Examining some variables affecting scores and psychometric properties of the Millon Clinical Multiaxial Inventory III (MCMI-III) in (Chilean) prison environments

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A research published plus extra analysis and content that was not published in the original thesis and paper (Souci & Vinet, 2013), is presented. The paper with tables can be found and downloaded at http://www.saludysociedad.cl/ or www.researchgate.net

This presentation describes socio-demographic data of a sample of Chilean adult male offenders imprisoned for the perpetration of various offenses, and shows data on the MCMI-III’s concurrent and discriminant validity as well as its reliability in this sample. Also it addresses key variables (such as oppositional behavior, age, and social desirability) that could affect reliability of MCMI-III.

Participants will be able to: 1) describe socio-demographic variables and psychometric properties of MCMI-III in this sample, 2) to analyze how age and imprisonment stage are variables related to internal consistency of MCMI-III that could distort scores of an inventory like MCMI-III in prisoners’ populations, and 3) to weigh relevant variables of national culture, prison, and person involving the psychological assessment of prison inmates.

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References


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The MCMI-III:
- The 3rd most important PI in forensic psychology (Archer et al., 2006)
- Appropriate for forensic use due to “many such subjects in the normative sample” (Millon, 1994).
- Good psychometric properties

But…
Forensic assessment methods are being challenged (Heilbrun, Marczyk, DeMatteo, & Mack-Allen, 2007)
Just 51 and 33 correctional subjects in the clinical Samples of Millon (1994). How many subjects are many?
No psychometric reports in solely forensic samples.

A research (Souci & Vinet, 2013) explored:

The psychometric properties of the MCMI-III in a sample of Chilean prison inmates.
- Reliability: internal consistency (Alpha coefficients) and test-retest.
- Concurrent validity with the Five-Factor Model (by correlating scales of the MCMI-III with those of the NEO-FFI), and
- MCMI-III’s ability to discriminate between prisoners and clinical subjects (by testing the equality of mean of its scales scores between both groups).

Five-Factor Model & Personality Patterns

FFM: Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C).

Each personality pattern (as conceptualized by diagnostic categories like DSM-IV) is associated to FFM’s dimensions in meaningful and predictable ways (Costa & McCrae, 1985, 1990; Saulsman & Page, 2004; Widiger & Costa, 2009; Widiger, Trull, Clarkin, Sanderson and Costa, 2009).

Correlations patterns between both personality models have been found in male sex offenders (Lehne, 2009).

Personality Patterns & FFM

14 most consistent associations:
- Schizoid – Extraversion (-)
- Avoidant – Extraversion (-)
- Avoidant – Neuroticism (+)
- Dependent – Neuroticism (+)
- Histrionic – Extraversion (+)
- Narcissistic – Agreeableness (-)
- Antisocial – Agreeableness (-)
- Antisocial – Conscientiousness (-)
- Compulsive – Conscientiousness (+)
- Schizotypal – Neuroticism (+)
- Schizotypal – Extraversion (-)
- Borderline – Neuroticism (+)
- Paranoid – Neuroticism (+)
- Paranoid – Agreeableness (-)

MCMI-III Psychometric Properties

Internal Consistency
- Clinical subjects (Millon, 1994)
- Belgian clinical (68%) and forensic (22%) subjects (Rossi et al., 2007)
- Chilean clinical subjects (Vinet et al., 1999)

Stability across the Time
- Clinical subjects (Millon, 1994)
- An empirical review (Strack & Millon, 2007)
Discriminant Ability of MCMI-II & III

- MCMI-II in forensic subjects (Cohen et al., 2002; Winberg & Vilalta, 2009)
- MCMI-III in sex offenders (Cohen et al., 2002)
- MCMI-III in imputed by sexual abuse, rape, and murder (Winberg & Vilalta, 2009)
- MCMI-III Dutch-language in persons from forensic guidance centers and prisons (Rossi et al., 2007)

Convergent Validity
- Rossi et al., 2003
- Vinet et al., 1999

MCMI-III in Forensic Samples

- High percentage of valid reports (as indicated by the Validity and Disclosure Indexes):
  - Gondoff (1999) = 98.6%
  - Rossi et al. (2007) = 98%
  - Stoner (2008) = 88% of prison inmates in the USA

- Anyway, the Desirability scale appears High in prisoners (Bagby & Marshall, 2005).

Method

Prisoners were randomly contacted in their sections and asked to voluntarily participate.

