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Reliability of the Brazilian Version of the CIDI¹ in a Case-control Study of Risk Factors for Drug Abuse among Adults in Rio de Janeiro²

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Using a test-retest design, the reliability of DSM-III-R diagnoses generated by the Brazilian version of the Composite International Diagnostic Interview (CIDI) was evaluated in a sample of 30 subjects. This sample was drawn from first interviews conducted for a case-control study of risk factors for drug abuse among adults in Rio de Janeiro. The results indicated good to high levels of agreement between both sets of interviews with respect to all psychiatric diagnoses covered and all substance dependence/abuse diagnoses (kappa values of 0.61–1.00) except the diagnosis of alcohol abuse (kappa = 0.35). These findings show the portions of the new CIDI version tested to be sound and appropriate for use in future investigations of adult psychiatric and substance dependence/abuse diagnoses in Brazil.

In Brazil, as in many other countries, increasing drug problems have drawn attention to the need for more reliable drug abuse data. The aim of the work reported here was to assess the test-retest reliability of psychiatric and substance abuse/dependence diagnoses obtained in Rio de Janeiro using a new version of the Composite International Diagnostic Interview (CIDI), applying criteria of the American Psychiatric Association's revised *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III-R) (1, 2).

BACKGROUND

Study Instrument History

Over the past quarter-century, standardized methods for measuring psychiatric morbidity among both the general population and patients in primary care settings have been developed. However, some groups have not yet been thoroughly studied by such methods. Drug abusers have typically been one such group, apparently because of the group's nature and also because of the available study instruments.

More specifically, the illegality of drug abuse and the heterogeneity of the drug abuser group make identification of a representative sample difficult. Thus, most studies have been carried out on specific subgroups such as students or drug abuse patients. One group of studies constituting an exception to this rule have followed a sample of the general United States population and U.S. students since 1975 in an effort to assess drug abuse patterns throughout that country (3, 4).

¹CIDI = Composite International Diagnostic Interview.

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With regard to study instruments that have been created to measure psychiatric morbidity, the very diversity of available instruments poses an obstacle to international and cross-cultural comparisons. Furthermore, such instruments often fail to detect drug abuse—because drug abuse data are commonly minimized or omitted, especially in dealing with nonpatient populations such as students. For this reason, self-report questionnaires appear more suitable than other instruments for assessing drug abuse. These questionnaires, however, do not permit assessment of psychiatric diagnoses or drug abuse/dependence diagnoses.

The Composite International Diagnostic Interview (CIDI)

Development

The instrument employed in the present study, the Composite International Diagnostic Interview (CIDI), was developed at the request of the World Health Organization/United States of America Alcohol, Drug Abuse, and Mental Health Administration Task Force on Psychiatric Assessment Instruments. It is a structured and fully standardized questionnaire with “closed-ended” questions that can be administered by lay interviewers and scored by computer. It is designed to assess mental disorders according to the definitions and criteria of the International Classification of Diseases (ICD) and the revised criteria of the American Psychiatric Association’s *Diagnostic and Statistical Manual* (DSM-III-R) (1, 2). It also has a special substance abuse module that covers tobacco, alcohol, and other drug abuse in considerable detail.

The CIDI was derived by combining the two most widely used instruments in psychiatric epidemiologic research, the Diagnostic Interview Schedule (DIS) (5) and the Present State Examination (PSE) (6). In

fact, the CIDI preserves the DIS and incorporates some items of the PSE in order to permit derivation of many of the PSE-CATEGO⁴ classes. Comparisons between the PSE and the CIDI showed that although item-by-item inter-rater agreement was variable, agreement with respect to the CATEGO classes was high (7).

The usefulness of the CIDI resides in the fact that it was designed for cross-cultural epidemiologic comparisons (the core portion is available in 16 languages). There have been two field trials of this CIDI core version, involving 21 centers around the world, to assess its acceptability, feasibility, and reliability in different settings, countries, and cultures.

