, victims might exaggerate or fabricate their psychopathological symptoms to place themselves in an advantageous position to a court judge and/or claim compensation for criminal damage (Hong & Park, 2012). Together, these features might lead to higher scores on random-response detection scales (ICN, INF), which are associated with carelessness, reading or comprehension problems, and mental confusion (Morey, 1991), as well as on the NIM scale, which is associated with people who describe themselves as overly negative (Morey, 1991).

Based on the available literature (Cherepon & Prinzhorn, 1994), the authors hypothesized that victims of crime will have a characteristic PAI profile with similarities to diagnoses of PTSD, including ARD, ANX, and DEP, for the BOR, AGG, and SCZ scale (Hypothesis 1). Furthermore, we expect that the victims' random-response (ICN, IFN) and impression management (NIM, PIM) profiles will present different patterns to those of the non-victim

group. Additional hypotheses are: (1) the victim and non-victim groups will have significantly different validity profiles (Hypothesis 2-1), and (2) the magnitude of the likelihood to be categorized into the above-cut-off group will be different depending on the cut-off criteria values (manual-based versus 1.5 standard deviation [SD]-based) (Hypothesis 2-2).

Methods

Procedures

The *t*-scores for the PAI scales from the victim group were obtained from VARs. During the VAR interview, the victim completed the self-reported PAI in an independent space. It took approximately 20 to 30 minutes, and they were allowed to ask questions. The VAR included victims providing consent to use their information for academic purposes, excluding any personally identifiable information. The police approved and provided 258 cases following the victim's confirmed signed consent, including the *t*-scores for 22 PAI scales and information on their gender and age, which had been collected between January 2020 and July 2021.

The PAI profiles of non-victims were the secondary data used in a previous study (Kim et al., 2001). The authors conducted standardized sampling to create Korean PAI norms. The 1,700 non-victims' profiles used in this study

were collected via random selection from the original dataset. The use of the data was approved for strictly educational and research purposes. Similar to the victim group, this data included i) the *t*-scores of 22 PAI scales, ii) gender, and iii) age, provided as Excel files.

Participants

The total sample comprised 1,700 participants, with the victim group containing 258 participants and the non-victim group containing 1,442 participants (see Table 2). About 16.3%

of the participants in the victim group were male (42 participants), whereas 47.8% of the participants in the non-victim group were male (689 participants).

Since one of the research questions compared below-cut-off values and above-cut-off values using manual-based values and 1.5 SD-based values from the validity scales, the frequencies of the below-cut-off and above-cut-off groups for each validity scale and each cut-off criterion are provided in Table 3. All scores were converted to *t*-scores. Notably, the manual-based (Kim et al., 2002) classification assigned 73 points for

Table 2. Descriptive Analysis with Interest of Variables (N = 1,700)

Group	Gender	Age	Frequency	Percent (%)
Victim	Male	20-30 yrs.	11	26.2
		31-50 yrs.	19	45.2
		Above 50 yrs.	12	28.6
		Total	42	100.0
	Female	20-30 yrs.	95	44.0
		31-50 yrs.	89	41.2
		Above 50 yrs.	32	14.8
		Total	216	100.0
Non-victim	Male	20-30 yrs.	415	60.2
		31-50 yrs.	176	25.5
		Above 50 yrs.	98	14.2
		Total	689	100.0
	Female	20-30 yrs.	440	58.4
		31-50 yrs.	198	26.3
		Above 50 yrs.	115	15.3
		Total	753	100.0

Table 3. Frequencies depends on Cut-off values with validity test scale

	Group	Manual-Based	Freq	Percent (%)	1.5SD-Based	Freq	Percent (%)
ICN	Victim	Below cutoff	211	81.8	Below cutoff	190	73.6
		Above cutoff	47	18.2	Above cutoff	68	26.4
	Non-victim	Below cutoff	1404	97.4	Below cutoff	1345	93.3
		Above cutoff	38	2.6	Above cutoff	97	6.7
INF	Victim	Below cutoff	235	91.1	Below cutoff	208	80.6
		Above cutoff	23	8.9	Above cutoff	50	19.4
	Normal	Below cutoff	1330	92.2	Below cutoff	1330	92.2
		Above cutoff	112	7.8	Above cutoff	112	7.8
NIM	Victim	Below cutoff	196	76.0	Below cutoff	165	64.0
		Above cutoff	62	24.0	Above cutoff	93	36.0
	Normal	Below cutoff	1358	94.2	Below cutoff	1292	89.6
		Above cutoff	84	5.8	Above cutoff	150	10.4
PIM	Victim	Below cutoff	256	99.2	Below cutoff	249	96.5
		Above cutoff	2	0.8	Above cutoff	9	3.5
	Normal	Below cutoff	1421	98.5	Below cutoff	1374	95.3
		Above cutoff	21	1.5	Above cutoff	68	4.7

Note that the manual-based classification was used 73 points for inconsistency (ICN), 67 points for infrequency (INF), 70 points for negative impression (NIM), 68 points for positive impression (PIM) as cut-off values. And, as another cut-off criterion, we used 1.5 SD as the extreme group from t-score distribution (that is, 75 points for all of sub-scales).

inconsistency (ICN), 67 points for infrequency (INF), 70 points for negative impression (NIM), and 68 points for positive impression (PIM) as its cut-off values. As an additional cut-off criterion, we used 1.5 SD as the extreme group for t-score distribution (that is, 75 points for all scales). According to the results, all of the validity scales reported that more participants were classified as part of the above-cut-off group if they were in the victim group across two

cut-off criteria. The detailed frequencies according to gender and age are reported in Appendixes A and B.