- Very Low voluntary participation!
- Prisioners being students of the School of the CP (n = 350) were asked to participate
- 200 (57%) of them voluntarily participated. Rejection rate to participate = 43%

Participants

- Adult male offenders (n = 123) of the “Complejo Penitenciario (CP) Alto Bonito” of Puerto Montt city, Chile.
- Sentenced by different types of offense as classified by the Código Penal de Chile, like:
  - Sexual Offenses: sexual abuse, rape.
  - Personal Offenses: threat, injury, murder.
  - Property Offenses: robbery, damage, arson.

They signed an informed consent form, completed a form, and answered the MCMI-III and NEO-FFI inventories.

MCMI-III

- It contains 175 True / False items which assess 28 scales:
  - 11 basic personality patterns scales,
  - 3 severe personality disorders scales,
  - 7 basic or moderate clinical syndromes scales,
  - 3 severe clinical syndromes scales,
  - 1 validity scale and 3 modifying scales.

- Core (prototype) items are weighted 2, whereas peripheral (overlapping) items are weighted 1 (Strack & Millon, 2007).

A Chilean version of the MCMI-III (Vinet et al., 1999) was used in this study.
A 60-item short form/version of the NEO Personality Inventory (NEO-PI) (Costa & McCrae, 1985; 1989) A general estimation of the 5 main personality dimensions of the FFM: N, E, O, A, C. It contains 60 items with an answer format of 5-point Likert-type scale (0 – 4), ranging from "Strongly disagree" to "Strongly agree". A Chilean version of the NEO-FFI (Vinet et al., 1998) with this answer format was used in this study.

**Results**

**NEO-FFI Scales**

- **Shapiro-Wilk test:**
  - Only the Neuroticism and Agreeableness scales distribution approached normality.
  - Greater scores respect to the mean: Extroversion and Conscientiousness.

**Characteristics of the Sample**

- Provenance: Urban 91.1%, Rural 8.9%
- Marital Status: Single 82.1%, Married 17.9%
- Age: 18 – 24 36.6%, 25 – 34 45.5%, 35 – 44 13.8%
- School drop-out / expulsion: Once 32.5%, More 43.1%
- Alcohol: Yes 21.1%, Drugs: Yes 42.3%
- Alcohol at Offense: Yes 47.2%
- Drugs at Offense: Yes 50.4%
- Type of Offense: Sexual Offenses 7.3%, Personal Offenses 17.1%, Property Offenses 66.7%
- Imprisonment Stage: Initial 36.6%, Middle 35.0%, Final 28.5%

**Shapiro-Wilk test: MCMI-III Scales**

- Most MCMI-III personality scales distributions were non-normal, being Disclosure, Schizoid, Aggressive-Sadistic, Passive-Aggressive and Paranoid scales an exception.
- All the clinical syndrome scales had a non-normal distribution.
- For most MCMI-III scales, scores were negatively skewed or positively skewed.

**Personality Scales**

- > scores than the mean: Histrionic, Narcissistic, Antisocial, and Compulsive.
- < scores than the mean: Avoidant, Depressive, Dependent, Self-Defeating, Schizotypal and Borderline.

**Clinical Syndrome Scales**

- > scores than the mean: only Drug Dependence.
- > scores than the mean: Anxiety, Somatoform, Bipolar-Manic, Dysthymia, Alcohol Dependence, Post-Traumatic Stress Disorder, Thought Disorder, Major Depression, and Delusional Disorder.

- Raw scores = tendency to have that attribute.

**t tests**

- Between the Clinical Sample and the Prisoners Sample
  - The mean scale scores of prisoners differed significantly (p < .002) from the mean scale scores of clinical subjects on almost all personality scales (except the Avoidant, Dependent and Self-Defeating scales).
  - The mean scale scores of prisoners differed significantly (p < .002) from the mean scale scores of clinical subjects on some clinical syndrome scales: Manic, Alcohol Dependence, Drug Dependence, Thought Disorder and Delusional Disorder.
Pearson Correlation Coefficients

- Schizoid – Extraversion = -.41 ***
- Avoidant – Extraversion = -.27 ***
- Avoidant – Neuroticism = .30 *** ≥ .30
- Dependent – Neuroticism = .26 **
- Histrionic – Extraversion = .47 ***
- Narcissistic – Agreeableness = -.18 *
- Antisocial – Agreableness = -.36 ***
- Antisocial – Conscientiousness = -.26 ** p < .05
- Compulsive – Conscientiousness = .36 *** *p < .05, **p < .01
- Schizotypal – Neuroticism = .26 **
- Schizotypal – Extroversion = .25 **
- Borderline – Neuroticism = .35 ***
- Paranoid – Neuroticism = .31 ***
- Paranoid – Agreableness = .27 ***