Field Trials

Wittchen et al. (8) conducted the first major international WHO field trial using the CIDI’s “prefinal” version. In all, 590 subjects from 18 centers around the world were interviewed; an inter-rater reliability design was chosen to identify cross-cultural problems in the CIDI and to study reasons for disagreement between raters. The results showed that kappa values across centers were highly significant, and for all but three types of problems (somatization, schizophreniform disorders, and anorexia) were above 0.90. Percentage observed agreements were above 90% for all diagnoses. Excellent reliability (kappa values over 0.93) was also found by Cottler et al. (9) for answers to the specific questions used to make substance abuse and dependence diagnoses. However, due to the relatively small number of subjects per site, the studies

⁴CATEGO is a computer program that incorporates a set of clinical rules designed to classify PSE data into descriptive classes that can be compared with grouped rubrics from the International Classification of Diseases.

did not report separate concordance statistics for each site.

The test-retest reliability of the substance abuse sections of the CIDI was measured by Cottler et al. (10) using 39 patients receiving substance abuse treatment at three treatment facilities in St. Louis, Missouri, U.S.A. They found an average kappa value of 0.82 for substance disorders in the DSM-III-R manual, and also reported excellent average kappa values for individual alcohol and drug symptoms. In addition, excellent kappa values for other DSM-III-R diagnoses were obtained by the Task Force on Psychiatric Assessment Instruments team using the test-retest design (8). This test-retest study yielded the following kappa values: 0.67 for depression, 0.75 for bipolar disorders, 0.80 for obsessive-compulsive disorder, 0.84 for panic disorder, 0.40 for generalized anxiety disorder, 0.67 for phobias, 0.70 for schizophrenia, and 0.75 for nicotine dependence.

In 1989, a revised version of the CIDI's core portion was produced and tested in 12 centers around the world. One of the aims of this second field trial was to provide some estimates of diagnostic agreement between CIDI results and ICD-10⁵ diagnoses made by clinicians. As part of this second wave of the CIDI field trials, 32 subjects were examined at the St. Louis site. The ICD-10 Checklist was administered by psychiatrists to 20 of 32 subjects interviewed with the CIDI. Validity was established by estimating diagnostic sensitivity and specificity, taking the clinical ICD-10 Checklist diagnoses as the standard and the CIDI diagnoses as the test. Despite limitations imposed by lack of independence of the two assessments and small sample size, overall diagnostic concordance between the ICD-10 and CIDI diagnoses was found to be good

(kappa = 0.77) (11). High concordance was found for anxiety/phobic disorders (kappa = 0.73), depressive disorders (kappa = 0.78), and psychoactive substance use disorders (kappa = 0.83).

Testing in Brazil

At the beginning of 1992 the most recent version of the CIDI was translated into Portuguese at the Department of Psychiatry of the Escola Paulista de Medicina in the City of São Paulo. This department, which includes one of the 16 CIDI training centers set up by WHO worldwide, had previously participated in the CIDI's initial multicenter field trial described above.

As part of this first multicenter field trial (12), the department administered the CIDI to 29 subjects at the Escola Paulista de Medicina—14 from the General Medicine Clinic (where a psychiatrist selected those with emotional problems) and 15 from the Affective Disorders Unit. The results showed that certain culturally embarrassing queries in the CIDI tended to cause avoidance by respondents. However, the main problems pointed out by the authors were: (1) the questionnaire was considered very long by most respondents; (2) some questions were not fully understood by people with low literacy levels; and (3) there were some problems in the "Alcohol Abuse or Dependence" section. In particular, "skip over" rules in this section were very strict; i.e., only respondents reporting consumption of less than 12 drinks in their lifetimes were excused from completing most of the questions about drinking problems. It was concluded that in Brazil the greatest problems relating to use of the CIDI were caused by illiteracy. The authors proposed two possible solutions: (1) special selection and training of interviewers; and (2) administering the interview in two or more sessions to ensure

⁵Tenth revision, International Classification of Diseases.

a reasonable level of concentration. More extensive inferences from the study were limited by the small size of the sample, as cited above.

METHODS

The assessment of reliability of the CIDI reported in this study was aimed at supporting a case-control study that had the objective of examining the risk factors for drug abuse among adults in Rio de Janeiro. Specifically, the case-control study sought to examine the working hypothesis that psychiatric disorders are possible risk factors for drug abuse or dependence.

Subjects

The study sample was drawn from first interviews conducted for the more general pilot project. A total of 30 cases and controls for that project were selected by means of the chain referral or "snowball" technique—that is, a method that reaches a study sample through referrals made by individuals who know others who present the characteristics of interest to a particular study (13). More specifically, cases (drug abusers) were initially found by soliciting the help of former drug abusers, treatment-seeking drug abusers, and counsellors located at NEPAD/UEJR (a drug abuse treatment facility and research center attached to the State University of Rio de Janeiro). After the interview, each "case" subject was asked to indicate a friend who was thought to be a drug abuser.