Materials

The short form of the Korean PAI (Kim et al., 2002) was used for this study as it is used in VARs. The PAI contains 164 items and provides a measure of multiple domains of

personality and emotional and behavioral problems based on a self-report. A four-point Likert-type scale (Never, Sometimes, Often, and Almost Always) is used as the item response format. This multi-dimensional measure includes 11 clinical scales (i.e., SOM, ANX, ARD, DEP, Mania [MAN], Paranoia [PAR], SCZ, BOR, Antisocial Features [ANT], Alcohol Problems [ALC], and Drug Problems [DRG]), five treatment scales (i.e., Aggression [AGG], Suicidal Ideation [SUI], Nonsupport [MOM], Stress [STR] and Treatment rejection [RXR]), two interpersonal scales (i.e., Dominance [DOM] and Warmth [WRM]), and four validity scales (i.e., ICN, INF, NIM, and PIM). All clinical scales, treatment scales, and interpersonal scales of the PAI were associated with acceptable reliability, ranging from Cronbach's $\alpha = .52$ to Cronbach's $\alpha = .89$. In some scales, the internal consistency was $.37$, which was slightly lower than the Cronbach's α values of the other scales¹). Nevertheless, these scales of the PAI met the benchmark for acceptable internal consistency, ranging from $.40$ to $.50$ (Boyle, Stankov, & Cattell, 1995), per a related study.

Analyses

For the preliminary analysis, we examined whether gender and age group needed to be

1) Cronbach's α was calculated from the data of this study.

included as control variables by using a *t*-test and an analysis of variance (ANOVA). As mentioned above, to test the first hypothesis we used multivariate ANOVA (MANOVA). As the dependent variables for the MANOVA, 22 PAI scales, including 4 validity scales, 11 clinical scales, 5 treatment scales, and 2 interpersonal scales, were used.

Second, to examine the second hypothesis (H2-1 and H2-2), binary logistic regression was used because the dependent variable was a binary variable (0 = Below-cut-off group and 1 = Above-cut-off group). Specifically, we had two criteria to distinguish the below- and above-cut-off groups, namely manual-based and 1.5SD-based cut-off values. That is, to examine H2-1 (The victim and non-victim groups will have significantly different validity profiles.), we conducted two separate logistic regression analyses, respectively. Following this, we compared the coefficients from the two logistic regressions to explore the next hypothesis (H2-2: The magnitude of the likelihood to be classified into the above-cut-off group will be different depending on the cut-off criteria values). All statistical analyses were performed using SPSS version 27.

Results

As preliminary analyses, we conducted an independent *t*-test to test whether there were

gender differences in the PAI scales. According to the results, four out of the 22 scales (ANX, ARD, DEP, and SUI) had significant differences by gender. Further, ANOVAs were conducted to test whether there were age differences in the PAI scales. The results indicated that eight scales (INF, PIM, ARD, DEP, PAR, BOR, ANT, and SUI) had significant differences by age group. Therefore, we included gender and age group as control variables for the proceeding primary analyses.

First, MANOVA using all PAI scales with control variables (gender and age) showed that at least one PAI scale was significantly different, even after controlling for gender and age effects (see Table 4).

To examine which outcomes were significantly different, between-group effect tests were conducted. The results are provided in Table 5. According to the results, all PAI scales except the DOM scale were statistically different ($p < .05$). Notably, all post-hoc analyses included the control variables (gender and age), but the results are only reported for the victim versus non-victim groups because these were the variables of primary interest²⁾. To illustrate this, for all validity and clinical scales, the victim

group had significantly higher scores than the non-victim group. For the treatment scale, the victim group only had lower scores than the non-victim group for the treatment rejection (RXR) scale. Finally, in terms of the interpersonal scores, DOM had no significantly different scores across the victim and non-victim groups, but the victim group tended to have higher WRM scores than the non-victim group. In terms of effect sizes, the ANX ($\eta^2 = 0.23$), ARD ($\eta^2 = 0.22$) and DEP ($\eta^2 = 0.30$) clinical scales and the SUI ($\eta^2 = 0.23$) treatment scale had effects of larger magnitude, indicating that there were larger differences in scores between the victim and non-victim groups.

Next, the results of the logistic regression with manual-based cut-offs are reported in Table 6. We included the non-victim group as the reference group (coded as 0), in addition to gender and age. According to the results, the odds ratio of the victim versus non-victim groups for the ICN, INF, and NIM scales was significant ($p < .05$), but not for the PIM scale. Specifically, for the ICN scale, the odds ratio for the victim versus non-victim groups indicated that if participants were in the victim group (coded as 1), the likelihood to be included in the above-cut-off group (> 73 points) increased by 10.25 times (95% OR CI [6.19, 16.97]), even after controlling for gender and age. Additionally, the likelihood to be included in the

2) Briefly, INF, PIM, ANX, ARD, MAN, SCZ, BOR, ANT, ALC, SUI, STR, MON, and RXR had significant differences by age groups. Also, NIM, PIM, SOM, ANX, ARD, DEP, MAN, SCZ, BOR, ANT, ALC, SUI, and DOM scores are significantly different by gender groups.

Table 4. Results of MANOVA

Effect		Value	<i>F</i>	Error <i>df</i>
Intercept	Pillai's Trace	0.95	1600.296***	1675.00
	Wilks' Lambda	0.05	1600.296***	1675.00
	Hotelling's Trace	21.02	1600.296***	1675.00
	Roy's Largest Root	21.02	1600.296***	1675.00
Gender	Pillai's Trace	0.13	11.126***	1675.00
	Wilks' Lambda	0.87	11.126***	1675.00
	Hotelling's Trace	0.15	11.126***	1675.00
	Roy's Largest Root	0.15	11.126***	1675.00
Age	Pillai's Trace	0.08	6.312***	1675.00
	Wilks' Lambda	0.92	6.312***	1675.00
	Hotelling's Trace	0.08	6.312***	1675.00
	Roy's Largest Root	0.08	6.312***	1675.00
Victim Group	Pillai's Trace	0.44	59.264***	1675.00
	Wilks' Lambda	0.56	59.264***	1675.00
	Hotelling's Trace	0.78	59.264***	1675.00
	Roy's Largest Root	0.78	59.264***	1675.00

above-cut-off group (> 67 points) increased by 1.17 times for the INF scale (95% OR CI [1.02, 1.92]), and the likelihood to be included in the above-cut-off group (> 70 points) increased by 5.15 times for the NIM scale (95% OR CI [6.19, 16.97]).

