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Refining personality disorder assessment procedures: The relationship between MCMI-II and SCID-II

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Refining Personality Disorder Assessment Procedures: The Relationship Between MCMI-II and SCID-II

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Abstract

The purpose of this study was to examine the compatibility of personality disorder diagnoses made by a self-report questionnaire (Millon Clinical Multiaxial Inventory, MCMI-II) and a standardized interview (Structured Clinical Interview for DSM-III-R, Axis II, SCID-II). Diagnoses of 50 intake clients at NOVA Therapeutic Community's residential facility were compared using Chi-Square analysis. Agreement between the two instruments was promising at the cluster level ($p \leq .05$). Individually, both the MCMI-II and the SCID-II performed significantly better than an independent diagnosis ($p < .001$) with the MCMI-II in agreement with the final clinical diagnosis 74% overall and the SCID-II in agreement with the final clinical diagnosis 64% overall. Of the 26 diagnoses of Antisocial Personality Disorder made by the SCID, 18 were correct and 3 were incorrect. The 13 diagnoses of Antisocial Personality Disorder made by the MCMI, were all correct. Of the nine diagnoses of Passive/Aggressive Personality Disorder made by the MCMI seven were correct and two incorrect and of the five diagnoses of

Avoidant Personality Disorder made by the MCMI all were correct. The results suggest that the SCID-II can be used to enhance and verify diagnoses made by MCMI-II.

Refining Personality Disorder Assessment Procedures: The Relationship Between MCMI-II and SCID-II

by Robert J. Pass

Introduction

The relationship between personality/character disorder assessment procedures and diagnoses utilizing the Millon Multiaxial Inventory-II (MCMI-II), (Millon, 1987) and the Structured Interview for DSM-III-R (SCID-II), (Spitzer, R.L., William, J.B.W., Gibbon, M. & First, M, 1987) was examined in this study.

The DSM-III defines personality/character disorder as: "An inflexible and maladaptive pattern of perceiving, relating to, and thinking about one's environment and oneself causing either significant impairment in social or occupational functioning or subjective distress" (American Psychiatric Association, 1980, P. 305).

There are thirteen separate and distinct personality disorders identified in the DSM-III-R (American Psychiatric Association, 1983), each with its own diagnostic criteria, developmental processes and degree of social and psychological impairment.

The clinical diagnosis and treatment of personality disorder is an area which is shrouded in controversy. One concern is the power of psychometric instruments to assess personality disorder in an accurate, efficient and timely fashion. The first issue is not only how quickly an instrument can identify the personality disorder but also the accuracy of the diagnosis. The issues concern the correlation between the psychometric assessment and observations within a longitudinal framework. Another issue concerns the usefulness of an objective, self-reporting, psychometric instrument in describing the personality or character as well as the nature of the personality impairment (Millon, 1981).

Review of Relevant Literature

The Millon Multiaxial Inventory

There have recently been several innovative assessment instruments designed towards facilitating the personality disorder diagnostic procedure in an expedient manner (Millon, 1985). The MCMI-II was developed in 1987 (Millon, 1987) and NOVA began utilizing it in 1988 along with the MMPI and other traditional instruments.

The MCMI-II is a logical refinement of the MCMI-I which was developed by Theodore Millon in 1977 (Millon, 1985). The MCMI-II is a 175 item, true-false, forced choice questionnaire which yields a comprehensive computer scored graphic indication of the personality disorder diagnosis. There are 13 categories of personality disorder which the MCMI-II graphically represents:

1. Schizoid personality disorder
2. Avoidant personality disorder
3. Dependent personality disorder
4. Histrionic personality disorder
5. Narcissistic personality disorder
6. Antisocial personality disorder
7. Aggressive/Sadistic personality disorder
8. Compulsive personality disorder
9. Passive/Aggressive personality disorder
10. Self-defeating personality disorder
11. Schizotypal personality disorder
12. Borderline personality disorder
13. Paranoid personality disorder

The MCMI takes about 30 minutes to administer and 10 minutes to score. Each score is then interpreted

visually by bar graph print out of each area of personality disorder. It is machine scored but a hand scoring system is also available. The MCMI-II is in questionnaire form and is administered individually. Each participant is asked to answer either true or false to each of the 175 questions which have been derived from the Narcissistic Personality Disorder section of the DSM-III-R. The following three questions are illustrative:

37- "I think I am a special person who deserves special attention from others"

55- "My feelings toward important people in my life often swing from loving them to hating them" (MCMI-II Manual, 1987).

64- "If someone criticized me for making a mistake, I would quickly point out some of that person's mistakes"

(MCMI-II Manual, 1987).

There have been more than 200 published articles related to the Reliability and/or Validity of the MCMI in the past few year (Wetzler, 1990). Most of the results and conclusions drawn have been favorable

although several limitations of the instrument have been revealed:

1. The content analysis studies which have been published have demonstrated that the MCMI items represented the constructs of Millon's theory better than they represented the DSM-III-R and it has been indicated that content validity may be necessary for criterion validity.
2. There are differences between Millon's classification system and the DSM-III-R classification system.
3. MCMI takes subtle liberty in assessing Dysphoric disorder, Sadistic disorder, and Self-defeating disorder as separate and distinct patterns while the DSM-III-R, lists these as Proposed Diagnostic Categories Needing Further Study.