Reliability - Alpha Coefficients ≥ .70 (Nunnally, 1978)

Modifying Scales
- Debasement = .87
- Personality Scales
  - Depressive = .73
  - Antisocial = .72
  - Aggressive-Sadistic = .77
  - Schizotypal = .76
  - Borderline = .71
  - Paranoid = .70

Clinical Syndrome Scales
- Anxiety = .87
- Somatoform = .70
- Dysthymia = .71
- Alcohol Dependence = .70
- Drug Dependence = .77
- Post-Traumatic SD = .82
- Thought Disorder = .77
- Major Depression = .80

α ≥ .70 = 15 Scales
  of 26 (58%)

Significant correlations were similar in quantity respect to those obtained by Millon (1994)...

But they were lower, ranging:
- From .39 to .77 for the modifying scales,
- From .40 to .79 for the personality scales, and
- From .43 to .77 for the clinical syndrome scales.

The Narcissistic scale was the only one that doesn't obtained a significant test-retest correlation.

Results on Reliability indicated:
- Modest internal consistency on prisoners.
- Modest test-retest reliability.
- Prison inmates are not particularly concerned in showing coherence about their behavior on a psychological self-report instrument like the MCMI-III.

Alpha Coefficients - Imprisonment Stages

Initial Stage
- Debasement = .83
- Depressive = .73
- Aggressive-Sadistic = .74
- Schizotypal = .75
- Anxiety = .74
- Post-Traumatic SD = .81
- Major Depression = .77

α ≥ .70 = 8 Scales (31%)!

Final Stage
- Respect to all the sample, these scales now obtain an α ≥ .70:
  - Avoidant = .71
  - Compulsive = .76
  - Passive-Aggressive = .75
  - Manic = .75
  - But the Somatoform scale doesn’t achieve an α ≥ .70
  - α ≥ .70 = 18 Scales (69%)

α ≥ .70 = 15 Scales (58%)

Respect to all the sample, more scales now obtain an α ≥ .70 on both age groups.

25 – 24 Years Old (45.5%)
- Debasement = .86
- Aggressive-Sadistic = .74
- Schizotypal = .73
- Anxiety = .78
- Somatoform = .70
- Post-Traumatic SD = .76
- Thought Disorder = .73
- Major Depression = .60

α ≥ .70 = 8 Scales (31%)

35 – 44 Years Old (13.8%)
45 – 54 Years Old (4.1%)

α ≥ .70 on both age groups.

α ≥ .70 = 18 Scales (69%)
These additional results on Reliability indicate:

- Subjects at the initial stage of imprisonment reported a less consistent behavior.
- Subjects at the final stage of imprisonment reported a more consistent behavior.
- Subjects ranging from 25 to 34 years old reported a less consistent behavior.
- Subjects from 35 years old reported a more consistent behavior on the MCMI-III.

Motivation / Oppositionism

(a) A high rate (43%) of prisoners refused to participate.
(b) High rate (21%) of doubtful protocols.
(c) A lower rate of valid protocols (75%) with respect to other forensic samples from the United States; Belgium (88%); Spain (82%); the United States (98.6%); Spain (100%).
(d) Higher Alpha values obtained by prison inmates at the final stage of imprisonment.

MCMII Internal Consistency: How could be evaluated these results?

Four points of view:

One:
- Only 63% of the MCMI-III scales (15/24) met or exceeded Alpha .70 on a sample of patients from Chicago.

Two:
- "Most patients do not advertise their positive features" (Strack & Millon, 2007)

Three:
- The NEO-FFI scales obtained a very low internal consistency.

Four:
- High rejection rate to participate.

Age + Prison setting variables + Cultural variables =

Caution!
High risk of distorted results!

Psychometric Properties: Issues

Administration (collective vs. individual)

Variables of the prison setting:
- Motivation to answer: adaptive oppositionism.
- Imprisonment stage
- Desirability as shaped by the prison setting

Individual variables:
- Age
- Educational level
- Reading fatigue
- Criminal career

Socio-cultural variables shaping behavior:
- Race/ethnicity
- Culture

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… Relevance to the USA population?

How this information could be used in the USA?