Further, the results of the logistic regression with 1.5SD-based cut-offs are reported in Table 7. As mentioned above, the manual-based classification used different scores (73 for ICN, 67 for INF, 70 for NIM, 68 for PIM) for the scales, whereas the 1.5SD-based cut-off criterion used 75 points as a cut-off value across all

validity scales. This means that the 1.5SD-based cut-off criterion used to categorize participants into the above-cut-off group was higher than for the manual-based classification. In terms of the ICN scale, the odds ratio for the victim versus non-victim groups showed that if participants were in the victim group (coded as 1), the likelihood to be included in the above-cut-off group (> 75 points) increased by 5.88 times (95% OR CI [4.02, 8.60]) compared to the non-victim group after controlling for gender and age. Moreover, this likelihood increased by 2.89 times for the INF scale (95% OR CI

Table 5. Means, Standard Deviations, and Between-Group Effect tests for Personality Assessment Inventory T Scores

		Victim		Non-Victim		F	η^2
		Mean	SD	Mean	SD		
Validity Scales	ICN	56.85	15.78	49.81	10.21	85.01***	0.05
	INF	54.05	10.88	50.26	10.48	25.27***	0.01
	NIM	60.22	15.43	49.92	10.04	168.49***	0.09
	PIM	44.86	12.92	49.90	10.00	41.44***	0.02
Clinical Scales	SOM	61.59	14.54	50.19	10.22	197.74***	0.10
	ANX	67.89	15.16	50.08	9.98	517.81***	0.23
	ARD	67.34	15.79	50.06	9.95	475.77***	0.22
	DEP	72.01	17.56	49.98	9.93	726.18***	0.30
	MAN	53.05	11.51	49.95	9.90	32.18***	0.02
	PAR	60.98	13.76	49.95	10.06	219.79***	0.11
	SCZ	63.55	15.82	49.98	10.05	298.72***	0.15
	BOR	59.32	14.36	49.94	9.96	157.90***	0.09
	ANT	51.59	12.18	49.88	9.90	14.95***	0.01
	ALC	55.79	13.81	50.14	10.07	86.60***	0.05
	DRG	56.94	12.33	50.25	10.55	77.75***	0.04
Treatment Scales	AGG	53.44	14.17	49.79	9.79	29.70***	0.02
	SUI	69.90	21.29	49.90	9.92	516.10***	0.23
	STR	61.69	14.23	50.07	9.85	247.23***	0.13
	NON	56.45	12.74	50.06	9.95	77.31***	0.04
	RXR	40.81	13.36	50.00	9.99	166.25***	0.09
Interpersonal Scales	DOM	49.09	10.65	50.18	9.96	0.69	0.00
	WRM	53.30	11.50	50.05	10.09	23.42***	0.01

Note that the results are provided after controlling gender and age.

[1.96, 4.26]) and 4.85 times for the NIM scale ($p > .05$).

(95% OR CI [3.51, 6.72]). However, the coefficient for the victim versus non-victim groups for the PIM scale was still not significant

That is, when we compared the magnitude of the likelihood per the cut-off criteria for the ICN and NIM scales, the likelihood to be

Table 6. Results of Logistic Regression based on Manual-based Cutoff

Outcomes	Predictors	<i>B</i>	<i>S.E.</i>	<i>Wald</i>	<i>Sig.</i>	<i>OR</i>	<i>95% CI OR</i>	
ICN	Group	1.77	0.19	83.71	0.00	5.88	4.02	8.60
	Gender	0.30	0.18	2.73	0.10	1.36	0.94	1.94
	Age			4.40	0.11			
	Age (1)	0.47	0.27	3.19	0.07	1.61	0.95	2.71
	Age (2)	0.18	0.29	0.37	0.54	1.19	0.68	2.09
	Constant	-3.13	0.28	128.97	0.00	0.04		
	INF	Group	1.06	0.20	28.57	0.00	2.89	1.96
Gender		0.16	0.18	0.76	0.38	1.17	0.82	1.66
Age				19.03	0.00			
Age (1)		-0.90	0.21	18.55	0.00	0.41	0.27	0.61
Age (2)		-0.70	0.23	9.47	0.00	0.49	0.32	0.77
Constant		-1.88	0.20	89.31	0.00	0.15		
NIM		Group	1.58	0.17	90.68	0.00	4.85	3.51
	Gender	0.03	0.15	0.04	0.85	1.03	0.76	1.40
	Age			0.61	0.74			
	Age (1)	0.09	0.21	0.19	0.66	1.10	0.72	1.67
	Age (2)	0.17	0.23	0.58	0.45	1.19	0.76	1.86
	Constant	-2.27	0.21	114.63	0.00	0.10		
	PIM	Group	-0.16	0.38	0.19	0.66	0.85	0.41
Gender		0.70	0.24	8.15	0.00	2.01	1.24	3.24
Age				3.66	0.16			
Age (1)		-0.49	0.32	2.38	0.12	0.61	0.33	1.14
Age (2)		-0.06	0.34	0.03	0.85	0.94	0.49	1.81
Constant		-3.11	0.31	99.01	0.00	0.04		

Note. Group = Non-victim group (0) vs. Victim group (1), Gender = Male (0), Female (1), Age = 20-30 yrs. (0), 31-50 yrs (1), Above 50 yrs. (2).

included in the above-cut-off group (10.25 times higher for the ICN scale; 5.15 times for the NIM scale) when using manual-based cut-offs was much higher than when using the 1.5SD-based cut-off value (5.88 times for the ICN scale; 4.85 times for the NIM scale). On