(Widiger, T., Williams, J., Spitzer, R. & Frances, A., 1985).

The MCMI-II was developed to account for the limitations which emerged during Reliability/Validity research of the MCMI-I over the past ten years. Millon

concentrated on refining the items on the questionnaire and ignored the questions implied by Widiger et al., as more and more of his theories and rationale became accepted in the field.

The issues of theory and content validity have been the focus of an ongoing scientific debate between Millon and Widiger et al. Millon (1982), contends that the MCMI questionnaire's 175 True/False items are derived from various situations and attitudes which directly reflect the criteria for clinical diagnosis of personality disorder in the DSM-III. While Millon's most adamant critics do accept that the MCMI is a good assessment instrument of Millon's own theory of personality disorder diagnostic criteria, they contend that the MCMI could not possibly be based on DSM-III criteria because the MCMI was first published in 1977 and the DSM-III was not published until 1980 and the DSM-III-R in 1983 (Widiger, Williams, & Spitzer, 1985).

It is relevant to note here that most of the individuals involved in this debate were on the various committees which were selected to develop the DSM-III in 1980 and the DSM-III-R in 1983. Robert Spitzer was chairperson of the committee. The majority of Millon's

theories and suggestions were incorporated into the Personality Disorder Criteria section of both works (Millon, 1981).

According to Widiger et al. (1985), the differences in taxonomies resulted in possible cross/validation problems since Millon's taxonomy regarding three of the personality disorders is quite differently approached than the final classification which was accepted by the DSM-III committee in 1980. Millon (1985) countered with eight criticisms of the Widiger et al. (1985), article several of which were backed by published or ongoing research involving significant findings in over 100 articles and research projects throughout the clinical arena. Millon made the following points:

1. The MCMI items need not have a one-to-one correspondence with the DSM-III criteria in order to provide a valid measure of the DSM-III disorders.
2. There are differences with respect to antisocial and passive-aggressive disorders but MCMI's criteria are more inclusive.

3. Questioned the suggested differences in respective formulations for the borderline, schizotypal, and narcissistic disorders.
4. Questioned the assumption that content validity implies predictive validity.
5. Applied his 2nd and 4th criticisms to the antisocial (aggressive) scale in order to point out that one may not want item content to directly represent a disorder.
6. Demonstrated how the MCMI scale need not represent all of the criteria because it is not necessary for all of them to be present in order to make a DSM-III diagnosis.
7. Questioned the expertise and objectivity of the graduate students who conducted the content analysis.
8. Reported that Antoni, Green, Sandberg and Millon (1985) found that even beginning graduate students could match the full set of the antisocial scale items to the DSM-III antisocial diagnosis 85% of the time. (Millon, 1985).

Widiger et al., (1986) published a rejoinder to Millon's critique wherein they acknowledged the popularity and successful utility of the MCMI, but still remained cautious as no empirical data had been published which specifically addressed the relationship between the MCMI and the DSM-III.

The MCMI-II is currently considered a powerful instrument with established reliability and is widely used by clinicians the world over (Reich, 1987). The MCMI-II is most often used in conjunction with more traditional batteries and the MMPI (Antoni, Levine, Tischer, Green & Millon, 1986). Several recent reviews have substantiated the Retest Reliability, i.e., Pearson product-moment correlation .69 across personality scales, $p>.001$ (Overholser, 1990), Concurrent Validity i.e., BR>84 correlation with 16PF (Hyer, Woods, Boudewyns, Harrison & Tamkin, 1990), and the MCMI's relationships with newer self-report measures such as the Psychopathy Checklist ($r=.53$) by diagnosis, and ($r=.71$) by symptoms, comparing the PCL-R and the MCMI to diagnose antisocial personality disorders (Hart, Forth, & Hare, 1991).

The most recent longitudinal study of the MCMI and its validity is quite favorable, i.e., diagnostic efficiency hit rates ranging from 86% to 97%, and Concurrent Validity average correlation of (r=.56) of each scale with other rating scales (Wetzler, 1990).

The Structured Interview for DSM-III-R (SCID-I) was developed between 1983-1987 by Spitzer, Williams, Gibbon and First (1987). The SCID was designed as a result of revolutionary changes in DSM-III-R diagnostic criteria. Most of SCID's authors were also instrumental in developing DSM-III-R. The SCID was designed in order to diagnose virtually all AXIS I disorders. The SCID-II is a recent extension of SCID-I designed specifically to assess personality disorders which are AXIS II.

The SCID-II is a 120 item, comprehensive semistructured personality interview designed by Robert Spitzer, Janet Williams, Miriam Gibbon, and Michael First (1985). The 1990 SCID users guide was used in this study.

Each item on the SCID-II has a four-point scale (inadequate information, negative, sub threshold, threshold), and specific probe questions are supplied.