The control group was selected similarly, so that the controls were also friends of the drug abusers. That is, besides being asked to indicate a friend who was a drug abuser, the interviewed abuser was asked to indicate a friend who was thought to have never been involved in drug abuse.

Some exclusion criteria were applied to help avoid selection bias, poor recall of the age of disease onset, and loss of information due to the informant's mental status. Specifically, subjects were excluded from participation in the pilot project for (1) severe evidence of cognitive impairment in language or communication, (2) a history of recent (within the last month) psychiatric or drug treatment, and (3) age at the time of the interview below 18 years or over 40.

The Instrument

As in the main study, for this study the CIDI was not used in its full form. Only the most relevant diagnoses for the pilot project hypothesis (that psychiatric disorders are possible risk factors for drug abuse or dependence) were analyzed. Thus, the diagnoses covered by the study were nicotine dependence, anxiety disorders (panic, phobic, and generalized anxiety disorders), affective disorders (bipolar disorders, major depression, dysthymia, and manic disorders), obsessive-compulsive disorders, alcohol abuse and dependence, and drug abuse and dependence.⁶ Questions relating to schizophrenia were used as exclusion criteria for those with major depression, bipolar disorders, or manic disorders. Diagnoses based on the DSM-III-R criteria were made both for current time periods (within the last year) and for the subject's lifetime.

⁶The specific sections of the CIDI that cover the diagnoses of interest and that were evaluated are as follows: disorders resulting from the use of tobacco; phobic and other anxiety disorders; depressive disorders and dysthymic disorders; manic and bipolar affective disorders; disorders resulting from use of alcohol; obsessive-compulsive disorder; and disorders resulting from the use of psychoactive substances.

Interviews

A pilot-project interview team was selected and trained. This consisted of five undergraduate students enrolled in psychology courses and one enrolled in a sociology course. The team was trained for 2 weeks, fulfilling WHO criteria for performing interviews. In addition, when data collection started (data were collected from 15 February to 15 July 1992) the main researcher (the author) observed the first four interviews of each team member in order to recognize and discuss problems and correct possible mistakes.

To help evaluate the interviewers, the CIDI's applicability, and the quality of the results, it was stipulated that each interviewer would reinterview another group of five subjects (at least two cases and at least two controls) within the overall group of 30 cases and controls. These reinterviews were made 3 weeks to 1 month after the index interview. At the time of the reinterview, the interviewer was blind to any psychiatric diagnoses (other than drug abuse/dependence) generated by the first interview.

Analysis

To measure the test-retest reliability of the data obtained, kappa was calculated. As many studies have indicated (e.g., 14–17), this is the most suitable coefficient for assessing categorical data such as those provided by psychiatric diagnoses. In this regard, kappa values greater than 0.75 are generally considered to indicate a high degree of agreement; values between 0.40 and 0.75 indicate fair to good agreement, and values between 0 and 0.40 show poor agreement. Values near zero indicate that the observed agreement is due to chance (15).

RESULTS

Table 1 presents data indicating the test-retest reliability of each DSM-III-R diagnosis made using the CIDI in both interviews. Some psychopathologies are not reported because they were not diagnosed by means of the CIDI in this subsample.

As may be seen, the diagnostic agreement was excellent ($\text{kappa} > 0.75$) for almost all psychiatric diagnoses not involving substance abuse; even in the poorest category, generalized anxiety disorder, the level of agreement was good ($\text{kappa} = 0.65$). With regard to substance abuse diagnoses, high levels of agreement were achieved with respect to sedative/hypnotic/anxiolytic dependence, sedative/hypnotic/anxiolytic abuse, cocaine dependence, and cocaine abuse (all $\text{kappas} > 0.90$). Also, the level of agreement was good for diagnoses of alcohol dependence, nicotine dependence, cannabis dependence, and cannabis abuse (kappa values ranging from 0.61 to 0.70). Only in the case of alcohol abuse was the level of diagnostic reliability poor ($\text{kappa} = 0.35$).