Table 7. Results of Logistic Regression based on 1.5SD-based Cutoff

Outcomes	Predictors	<i>B</i>	<i>S.E.</i>	<i>Wald</i>	<i>Sig.</i>	<i>OR</i>	<i>95% CI OR</i>	
ICN	Group	1.77	0.19	83.71	0.00	5.88	4.02	8.60
	Gender	0.30	0.18	2.73	0.10	1.36	0.94	1.94
	Age			4.40	0.11			
	Age (1)	0.47	0.27	3.19	0.07	1.61	0.95	2.71
	Age (2)	0.18	0.29	0.37	0.54	1.19	0.68	2.09
	Constant	-3.13	0.28	128.97	0.00	0.04		
	INF	Group	1.06	0.20	28.57	0.00	2.89	1.96
Gender		0.16	0.18	0.76	0.38	1.17	0.82	1.66
Age				19.03	0.00			
Age (1)		-0.90	0.21	18.55	0.00	0.41	0.27	0.61
Age (2)		-0.70	0.23	9.47	0.00	0.49	0.32	0.77
Constant		-1.88	0.20	89.31	0.00	0.15		
NIM		Group	1.58	0.17	90.68	0.00	4.85	3.51
	Gender	0.03	0.15	0.04	0.85	1.03	0.76	1.40
	Age			0.61	0.74			
	Age (1)	0.09	0.21	0.19	0.66	1.10	0.72	1.67
	Age (2)	0.17	0.23	0.58	0.45	1.19	0.76	1.86
	Constant	-2.27	0.21	114.63	0.00	0.10		
	PIM	Group	-0.16	0.38	0.19	0.66	0.85	0.41
Gender		0.70	0.24	8.15	0.00	2.01	1.24	3.24
Age				3.66	0.16			
Age (1)		-0.49	0.32	2.38	0.12	0.61	0.33	1.14
Age (2)		-0.06	0.34	0.03	0.85	0.94	0.49	1.81
Constant		-3.11	0.31	99.01	0.00	0.04		

Note. Group = Non-victim group (0) vs. Victim group (1), Gender = Male (0), Female (1), Age = 20-30 yrs. (0), 31-50 yrs (1), Above 50 yrs. (2).

the other hand, for the INF scale, using the above-cut-off group than when using the manual-based cut-off value (1.17 times) resulted 1.5SD-based cut-off value (2.89 times). in a lower likelihood to be included in the

Conclusion

The goal of this study was to explore the utility of the PAI test in a forensic situation to capture crime victims' emotional and behavioral difficulties. The results suggest that the victim group had significantly higher scores for all of the validity and clinical scales, except the RXR and DOM scales, than the non-victim group. The victim group also rated significantly lower than the non-victim group on the RXR, which shows that participants of the victim group were more willing to receive psychological services for their problems compared to the non-victim group. The DOM interpersonal scale showed no significant difference across the victim and non-victim groups because of the relatively low t-score difference in the degree to which an individual acted dominantly, assertively, and controllingly in social situations in the sample overall. Particularly, in terms of effect sizes, the ANX, ARD, DEP, and SUI scales showed effects of larger magnitude, proving that there was a larger difference in scores between the victim and non-victim groups. Therefore, this study confirmed that the PAI profiles of crime victims have features closely resembling those associated with a PTSD diagnosis (Morey, 1991; Cherepon & Prinzhorn, 1994; Holmes et al., 2001).

Moreover, the victim group was more likely to obtain higher scores for the validity scales, resulting in the profiles potentially being judged

as invalid. If participants were in the victim group, the likelihood to be included in the above-cut-off group increased for the ICN, INF, and NIM scales, regardless of the cut-off criteria used. However, the coefficient of the victim versus non-victim groups for the PIM scale was not significant across the two cut-off criteria. Therefore, it remains unclear what caused such an elevation in the scores of the validity scales, whether the clinical scales could be interpreted if there was an increase by current cut-off standards, and whether there is a need for a new standard for the interpretation of validity scales. On the other hand, the results suggest that the elevation in scores for the ICN and INF scales in the victim group might be considered as meaningful indicators of the features of psychological confusion and difficulty in concentrating as characteristics of victims rather than simply excluding an interpretation of the clinical scales due to dishonesty. Further studies should, thus, address these issues, as this study was limited to exploratory analysis. Further controlled experimental studies are also needed to discover whether the elevation in NIM scale scores indicates an exaggeration of the person's symptoms for their own benefit or whether it reflects other characteristics of crime victims.

Nevertheless, the results of this study highlight the need to introduce a new standard for the interpretation of PAI validity scales. The results indicate that the magnitude of the likelihood to be categorized into the

above-cut-off group for the ICN scale was almost twice as high using manual-based cut-off values as opposed to the 1.5SD-based cut-off value. Regarding the NIM scale, the likelihood to be included in the above-cut-off group was twice as high when the 1.5SD-based cut-off value was applied. It indicates that many participants are between the cut-off score based on manual (67-70points) and 1.5 SD-based cut-off criterion (75points). That is, the result of classification can be easily changed if the cut-off is changed between 67 to 75points. Thus, we need to explore more rigorous criteria instead of simple one cut-off score for the accurate and stable classification. However, it is difficult to state which criterion is more appropriate based on the results of this study alone, so additional research is needed.

This study had several limitations. The data about victims' and non-victims' personal information used in this study were strictly limited and did not include any information other than their age and gender. Therefore, the homogeneity of the two groups could not be confirmed. However, it was expected that there would be no significant differences between the two groups. As a result of conducting the same analysis by random sampling the same number of samples for the non-victim group as the victim group, similar results were obtained. This study also did not confirm the environment in which the PAI was conducted, nor did it stipulate the procedures used in the test, even

though these factors may have affected the results. However, according to the VAR's regulations (Korean Police Agency, 2020), interviews and PAIs must be conducted directly by a victim in an independent space within the police station, which is similar to what is recommended for the general population, so except for special cases, the environment and procedures for conducting the PAI are expected to be similar.