The SCID-II also has an optional pre-interview questionnaire which is constructed of 115 yes/no questions derived from situations which reflect the diagnostic criteria for the DSM-III-R personality disorder section. This questionnaire is suggested when the clinician does not have adequate background information on an interviewee (Reich, 1987 pp 230-231). The following are items from the SCID questionnaire which the participant is required to answer yes or no in regard to Narcissistic personality disorder:

77- "When you're criticized, do you often feel angry, ashamed, or put down, even hours or days later?"

87- "Have people said that you are not sympathetic or understanding about their problems?"

88- "Are you often envious of other people?" (Scid-II Questionnaire, page 2).

All of the personality disorders are not represented on the SCID-II. Because the authors of SCID-II do not agree with Millon that aggressive/sadistic personality disorders will expose this part of their personality in a self-report

interview. The DSM-III-R suggests that Dysphoric Personality Disorder, Sadistic Personality Disorder and Self-defeating Personality Disorder be classified as "Personality Disorder Not Otherwise Specified (NOS)" and the authors of the SCID-II follow this suggestion.

At this time the SCID-II does not include a revision for assessment of personality disorder of adolescents. This limitation might be due to intentional exclusion, i.e., the authors theoretical and philosophical deductions regarding personality disorder assessment of adolescents or temporal limitations, i.e., the authors wish to establish validity and/or reliability with the adult assessment before developing an additional format and criteria which are appropriately adapted for assessment of personality disorder in adolescents.

The SCID is a bit more complicated to score and takes longer to administer (approximately 90 minutes) but provides much clearer and detailed information. The SCID follows this sequence: The client first answers the questions on the questionnaire, the examiner then looks over the questionnaire and asks the client to elaborate on questions to which the client

has responded "yes." As the client elaborates, the examiner gives a score of 1, 2, or 3 in an examination booklet which has the DSM-III-R criteria in the margin as a reference. This gives information regarding Diagnostic Index which is considered in terms of threshold. Other information which is accumulated is the Current Severity which is rated as 1=mild, 2=moderate, 3=severe. The clients score which translates as severe with a 3 threshold is the personality disorder that should be the main focus of clinical attention according to the SCID-II.

It is important to understand that the ratings go beyond the yes/no answers to questionnaire items. For example, if the client answered "yes" on the questionnaire, but after probing it is found that the commitment via diagnostic criteria is low, the response would be encoded as a "1" or a "2" depending on how many of the items in the diagnostic criteria are met during the inquiry. The 1, 2, and 3 scores are the measures used in making the diagnosis.

A rating of "3" on a SCID-II item indicates that there is sufficient evidence that the characteristic described in the item is Pathological, Persistent, and

Pervasive. Pathological means that the characteristic is outside the range of normal variation. Persistent refers to both frequency and variation. Pervasive means that the criteria is met in a variety of contexts (Spitzer & Associates, 1990).

Reliability and Validity studies relevant to SCID-II are not yet available (Spitzer & Associates, 1990). The Users Guide for SCID-II states that the Kappas for the SCID-II on 226 subjects were similar to test-retest Kappas reported for other personality assessment instruments such as Personality Disorders Examination (k=.45 to .85) and the Structured Interview for DSM-III Personality Disorders (k=.71), (Spitzer et al., 1990).

One study made available after a telephone interview with Janet Williams, a primary author of SCID-II involved validating SCID-II with longitudinal diagnoses. The number of subjects was rather small (20) and the results suggested that SCID-II identified certain personality disorders better than others (Skodal, Rosnick, Kellman, Oldham & Hyler, 1988).

There are several published studies related to the utility of the SCID-II in the United Kingdom. One of

the most significant of these is a study (Tyrer, 1988) where the SCID-II was used with the Personality Assessment Schedule (PAS) in a three year study of the relationship between personality disorder and life events. The results suggest that SCID-II is quite reliable and helpful in verifying a personality disorder pattern which is indicated by another assessment instrument (Tyrer, 1988).

The reported precision of the SCID-II and the implied reliability and validity of the instrument made by its authors strengthened NOVA's interest in working with both the SCID-II and the MCMI-II which has proven its utility over the years.

According to Ray Myers, Director of NOVA Therapeutic Community;

> "By itself, the MCMI is at best a suggestive report. Its reliability and utilitarian value is measured not by what is revealed in the profile but by the collateral data that is necessary to complete a proper diagnosis. Collateral data involves: (1) Social History, (2) Analysis of prior reports and/or evaluations, (3) Observation, (4) Interview,

(5) other Psychological assessment i.e., MMPI-2. The SCID is a clinical interview format that was designed to screen for DSM-III diagnosis. The SCID-II screens exclusively for AXIS-II Personality Disorders. NOVA included the SCID-II into the diagnostic process for several reasons:

1. As a training tool for the counseling staff, interviews must be structured and systematic. Having staff use the SCID-II is a way of teaching them how to interview an individual in such a way as to:
    a. access information necessary to arrive at a qualified diagnosis
    b. economize time
    c. establish the foundation for rapport.
2. To establish a reliable way of correlating the MCMI-II. If the MCMI is a valid yardstick in terms of identifying specific personality types and patterns, then the therapist should be able to accomplish the same objective through the interview process.