DISCUSSION

As Dunn (14) has stressed, reliability studies should be undertaken in every setting where an instrument is used. Reliability depends upon the interviewers, the group that has been interviewed, and the circumstances prevailing at the time when the interview is done.

In the field of mental health, assessment of diagnostic reliability appeared for many years to be a difficult task. However, with the advent of new tools for assessing psychiatric disorders—such as structured interviews, improved diagnostic criteria, and computerized diagnoses—several studies have shown that good diagnostic reliability can be achieved (18, 19).

Table 1. Reliability of CIDI (DSM-III-R) diagnoses (N = 30).

Diagnoses	Interview 2	Interview 1		% positive in either interview	κ	95% confidence interval
		+	-			
		+ A	B			
		- C	D			
Major depression		5	0	17	1.00	— ^a
		0	25			
Generalized anxiety disorder		1	1	7	0.65	—
		0	28			
Agoraphobia		5	0	20	0.89	0.674–1.000
		1	24			
Simple phobia		3	0	13	0.84	0.526–1.000
		1	26			
Social phobia		5	1	20	0.89	0.674–1.000
		0	24			
Nicotine dependence		1	0	7	0.65	—
		1	28			
Alcohol abuse		1	2	13	0.35	—
		1	26			
Alcohol dependence		8	2	40	0.70	0.425–0.974
		2	18			
Cannabis abuse		3	1	20	0.61	0.178–1.000
		2	24			
Cannabis dependence		6	2	33	0.66	0.346–0.973
		2	20			
Sedative/hypnotic/ anxiolytic abuse		1	0	3	1.00	—
		0	29			
Sedative/hypnotic/ anxiolytic dependence		2	0	7	1.00	—
		0	28			
Cocaine abuse		1	0	3	1.00	—
		0	29			
Cocaine dependence		7	0	27	0.91	0.733–1.000
		1	22			

^a Not calculable.

The latest version of the CIDI, issued early in 1992, has become available only recently in Portuguese. Up to the time of this study, all the reliability studies performed have related to the former CIDI version, and all of them have obtained good results. The main problem encountered by our team, as in the earlier study by the Department of Psychiatry team at

the Escola Paulista de Medicina (12), related to interview length. This length sometimes made the interview tiring for both the interview subject and the interviewer. Despite this, only a few interviews had to be interrupted and finished another day.

As the reliability findings showed, this length did not appear to affect the quality

of the responses. Good to excellent reliability was achieved for almost all diagnoses covered. It is likely that the interviewers' training and their previous contact with psychology data contributed to this.

Diagnostic agreement was poor only with respect to alcohol abuse. This finding is consistent with the aforementioned Brazilian study (12) that found the CIDI's alcohol abuse/dependence section to be one of the most controversial. It appears that the very strict "skip over" rules previously noted could cause some embarrassment to respondents, and so could cause some misclassification due to information bias. As these results have not been reported from studies carried out in other countries, the difficulty could well be related to the cultural background of our sample.

Another noteworthy point is the fact that substance abuse and dependence can be highly dynamic conditions. Hence, it is possible that some of the differences found in the second interview could have been due to real changes in respondents' substance abuse or dependence status.

It is also important to note a key limitation of the research reported here. That is, the study sample's size was governed by the pilot project. Thus, half the sample consisted of cases (people with a drug disorder diagnosis), half consisted of controls, and the overall sample size was limited to 15 people in each group. Despite these size limitations, however, the results clearly showed those sections of the new CIDI version tested to be sound and appropriate for use in future investigations of psychiatric and substance dependence/abuse diagnoses among the adult population of Brazil.

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Health Promotion Conference in Wales

Health Promotion Wales and the Institute for Health Promotion, which together form a WHO Collaborating Center for health education and health promotion, have organized a three-part conference in Cardiff, Wales, in September 1994. From 11 to 16 September, participants will take part in a series of activities designed to interest persons in charge of planning, administering, or carrying out health promotion projects. On 19 September, several distinguished representatives from WHO and the World Bank will present a symposium that will focus on the need to justify investment in health and ways to ensure its effectiveness. From 20 to 23 September, a short course will be offered on administering and carrying out health promotion projects and programs. It will feature meetings, workshops, and working groups.

For more information, contact Mrs. Carys Evans, Conference Organizer, Health Promotion Wales, Ffynnon-las, Llanishen, Cardiff, Wales CF4 5DZ; telephone 0222-752222.