These results can also not be generalized to all victims of all types of crimes. VARs are mainly applied to the victims of serious crimes. Similarly, the profiles of victims per the type of crimes were not clarified, even though victims can be expected to experience different psychological difficulties depending on the type of crime that they experienced. For example, rape generally causes greater psychological damage than other types of crime (Kilpatrick, Saunders, Amick-McMullan, Best, Veronen, & Rensick, 1989; Re sick, 1987), while victims of domestic violence have been found to have a higher level of fear and anxiety than victims of robbery and theft (Wirtz & Harrell, 1987). Moreover, there are sometimes physical injuries that occur during a crime (Kilpatrick et al., 1989; Wirtz & Harrell, 1987). Therefore, victims who experienced life-threatening crime (Kilpatrick et al., 1987) have worse PTSD than those who experienced other types of crime. Accordingly, in future studies, it will be necessary to consider the differences in PAI profiles per types of

crime.

Evaluating a victim's psychological difficulties experienced due to a crime during the early stages of the legal process and establishing a system to intervene timeously can help victims to recover psychologically. This exploratory research on the characteristics obtained from the PAI tests of crime victims could be considered the first step toward deriving the implications and determining the appropriateness of the use of the PAI for evaluating victims' psychological damage in the forensic context.

References

- American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders(5th ed.). <https://doi.org/10.1176/appi.books.9780890425596>
- Baer, R. A., & Wetter, M. W. (1997). Effects of information about validity scales on underreporting of symptoms on the Personality Assessment Inventory. *Journal of Personality Assessment*, 68(2), 402-413.
- Belter, R. W., & Piotrowski, C. (2001). Current status of doctoral level training in psychological testing. *Journal of Clinical Psychology*, 57(6), 717-726.
- Boyle, G. J., Stankov, L., & Cattell, R. B. (1995). Measurement and statistical models in the study of personality and intelligence. In *International handbook of personality and intelligence* (pp. 417-446). Springer, Boston, MA.
- Briere, J., & Runtz, M. (1986). Suicidal thoughts and behaviours in former sexual abuse victims. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, 18(4), 413.
- Cashel, M. L., Rogers, R., Sewell, K., & Martin-Cannici, C. (1995). The Personality Assessment Inventory (PAI) and the detection of defensiveness. *Assessment*, 2(4), 333-342.
- Cassell, P. G. (2008). In defense of victim impact statements. *Ohio St. J. Crim. L.*, 6, 611.
- Cherepon, J. A., & Prinzhorn, B. (1994). Personality Assessment Inventory (PAI) profiles of adult female abuse survivors. *Assessment*, 1(4), 393-399.
- Christianson, S., & Marren, J. (2012). The impact of event scale-revised (IES-R). *Medurg Nursing*, 21(5), 321-323.
- Denkers, A. J., & Winkel, F. W. (1998). Crime victims' well-being and fear in a prospective and longitudinal study. *International review of victimology*, 5(2), 141-162.
- Ditton, J., & Farrall, S. (Eds.). (2017). *The fear of crime*. Routledge.
- Erez, E. (1991). *Victim impact statements* (No. 33). Canberra: Australian Institute of Criminology.
- Eun, H., Kwon, T., Lee, S., Kim, T., Choi, M., Cho S. J. (2005). A Study on Reliability and Validity of the Korean Version of Impact of Event Scale-Revised. *Journal of Korean Neuropsychiatry Association*. 44(3), 303-310.
- Friedman, L. N. (1985). *The crime victim*

- movement at its first decade. Public administration review, 790-794.
- Frieze, I. H., Hymer, S., & Greenberg, M. S. (1987). Describing the crime victim: Psychological reactions to victimization. *Professional Psychology: Research and Practice*, 18(4), 299-315.
<https://doi.org/10.1037/0735-7028.18.4.299>
- Gacono, C. B., Meloy, J. R., Sheppard, K., Speth, E., & Roske, A. (1995). A clinical investigation of malingering and psychopathy in hospitalized insanity acquittees. *Journal of the American Academy of Psychiatry and the Law Online*, 23(3), 387-397.
- Garnefski, N., & Arends, E. (1998). Sexual abuse and adolescent maladjustment: Differences between male and female victims. *Journal of Adolescence*, 21(1), 99-107.
- Harlow, C. W. (2003). Education and Correctional Populations. Bureau of Justice Statistics Special Report.
- Holmes, G. E., Williams, C. L., & Haines, J. (2001). Motor vehicle accident trauma exposure: Personality profiles associated with posttraumatic diagnoses. *Anxiety, Stress, & Coping: An International Journal*, 14(3), 301-313.
- Hong, S. Park, E., & Kim, Y. (2001). Detection of random response and impression management of PAI: Cutoff scores of Validity scales. *Korean Journal of Clinical Psychology*, 20(1), 165-177.
- Hong, S., & Park, E. (2012). Efficiencies of distortion indicators of PAI: With supplementary Indices. *The Korean Journal of Clinical Psychology*, 31(4), 1023-1039.
- Horowitz, M., Wilner, N., & Alvarez, W. (1979). Impact of Event Scale: A measure of subjective stress. *Psychosomatic medicine*, 41(3), 209-218.
- Ingram, P. B., Sharpnack, J. D., Mosier, N. J., & Golden, B. L. (2021). Evaluating symptom endorsement typographies of trauma-exposed veterans on the Personality Assessment Inventory (PAI): A latent profile analysis. *Current Psychology*, 40, 5267-5277.
- Karmen, A. (2015). Crime victims: An introduction to victimology. Cengage Learning.
- Kaysen, D., Simpson, T., Dillworth, T., Larimer, M. E., Gutner, C., & Resick, P. A. (2006). Alcohol problems and posttraumatic stress disorder in female crime victims. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies*, 19(3), 399-403.
- Kilpatrick, D. G., & Acierno, R. (2003). Mental health needs of crime victims: Epidemiology and outcomes. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies*, 16(2), 119-132.
- Kilpatrick, D. G., Saunders, B. E., Amick-McMullan, A., Best, C. L., Veronen, L. J., & Resnick, H. S. (1989). Victim and crime factors associated with the development of crime-related post-traumatic stress disorder. *Behavior therapy*, 20(2), 199-214.
- Kim, Y., Kim, J., Oh, S., Yim, Y., & Hong, S. (2001). Standardization Study of Personality Assessment Inventory (PAI): Reliability and Validity. *The Korean Journal of Clinical Psychology*, 20(1), 165-177.