If the therapist can arrive at the same diagnosis independent of the MCMI, then we have an excellent counter-balancing mechanism that integrates objective measurement with the more personal and subjective nature of one-on-one interviewing.

3. To develop a standardized approach to interviewing family members (clients).
4. If the therapist places all of their clinical eggs in one basket and relies too heavily on the MCMI-II or other paper and pencil forms of assessment, he/she will become not only intellectually lazy, but undisciplined in their interviewing techniques" (C.R. Myers, Personal Communication, April 18 1992).

The Problem

The purpose of this study was to investigate the relationship between the SCID-II and the MCMI-II in the assessment of personality disorders. The investigation was conducted in a clinical setting at NOVA Therapeutic Community in Omaha, Nebraska utilizing NOVA's staff and the assessments were conducted with NOVA's clientele.

The following two hypotheses were tested:

HYPOTHESIS 1: The diagnosis of personality disorder made independently by MCMI-II and SCID-II will concur with each other and the final clinical diagnosis.

HYPOTHESIS 2: There are no significant differences in either an initial diagnosis, the SCID-II, or the MCMI-II's ability to diagnose personality disorders.

METHOD

Subjects

NOVA, which is an acronym for New Options Values and Achievements, has worked exclusively with personality disorders since 1981 and is the only accredited therapeutic community in this region which has the capacity of addressing the problems of this unique and difficult population.

The fifty subjects were drawn from the Winter 1992 intake patients at NOVA Therapeutic Community's residential facility. This sample consisted of 33 males and 17 females, ranging in age from 19 years to 45 years old with a mode of 26 years of age.

The subjects were referred to NOVA by the Criminal Justice System; Department of Social Services; City, County, District, State and Federal Courts; Families; Mental Health agencies; Substance Abuse Treatment agencies; Hospitals and private therapists to be evaluated and/or treated for personality disorders.

Subjects were informed of the nature of the study and those who agreed to participate were asked to sign informed consent forms. No one declined to take the measurements in this sample of 50 subjects. However approximately the same number of intake patients walked out of NOVA before completing the testing procedures as stayed throughout the 21 day orientation/evaluation phase.

Instruments

Two psychometric personality disorder assessment instruments were utilized in this study: The MCMI-II (M) and The SCID-II (S).

Procedure

As each subject began NOVA's 21-day residential orientation process, Ray Myers, M.S., the Clinical Director, oversaw that an initial diagnosis was recorded for each subject by using all information

available before either the MCMI or the SCID was administered.

Each resident at NOVA was assigned a clinical number, i.e., N10534, and these numbers, rather than names, were used throughout the data gathering to ensure anonymity.

The intake coordinator then administered both the MCMI and the SCID in counter-balanced order. Neither instrument was administered at a time when it was obvious that the subject's attention-span, concentration, or mood was not appropriate. (Both the MCMI and the SCID have internal controls for validity).

Each subject had a case review staffing at the end of the 21-day orientation period, wherein, all available results and observations were discussed by the clinical director, therapists and significant others. A Final clinical diagnosis was recorded at this case review. This diagnosis was the clinical diagnosis (final) to which the scores of the initial diagnosis, the MCMI and the SCID were compared.

Table 1 shows the diagnostic categories used in this study. The 12 different categories form three different Clusters 1, 2, and 3 which are DSM-III-R

groupings according to severity of impairment, level of functioning and prognosis. The Not Otherwise Specified listing (3.5) was used to incorporate those personality disorders from Appendix A of DSM-III-R which the MCMI-II indicates but the SCID-II does not the (Dysphoric disorder, the Self-defeating disorder and the Sadistic disorder).

Table 1

Cluster and Diagnostic Categories

CLUSTER 1	Paranoid	1.1
	Schizoid	1.2
	Schizotypal	1.3
CLUSTER 2	Antisocial	2.1
	Borderline	2.2
	Histrionic	2.3
	Narcissistic	2.4
CLUSTER 3	Avoidant	3.1
	Dependent	3.2
	Compulsive	3.3
	Passive/Aggressive	3.4
	Not Otherwise Specified	3.5

Analysis

The diagnoses are nominal, categorical, unordered and nonparametric in terms of meeting assumptions and appropriateness of statistical test usage, and hence the appropriate statistical measure to test Hypothesis 1 is the Chi-square (x^2) goodness-of-fit technique and the x^2 one-sample test was used. (Siegel, 1956).

There are eight possible combinations in which the Initial diagnosis (I), MCMI-II diagnosis, (M), and the SCID-II diagnosis (S), agreed or disagreed with the final diagnosis at the cluster level:

C = All 3 diagnoses agree with final at cluster level

$\overline{I}$ = Both MCMI and SCID agree with final but Initial disagrees

S = SCID agrees with final but Initial and MCMI do not agree with final

M = MCMI agrees with final but Initial and SCID do not agree with final

W = None of the diagnoses agree with the final

I = Initial agrees with the final but MCMI and SCID do not agree with final

$\overline{M}$ = Both Initial and SCID agree with final but MCMI does not agree with final

$\overline{S}$ = Both Initial and MCMI agree with final but SCID does not agree with final

Each of these eight cluster level cells is subdivided into eight combinations of agreement of the three diagnoses (I, M, S) at the diagnostic level (1.1-3.5).

c = All 3 diagnoses are identical to final diagnosis

$\bar{i}$ = Both MCMI and SCID agree with final but Initial disagrees with final

s = SCID agrees with final but Initial and MCMI do not agree with final

m = MCMI agrees with final but Initial and SCID do not agree with final

w = None of the diagnoses agree with the final

i = Initial agrees with final but MCMI and SCID do not agree with final

$\bar{m}$ = Both Initial and SCID agree with final but MCMI does not agree with final

$\bar{s}$ = Both Initial and MCMI agree with final but SCID does not agree with final

HYPOTHESIS 1: The diagnosis of personality disorder made independently by MCMI-II and SCID-II will concur with each other and the final clinical diagnosis.

The testing of Hypothesis 1 was made in two ways. One test of Hypothesis 1 is a two-cell contingency test with the first cell the number of subjects who are given the same correct classification by the MCMI, SCID

and clinical diagnosis at the cluster level (the sum of the frequencies in cells C and $\overline{I}$). And the other cell was the number of subjects given cluster classifications that differ from the clinical diagnosis on at least one of the two instruments (the sum of the frequencies in all the other cluster cells).

The null hypothesis that the two cells are equal is tested using a significance level of .05 for rejecting the null.

A second, finer test of Hypothesis 1 involves testing the diagnoses made by the Initial diagnosis, the MCMI and the SCID at the specific diagnosis level.

HYPOTHESIS 2: There are no significant differences in either an Initial diagnosis, the SCID-II, or the MCMI-II's ability to diagnose the personality disorders.

The testing of Hypothesis 2 can also be accomplished using Chi-square. Test of Hypothesis 2 consist of testing whether the initial, MCMI or SCID differ in correct diagnosis at the cluster (I vs M vs S) and at the specific diagnostic levels (i vs m vs s). Another pair of tests consists of whether there are any

differences in incorrect diagnoses (i.e., $\overline{I}$ vs $\overline{M}$ vs $\overline{S}$ and also $\overline{i}$ vs $\overline{m}$ vs $\overline{s}$).

The null hypothesis for these tests is that the frequencies will be equal in the three cells. The Significance level for rejection of the null is .05.

Results

Table 2, Table 3, and Table 4 show the correct and incorrect diagnoses by combinations of the test at the cluster and diagnostic levels.

Both the SCID & MCMI agreed with each other and the final diagnosis in 26 of the 50 cases (See Table 3).

Table 4 shows each diagnostic methods performance by frequency and percentages of both agreement and non agreement with the clinical diagnosis at cluster level and diagnostic level.

The observed frequencies and percentages indicate that all three methods of diagnostics performed well in this study, with a spread of only six cases between the lowest (Initial, 36) and highest (SCID, 42) (See Table 4). The observed frequency and percentages at the diagnostic level indicate that each method performed less accurately at the diagnostic level than at the

Table 2

PROPORTION OF AGREEMENT WITH FINAL DIAGNOSIS AT CLUSTER LEVEL AND DIAGNOSTIC LEVEL

C 26						$\overline{I}$ 9				S 2		M 3		I 2		$\overline{M}$ 5			$\overline{S}$ 3	
9	11	2	1	1	2	6	1	1	1	2		3		1	1	1	2	2	1	2
c	$\overline{i}$	m	w	$\overline{m}$	$\overline{s}$	c	s	m	w	s		m		w	i	w	i	$\overline{m}$	m	$\overline{s}$

N=50

Cluster Level

C = All 3 diagnoses correct
I = Only Initial correct
S = Only SCID correct
M = Only MCMI correct
W = All 3 diagnoses incorrect
$\overline{I}$ = Only Initial incorrect
$\overline{M}$ = Only MCMI incorrect
$\overline{S}$ = Only SCID incorrect

Diagnostic Level

c = All 3 diagnoses correct
i = only Initial correct
s = Only SCID correct
m = Only MCMI correct
w = All 3 diagnoses incorrect
$\overline{i}$ = Only Initial incorrect
$\overline{m}$ = Only MCMI incorrect
$\overline{s}$ = Only SCID incorrect

Note: correct = agreement with final diagnosis
incorrect = disagreement with final diagnosis

Table 3

Proportion of Agreement With Final Diagnosis by Each Combination of Agreement At Cluster and Diagnostic Levels

Cluster Level Totals N=50

	Combination		Frequency	Percentage
1.	C	all correct	26	52
2.	$\overline{I}$	only I incorrect	9	18
3.	S	only S correct	2	04
4.	M	only M correct	3	06
5.	W	all incorrect	0	0
6.	I	only I correct	2	04
7.	$\overline{M}$	only M incorrect	5	10
8.	$\overline{S}$	only S incorrect	3	06
			50	100