- Psychology*, 20(2), 311-239.
- Kim, T., Kwon, H., Kim, J., Park, E., Park, J., Oh, S., Lee, S., Lee, E., Cho, E., Hwang, S., & Hong, S. (2002). Personality Assessment Inventory professional manual. Inpsyt.
- Korean Police Agency. (2018). Victim Assessment Report Manual for Profession. Korean Police Agency Report.
- Krupnick, J. L., & Horowitz, M. J. (1981). Stress response syndromes: Recurrent themes. *Archives of General Psychiatry*, 38(4), 428-435.
- Kucharski, L. T., Toomey, J. P., Fila, K., & Duncan, S. (2007). Detection of malingering of psychiatric disorder with the Personality Assessment Inventory: An investigation of criminal defendants. *Journal of Personality Assessment*, 88(1), 25-32.
- Lee J., (2018). An Evaluation of the Victim Assessment Report and its future prospects.
- Lee, N., & Lee, B. (2009). A Study on the Differences of Risk Factors of Recidivism Classified by Offense Types of Juvenile Delinquents: Using Risk Assessment Tool and Personality Assessment Inventory. *Korean Journal of Social and Personality Psychology*, 23(2), 127-140.
- Liljequist, L., Kinder, B. N., & Schinka, J. A. (1998). An investigation of malingering posttraumatic stress disorder on the Personality Assessment Inventory. *Journal of Personality Assessment*, 71(3), 322-336.
- McDevitt-Murphy, M., Weathers, F., & Adkins, J. (2005). The use of the trauma symptom inventory in the assessment of PTSD symptoms. *Journal of Traumatic Stress*, 18(1), 63-67.
- Morey, L. C. (1991). Personality Assessment Inventory professional manual. Psychological Assessment Resources.
- Morey, L. C., & Boggs, C. D. (2004). The Personality Assessment Inventory (PAI). In M. J. Hilsenroth & D. L. Segal (Eds.), *Comprehensive handbook of psychological assessment*, Vol. 2. Personality assessment (pp. 15-29). John Wiley & Sons, Inc.
- Myers, M. B., Templer, D. I., & Brown, R. (1984). Coping ability in women who become victims of rape. *Journal of Consulting and Clinical Psychology*, 52(1), 73.
- Reidy, T. J., Sorensen, J. R., & Davidson, M. (2016). Testing the predictive validity of the personality assessment inventory (PAI) in relation to inmate misconduct and violence. *Psychological Assessment*, 28(8), 871-884.
- Park, J., (2015). An Introduction to Victim Assessment Report. Korean Police Agency Report.
- Resick, P. A. (1987). Psychological effects of victimization: Implications for the criminal justice system. *Crime & delinquency*, 33(4), 468-478.
- Riggs, D. S., Dancu, C. V., Gershuny, B. S., Greenberg, D., & Foa, E. B. (1992). Anger and post traumatic stress disorder in female crime victims. *Journal of Traumatic Stress*, 5(4), 613-625
- Roberts, J. V., & Edgar, A. (2006). Victim impact statements at sentencing: Judicial experiences and perceptions. A survey of three jurisdictions. Ottawa, Canada: Department of

- Justice Canada.
- Roberts, J. V., & Manikis, M. (2011). Victim personal statements: A review of empirical research. *Victim Personal Statements at Sentencing: A Review of the Empirical Research* (London: Office of the Commissioner for Victims and Witnesses of England and Wales, 2011).
- Rogers, R., Ornduff, S. R., & Sewell, K. W. (1993). Feigning specific disorders: A study of the Personality Assessment Inventory (PAI). *Journal of Personality Assessment*, 60(3), 554-560.
- Rogers, R., Sewell, K. W., Morey, L. C., & Ullstad, K. L. (1996). Detection of feigned mental disorders on the Personality Assessment Inventory: A discriminant analysis. *Journal of personality assessment*, 67(3), 629-640.
- Rogers, R., Sewell, K. W., Cruise, K. R., Wang, E. W., & Ullstad, K. L. (1998). The PAI and feigning: A cautionary note on its use in forensic-correctional settings. *Assessment*, 5(4), 399-405.
- Roland, E. (2002). Bullying, depressive symptoms and suicidal thoughts. *Educational research*, 44(1), 55-67.
- Sea, J., & Kim, K. (2011). Cluster Analysis Research of Sexual Crime and Profiling. *Korean Journal of Social and Personality Psychology*, 25(1), 155-172.
- Smale, G. J. A., & Spickenheuer, H. L. P. (1979). Feelings of guilt and need for retaliation in victims of serious crimes against property and persons. *Victimology: An International Journal*, 4(1), 75-85.
- United Nations. General Assembly. (1986). Declaration of Basic Principles of Justice for victims and Crime and Abuse of Power. United Nations, Department of Public Information.
- Weaver, T. L., & Clum, G. A. (1995). Psychological distress associated with interpersonal violence: A meta-analysis. *Clinical psychology review*, 15(2), 115-140.
- White, L. J. (1996). Review of the Personality Assessment Inventory (PAI™): A new psychological test for clinical and forensic assessment. *Australian Psychologist*, 31(1), 38-39.
- Wirtz, P. W., & Harrell, A. V. (1987). Victim and crime characteristics, coping responses, and short-and long-term recovery from victimization. *Journal of Consulting and Clinical Psychology*, 55(6), 866.

1 차원고접수 : 2023. 01. 17.

심사통과접수 : 2023. 03. 20.

최종원고접수 : 2023. 03. 24.