Diagnostic Level Totals N=50

	Combination		Frequency	Percentage
1.	c	all correct	9	18
2.	$\overline{i}$	only I incorrect	17	34
3.	s	only S correct	3	06
4.	m	only M correct	7	14
5.	w	all incorrect	4	08
6.	i	only I correct	3	06
7.	$\overline{m}$	only M incorrect	3	06
8.	$\overline{s}$	only S incorrect	4	08
			50	100

Note: Correct = agreement with final diagnosis
Incorrect = disagreement with final diagnosis

Table 4

Proportion of Agreement With Final Diagnosis by Each Diagnostic Method At Cluster and Diagnostic Levels

Agreement by Diagnostic Method (Cluster level) N=50

(A)	Initial Diagnosis	Frequency	Percentage
	Agreement w/final	36	72
	Non-Agreement w/final	14	28
		50	100

(B)	MCMI II	Frequency	Percentage
	Agreement w/final	41	82
	Non-Agreement w/final	9	18
		50	100

(C)	SCID-II	Frequency	Percentage
	Agreement w/final	42	84
	Non-Agreement w/final	8	16
		50	100

Agreement by Diagnostic Method (Diagnostic level) N=50

(a)	Initial Diagnosis	Frequency	Percentage
	Agreement w/final	19	38
	Non-Agreement w/final	31	62
		50	100

(b)	MCMI II	Frequency	Percentage
	Agreement w/final	37	74
	Non-Agreement w/final	13	26
		50	100

(c)	SCID-II	Frequency	Percentage
	Agreement w/final	32	64
	Non-Agreement w/final	18	36
		50	100

cluster level. The MCMI-II was 74% accurate with 13 occurrences of nonagreement with the final at the diagnostic level. The initial diagnosis performance was 38% at the diagnostic level (See Table 4).

Tests of Hypotheses

Hypothesis 1 The diagnoses of personality disorder made independently by MCMI-II and SCID-II will concur with each other and the standard clinical diagnosis.

The cluster level Chi-square analysis of Hypothesis 1 is shown in Table 5. There were 35 correct diagnoses at the Cluster level and 15 incorrect diagnoses. Based on the 50 subjects the expected frequencies for the null hypothesis is 25 in each cell. The Chi-square test shown in Table 5 indicated that the obtained distribution was significantly different than that predicted by the null hypothesis, $X^2(1, N=50)=8$, $p<.01$ and hence Hypothesis 1 is supported.

Table 5

Cluster Level Chi-Square Test for Hypothesis 1

	Both tests correct	Both tests Incorrect
null expected	25	25
observed	35	15

$X^2(1, N=50)=8, p<.01$

Note: Correct = agreement with final diagnosis
Incorrect = disagreement with final diagnosis

Table 6 shows the Chi-square test of Hypothesis 1 at the diagnostic level. There were 26 correct and 24 incorrect diagnoses. The expected frequency is again 25 per cell.

Table 6

Diagnostic Level Chi-Square Test for Hypothesis 1
Correct vs Incorrect

	Both tests correct	Both tests incorrect
null expected	25	25
observed	26	24

$X^2(1, N=50)=.08, p>.05$

Note: Correct = agreement with final diagnosis
Incorrect = disagreement with final diagnosis

The Chi-square test indicated that the obtained distribution was not significantly different than that predicted by the null hypothesis, $X^2(1,N=50)=.08$, $p>.05$. The two tests are as likely not to concur with the final diagnosis as to concur.

Hypothesis 2 The null hypothesis is that there are no significant differences in either the Initial diagnosis, the SCID-II, or the MCMI's ability to make the correct diagnosis.

Table 7

The Cluster Level Incorrect Diagnoses For One Test When Other Two Are Correct

	Only I Incorrect	Only M Incorrect	Only S Incorrect
null expected	5.7	5.7	5.7
observed	9	5	3

Total N = 17

X^2 2, $N=17=3.27$, $p<.10$

Note: Correct = agreement with final diagnosis
Incorrect = disagreement with final diagnosis

The frequency of one test being correct while the other tests are incorrect was so low (seven cases) at cluster level that the expected frequencies do not meet the assumptions for a Chi-square test. (See Table 3).

The frequencies of one test being incorrect while the other two tests were correct (Table 7) were significantly different (X^2 2, N=17=3.27, p<.10) but not different enough to reject the null at p=.05. The Initial diagnosis was wrong more than the other tests.

The diagnostic level Chi-square tests of Hypothesis 2 are shown in Tables 8, and 9.

Table 8

Correct Diagnosis Chi-square test for Hypothesis 2 At Diagnostic Level

	Only I correct	Only M correct	Only S correct
null expected	4.3	4.3	4.3
observed	3	7	3

Note: correct = agreement with final diagnosis

Table 8 shows the diagnostic level frequencies of only the Initial diagnosis, only the SCID or only the MCMI being correct, when the other two were incorrect.

The Chi-square test cannot be performed on this data since the expected frequencies are too low to meet the assumptions of chi-square (See Table 8).

Table 9 shows the frequencies of either the Initial diagnosis (I), the MCMI-II (M), or the SCID-II (S), being incorrect when the other two tests were correctly in agreement with the final diagnosis at the diagnostic level and the chi-square test of the data.

Table 9

Incorrect Diagnosis Chi-square Test For Hypothesis 2 At Diagnostic Level

	Only I incorrect	Only M incorrect	Only S incorrect
null expected	8	8	8
observed	17	3	4

N=24

$X^2(2, n=24)=14.25$, $p< .001$

Note: incorrect = disagreement with final diagnosis

The Chi-square test indicates that the obtained distribution is significantly different than that predicted by the null hypothesis $X^2(2, N=24)=15.25$, $p<.001$, and hence Hypothesis 2 is supported since the Initial diagnosis was incorrect significantly more often than the MCMI or SCID.

Table 10 shows the frequency of correct and incorrect specific personality disorders by cluster and final diagnosis. The Antisocial personality disorder diagnosis represents 44% of the entire subject pool (n=50) the SCID was correct in 18 of its 21 Antisocial personality disorders, catching 82% of the 22 final diagnoses of Antisocial personality disorder. The Initial diagnosis caught only 50% (121) of the Antisocial personality disorder, and the MCMI caught 59% (13).

Discussion

Perhaps the most interesting finding in this study was the frequency with which MCMI-II, SCID-II and surprisingly the Initial diagnosis correctly agreed with the final diagnosis at the cluster level. Fifty percent of the Personality disorders in this study were in cluster 2 and 50 percent were in cluster 3. There were no cluster 1 personality disorders diagnosed as such by the final diagnosis in this sample.

It was anticipated that there would be low occurrence of cluster 1 personality disorder in NOVA's population since cluster 1 personality disorders are generally reclusive, frequently institutionalized

Table 10

Frequency Of Correct And Incorrect Diagnosis Of The Three Diagnostic Measures At Diagnostic Level

		FINAL		INITIAL			MCMI-II			SCID-II		
	Personality Disorder	N	%	N	A*	D	N	A*	D*	N	A*	D
Cluster 1	Paranoid 1.1											
	Schizoid 1.2			1		1				1		1
	Schizotypal 1.3											
Cluster 2	Antisocial 2.1	22	44	14	11	3	13	13		21	18	3
	Borderline 2.2			1	11	1				2		2
	Histrionic 2.3	1	2	3	1	2	3	1	2	2		2
	Narcissistic 2.4	2	4	3	21	2	4	2	2			
Cluster 3	Avoidant 3.1	5	10	1		1	5	5		3	2	1
	Dependent 3.2	3	6	5		5	4	3	1	5	3	2
	Compulsive 3.3	2	4	4	1	3	3	2	1	2	2	
	Passive/ Aggressive 3.4	8	16	9	4	5	9	7	2	7	4	3
	NOS 3.5	7	14	9	1	8	9	4	5	7	3	4
	ALL	50	100	50	9	31	50	37	3	50	2	18

*NOTE: A=agreement with final diangosis,
D=disareement with final diangosis
NOS=not otherwise specified
IND=independent diagnosis

individuals with low energy and little motivation. NOVA's population generally consists of individuals who are having problems due to acting outside of social laws and rules and living out hedonistic and often predatory lifestyles.

While correct diagnosis at cluster level proved to be a logical starting point to begin comparing the performance of the three diagnostic methods and their agreements with each other and the final diagnosis, in actual practice, a cluster diagnosis would not be specific enough to warrant the time, resources and expertise required to administer and score either the MCMI or SCID. NOVA's Initial diagnosis is the same as the Final cluster level diagnosis 72 percent of the time whereas MCMI and SCID agreed with each other and the Final diagnosis 82% and 84% respectively at the cluster level (See Table 2).

Hypothesis 1: Although statistical analysis supports Hypothesis 1 at the cluster level of analysis. The MCMI and SCID were in agreement with each other and the Final diagnosis in only 26 of the 50 cases at the diagnostic level, whereas the MCMI alone was in agreement with the Final diagnosis in 37 of the 50

cases and the SCID was in agreement in 32 of the 50 cases. The Initial diagnosis was correct in only 19 cases thus showing that the MCMI or SCID improves the diagnosis.

NOVA is very pleased with the additional help the SCID, coupled with the MCMI has provided in their diagnostic procedure. The fact that the SCID and the MCMI were in agreement with 17 of the 50 subjects when the Initial diagnosis was wrong, translates to the agency as a measure of security in diagnostic procedure which before was unavailable or impractical.

Hypothesis 2: Statistical analysis of the data showed that the Initial diagnosis was incorrect at the diagnostic level more frequently than either the MCMI or SCID.

There are specific differences in the powers of the three instruments. The most obvious difference is the MCMI's capacity to correctly assess personality disorders of this study on seven occasions when both the Initial diagnosis and the SCID failed to agree at the diagnostic level (See Table 3). Superior general capacity of the MCMI in assessing the

personality disorders in this study at the specific diagnostic level is supported by comparing the frequencies and percentages of agreement by diagnostic method (See Table 4). The MCMI was in agreement with the final in 74% of the cases at the diagnostic level, whereas the SCID was in agreement 64% and the Initial diagnosis 38%.