범죄 피해자들의 PAI 프로파일 특성

백 성 은¹⁾ 박 선 영²⁾ 이 미 선^{1)*}

¹⁾동양대학교

²⁾California Lutheran University, USA

본 연구는 범죄 피해자들의 심리 특성을 평가하는 데 있어서 PAI 검사의 유용성을 확인하였다. 피해자 258명과 비피해자 1,442명의 PAI 22개 척도(타당도 척도 4개, 임상척도 11개, 치료척도 5개, 대인관계 척도 2개)의 t 점수를 비교하였다. 피해자 집단은 지배성 척도 (DOM) (차이 없음)과 치료 거부 (RXR) (유의미하게 낮음)을 제외한 모든 척도에서 유의미하게 높은 점수를 받았으며, 특히, 불안 (ANX), 불안관련장애 (ARD), 우울 (DEP), 자살사고 (SUI)에서 두 집단 간 차이가 큰 것으로 나타났다. 타당도 평가 관련해서 피해자 집단이 비피해자 집단보다 t-점수가 정상범위 이상으로 상승할 가능성은 비일관성 척도(ICN)의 경우 10.25배, 저빈도 척도 (INF) 1.17배, 부정적 인상척도 (NIM) 5.15배 높은 것으로 나타났다. 이러한 결과는 PAI 범죄 피해자 경험할 수 있는 PTSD 관련 특징을 확인하는 데 적합한 것으로 보인다. 다만, 타당도 척도에서 피해자의 임상 척도의 유효성을 훼손될 수 있음을 의미한다. 마지막으로 범죄 피해자 집단의 PAI 검사 시 타당도 평가의 해석에 있어 새로운 기준의 필요성이 논의되었다.

주요어 : PAI 성격검사, 심리학적 평가, 범죄 피해자, 범죄피해평가

Appendix A

Frequency Table based on Manual-based Cut-off values

	Group	Gender	Age	Manual	Freq	Percent (%)	
ICNT	Victim	Male	20-30 yrs.	Below cutoff	7	63.6	
				Above cutoff	4	36.4	
			31-50 yrs.	Below cutoff	15	78.9	
					Above cutoff	4	21.1
		Above 50 yrs.	Below cutoff	10	83.3		
			Above cutoff	2	16.7		
		Female	20-30 yrs.	Below cutoff	75	78.9	
	Above cutoff			20	21.1		
	31-50 yrs.		Below cutoff	75	84.3		
			Above cutoff	14	15.7		
	Above 50 yrs.		Below cutoff	29	90.6		
			Above cutoff	3	9.4		
	Non-victim		Male	20-30 yrs.	Below cutoff	401	96.6
		Above cutoff			14	3.4	
31-50 yrs.		Below cutoff		173	98.3		
		Above cutoff		3	1.7		
Above 50 yrs.		Below cutoff		94	95.9		
		Above cutoff		4	4.1		
Female		20-30 yrs.		Below cutoff	429	97.5	
			Above cutoff	11	2.5		
		31-50 yrs.	Below cutoff	196	99.0		
			Above cutoff	2	1.0		
		Above 50 yrs.	Below cutoff	111	96.5		
			Above cutoff	4	3.5		
		INFT	Victim	Male	20-30 yrs.	Below cutoff	10
Above cutoff						1	9.1
31-50 yrs.	Below cutoff				17	89.5	
					Above cutoff	2	10.5
Above 50 yrs.	Below cutoff			9	75.0		
	Above cutoff			3	25.0		
Female	20-30 yrs.			Below cutoff	94	98.9	
			Above cutoff	1	1.1		
	31-50 yrs.		Below cutoff	80	89.9		
			Above cutoff	9	10.1		
	Above 50 yrs.		Below cutoff	25	78.1		
			Above cutoff	7	21.9		

Frequency Table based on Manual-based Cut-off values (continued 1)

Group	Gender	Age	Manual	Freq	Percent (%)
Non-victim	Male	20-30 yrs.	Below cutoff	388	93.5
			Above cutoff	27	6.5
		31-50 yrs.	Below cutoff	162	92.0
			Above cutoff	14	8.0
		Above 50 yrs.	Below cutoff	82	83.7
			Above cutoff	16	16.3
	Female	20-30 yrs.	Below cutoff	408	92.7
			Above cutoff	32	7.3
		31-50 yrs.	Below cutoff	186	93.9
			Above cutoff	12	6.1
		Above 50 yrs.	Below cutoff	104	90.4
			Above cutoff	11	9.6
NIMT	Victim	20-30 yrs.	Below cutoff	6	54.5
			Above cutoff	5	45.5
		31-50 yrs.	Below cutoff	16	84.2
			Above cutoff	3	15.8
		Above 50 yrs.	Below cutoff	11	91.7
			Above cutoff	1	8.3
	Female	20-30 yrs.	Below cutoff	71	74.7
			Above cutoff	24	25.3
		31-50 yrs.	Below cutoff	67	75.3
			Above cutoff	22	24.7
		Above 50 yrs.	Below cutoff	25	78.1
			Above cutoff	7	21.9
Non-victim	Male	20-30 yrs.	Below cutoff	393	94.7
			Above cutoff	22	5.3
		31-50 yrs.	Below cutoff	166	94.3
			Above cutoff	10	5.7
		Above 50 yrs.	Below cutoff	90	91.8
			Above cutoff	8	8.2
	Female	20-30 yrs.	Below cutoff	412	93.6
			Above cutoff	28	6.4
		31-50 yrs.	Below cutoff	187	94.4
			Above cutoff	11	5.6
		Above 50 yrs.	Below cutoff	110	95.7
			Above cutoff	5	4.3

Frequency Table based on Manual-based Cut-off values (continued 2)