Although the present study was not designed to address the issue of specific problem areas which arise in the diagnostic procedure of detecting and assessing specific personality disorders, the results of the 50 cases in this study have been organized into a display of the specific diagnoses frequency of agreement by each of the diagnostic methods (See Table 10).

The Antisocial personality disorder is by far the most prevalent in this study with 22 cases or 44 percent diagnosed by the final diagnosis. This percentage is representative of NOVA's overall population at any given time. The SCID clearly outperformed both the MCMI and the initial diagnosis with a total of 18 cases of Antisocial personality disorder correctly diagnosed and three cases

incorrectly diagnosed as Antisocial personaltiy disorder.

It is significant that all 13 Antisocial personality disorder diagnoses of the MCMI agreed with the Final diagnosis with no cases incorrectly diagnosed as Antisocial personality disorder.

The Initial diagnoses of Antisocial personality disorder contained 11 in agreement with the Final diagnosis and three cases incorrectly diagnosed as Antisocial personaltiy disorder.

The higher frequency of the SCID correctly identifying Antisocial personality disorders is quite significant to an agency such as NOVA, whose population generally reflects Antisocial personality disorder patterns of 40 percent or more. It is also significant that the MCMI appears to be more conservative and consistent in the diagnosis of the Antisocial personality disorder pattern. The MCMI and SCID agreed with each other and the final correctly in 12 of the 22 cases of Antisocial personality disorder.

The Avoidant personality disorder occurred five times (10%) of the subject population. The MCMI correctly agreed with the final on all five of these

cases (100%) whereas the SCID was correct in two cases and incorrectly diagnosed one case as Avoidant personaltiy disorder.

The staff at NOVA reported that while training and preparing each other in seminars on the acceptable procedure for administering the SCID interview, and after performing several of these interviews, the staff collectively gained a more indepth understanding of the DSM-III-R diagnostic criteria as per SCID-II interpretation and most became more proficient at performing initial diagnosis.

Limitations

The most obvious limitation of this study is its reliance on NOVA's final clinical diagnosis as the "standard" by which to determine the performance of the MCMI and SCID.

While it is true that the overlap of information was controlled as much as possible, the staff was involved in the case review which determines the final diagnosis and used all the information available to them which, of course included the MCMI and SCID reports. Thus the results could reflect the emphasis

the staff of NOVA tended to place on the diagnosis of the SCID, and the MCMI.

Conclusions

The population from which the sample was drawn may be unique to NOVA's environment and the final clinical diagnosis used as a "standard" by which to compare the performances of the MCMI-II and SCID-II was also a product of NOVA's diagnostic procedure.

The MCMI-II and SCID-II diagnosis agreed with each other and the final more than they disagreed in the specific diagnosis of personality disorder (26 cases out of 50 cases). The clinical staff at NOVA was presented with the additional decision making situation of deciding which if either of the two instruments was more accurate on the remaining cases (24) at the diagnostic level.

Overall, the MCMI-II agreed with the final diagnosis in a more consistent manner (74%) than the SCID-II (64%). In regard to specific personality disorder patterns, the SCID-II was more consistently in agreement with the final diagnosis on the Antisocial personality disorder pattern (82%) while the MCMI-II was more consistently in agreement with the final

diagnosis on the Avoidant personality disorder pattern (100%) and the Passive/Aggressive personality disorder pattern (87%).

Since participating in this project, NOVA has decided to retain both the MCMI-II and SCID-II in the agency's diagnostic procedure. The MCMI due to its efficiency, familiarity and overall reliability is retained as an initial gauge of areas of personality disorder to be probed in depth later during a partial SCID interview. In other words, the MCMI may be used in the nature of a pretest to the SCID. NOVA retains the SCID due to its value as a clinical staff training tool and its capacity for detecting Antisocial personality disorder patterns.

NOVA is currently involved in collecting data for the revision of the MCMI-II along with other agencies in a world wide coordinated effort by the MCMI's authors. The SCID-II is also reportedly being revised and updated in anticipation of changes in personality disorder diagnostic criteria in the soon forthcoming DSM-IV.

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Appendix A

Informed Consent

INFORMED CONSENT

The study in which you are about to participate is designed to investigate the relationship between two of the psychological assessments you will be required to take during the Orientation phase at NOVA TC. (MCMI and SCID). This study is being conducted by Joe Pass to fulfill a degree requirement of the University of Nebraska/Omaha. This study has been approved by the Institutional Review Board of the University of Nebraska.

In this study the scores which you receive on both the MCMI and the SCID will be compared statistically to each other and to the clinical decisions which are determined during your case review. This study will not interfere with the course of your treatment in any way.

Please be assured that any information that you provide will be held in strict confidence by the researcher. At no time will your name be reported with your responses. All data will be reported in group form only. At the conclusion of this study you will receive a report of the results.

Please understand that your participation in this research is totally voluntary and you are free to withdraw at any time during this study without penalty.

I acknowledge that I have been informed of and understand the nature and purpose of this study and I freely consent to participate. I acknowledge that I am at least 19 years of age.

Signed_____

Date_____