	Group	Gender	Age	Manual	Freq	Percent (%)	
PIMT	Victim	Male	20-30 yrs.	Below cutoff	11	100.0	
				Above cutoff	0	0.0	
			31-50 yrs.	Below cutoff	18	94.7	
				Above cutoff	1	5.3	
		Above 50 yrs.	Below cutoff	12	100.0		
			Above cutoff	0	0		
		Female	20-30 yrs.	Below cutoff	94	98.9	
				Above cutoff	1	1.1	
	31-50 yrs.		Below cutoff	89	100.0		
			Above cutoff	0	0.0		
	Above 50 yrs.		Below cutoff	32	100.0		
			Above cutoff	0	0.0		
	Non-victim		Male	20-30 yrs.	Below cutoff	400	96.4
					Above cutoff	15	3.6
		31-50 yrs.		Below cutoff	176	100.0	
				Above cutoff	0	0.0	
Above 50 yrs.		Below cutoff		98	100.0		
		Above cutoff		0	0.0		
Female		20-30 yrs.		Below cutoff	434	98.6	
				Above cutoff	6	1.4	
		31-50 yrs.	Below cutoff	198	100.0		
			Above cutoff	0	0.0		
		Above 50 yrs.	Below cutoff	115	100.0		
			Above cutoff	0	0.0		

Appendix B

Frequency Table based on 1.5SD-based Cut-off value

	Group	Gender	Age	Manual	Freq	Percent (%)	
ICNT	Victim	Male	20-30 yrs.	Below cutoff	5	45.5	
				Above cutoff	6	54.5	
			31-50 yrs.	Below cutoff	15	78.9	
				Above cutoff	4	21.1	
		Above 50 yrs.	Below cutoff	9	75.0		
			Above cutoff	3	25.0		
			Female	20-30 yrs.	Below cutoff	71	74.7
					Above cutoff	24	25.3
	31-50 yrs.	Below cutoff		64	71.9		
		Above cutoff		25	28.1		
	Non-victim	Male	20-30 yrs.	Below cutoff	382	92.0	
				Above cutoff	33	8.0	
			31-50 yrs.	Below cutoff	163	92.6	
				Above cutoff	13	7.4	
		Above 50 yrs.	Below cutoff	91	92.9		
			Above cutoff	7	7.1		
Female			20-30 yrs.	Below cutoff	406	92.3	
				Above cutoff	34	7.7	
	31-50 yrs.	Below cutoff	192	97.0			
		Above cutoff	6	3.0			
Above 50 yrs.	Below cutoff	111	96.5				
	Above cutoff	4	3.5				
	INFT	Victim	Male	20-30 yrs.	Below cutoff	9	81.8
					Above cutoff	2	18.2
				31-50 yrs.	Below cutoff	16	84.2
					Above cutoff	3	15.8
		Above 50 yrs.	Below cutoff	7	58.3		
			Above cutoff	5	41.7		
Female			20-30 yrs.	Below cutoff	86	90.5	
				Above cutoff	9	9.5	

Frequency Table based on 1.5SD-based Cut-off value (continued 1)

Group	Gender	Age	Manual	Freq	Percent (%)	
		31-50 yrs.	Below cutoff	70	78.7	
			Above cutoff	19	21.3	
		Above 50 yrs.	Below cutoff	20	62.5	
			Above cutoff	12	37.5	
Non-victim	Male	20-30 yrs.	Below cutoff	388	93.5	
			Above cutoff	27	6.5	
		31-50 yrs.	Below cutoff	162	92.0	
			Above cutoff	14	8.0	
		Above 50 yrs.	Below cutoff	82	83.7	
			Above cutoff	16	16.3	
	Female	20-30 yrs.	Below cutoff	408	92.7	
			Above cutoff	32	7.3	
		31-50 yrs.	Below cutoff	186	93.9	
			Above cutoff	12	6.1	
		Above 50 yrs.	Below cutoff	104	90.4	
			Above cutoff	11	9.6	
NIMT	Victim	Male	20-30 yrs.	Below cutoff	5	45.5
			Above cutoff	6	54.5	
		31-50 yrs.	Below cutoff	14	73.7	
			Above cutoff	5	26.3	
		Above 50 yrs.	Below cutoff	10	83.3	
			Above cutoff	2	16.7	
	Female	20-30 yrs.	Below cutoff	62	65.3	
			Above cutoff	33	34.7	
		31-50 yrs.	Below cutoff	52	58.4	
			Above cutoff	37	41.6	
		Above 50 yrs.	Below cutoff	22	68.8	
			Above cutoff	10	31.3	
Non-victim	Male	20-30 yrs.	Below cutoff	376	90.6	
			Above cutoff	39	9.4	
		31-50 yrs.	Below cutoff	153	86.9	
			Above cutoff	23	13.1	
		Above 50 yrs.	Below cutoff	85	86.7	
			Above cutoff	13	13.3	

Frequency Table based on 1.5SD-based Cut-off value (continued 2)

Group	Gender	Age	Manual	Freq	Percent (%)		
	Female	20-30 yrs.	Below cutoff	392	89.1		
			Above cutoff	48	10.9		
		31-50 yrs.	Below cutoff	181	91.4		
			Above cutoff	17	8.6		
		Above 50 yrs.	Below cutoff	105	91.3		
			Above cutoff	10	8.7		
		PIMT Victim	Male	20-30 yrs.	Below cutoff	11	100.0
					Above cutoff	0	0.0
				31-50 yrs.	Below cutoff	18	94.7
					Above cutoff	1	5.3
Above 50 yrs.	Below cutoff			10	83.3		
	Above cutoff			2	16.7		
Female	20-30 yrs.			Below cutoff	94	98.9	
				Above cutoff	1	1.1	
	31-50 yrs.			Below cutoff	84	94.4	
				Above cutoff	5	5.6	
	Above 50 yrs.	Below cutoff	32	100.0			
		Above cutoff	0	0.0			
Non-victim	Male	20-30 yrs.	Below cutoff	390	94.0		
			Above cutoff	25	6.0		
		31-50 yrs.	Below cutoff	165	93.8		
			Above cutoff	11	6.3		
		Above 50 yrs.	Below cutoff	91	92.9		
			Above cutoff	7	7.1		
		Female	20-30 yrs.	Below cutoff	430	97.7	
				Above cutoff	10	2.3	
	31-50 yrs.		Below cutoff	189	95.5		
			Above cutoff	9	4.5		
	Above 50 yrs.		Below cutoff	109	94.8		
			Above cutoff	6	5.2		