

JOURNAL

OF
ADDICTIVE DISORDERS

Comparing the Addiction Severity Index Multimedia Version to the Standard Addiction Severity Index in an Intensive Outpatient Substance Abuse Treatment Center.¹

ARTICLE

Abstract

Is the Addiction Severity Index–Multimedia Version a viable alternative to the expensive and potentially unreliable Standard Addiction Severity Index? The Addiction Severity Index–Multimedia Version is a CD-ROM based simulation of the interviewer-administered Standard Addiction Severity Index (ASI-MV, 2003). This study has clients in treatment self-administer the Addiction Severity Index – Multimedia Version to examine the test-retest reliability, criterion validity, and construct validity of the Addiction Severity Index – Multimedia Version. Test-retest reliability and Criterion validity will be tested against the Standard Addiction Severity Index. The Addiction Severity Index–Multimedia Version will be compared to the Standard Addiction Severity Index in construct validity for both composite scores and severity ratings. This study shows that the Standard Addiction Severity Index is outdated, time consuming and very expensive to administer and score. This study also shows that the Addiction Severity Index–Multimedia Version is an excellent alternative to the Standard Addiction Severity Index as an assessment tool in intensive outpatient substance abuse treatment centers.

Introduction

Introduction to the Problem

The Standard Addiction Severity Index is time consuming, expensive to administer and score, and quickly becoming outdated (McLellan, Parikh, Bragg, Cacciola, Fureman, and Incmikoski, 1990). The training of interviewers is very poor in many clinics and therefore the results of the Standard Addiction Severity Index assessment test are not very reliable (McLellan, et al., 1990). Interviewers may be under pressure to save time, save money, and meet certain admission requirements (McLellan, et al., 1990). All these factors reduce the validity and reliability of the Standard Addiction Severity Index (McLellan, et al., 1990). The new Addiction Severity Index–Multimedia Version is a more reliable and valid assessment tool when administered in intensive outpatient substance abuse treatment centers.

Background of the Study

The Addiction Severity Index is a structured clinical interview used to measure the severity of a range of problem areas typically associated with substance abuse: medical status; employment status; drug use; alcohol use; legal status; social relationships; and psychiatric

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status (ASI-MV, 2003). The Addiction Severity Index has become the standard assessment instrument used in most substance abuse treatment programs in the United States (Rosen, Henson, Finney & Moos, 2000). Yet correct implementation of the Standard Addiction Severity Index is very costly and time consuming to treatment facilities. Interview training is expensive, as are the costs of refresher workshops to ensure consistency of administration (McLellan, et al., 1990).

The new Addiction Severity Index–Multimedia Version requires no staff training and is cost effective to administer because it is based on patient self-report (Hunsinker, 2003). It does not require the patient to be literate because the questions are administered by virtual on-screen interviews (Hunsinker, 2003). Therefore, this study will show that the Addiction Severity Index–Multimedia Version is a more practical assessment tool than the Standard Addiction Severity Index, when administered in an intensive outpatient substance abuse treatment center.

Statement of the Problem

The problem under investigation, in this study, is the validity and reliability of the Addiction Severity Index–Multimedia Version as an assessment tool in substance abuse outpatient treatment centers. The Addiction Severity Index – Multimedia Version is being used to replace the standard interview based hand written Standard Addiction Severity Index and the problem to be studied is how effective is the Addiction Severity Index–Multimedia version and what aspects of the Addiction Severity Index–Multimedia Version make it more useful than the standard Addiction Severity Index?

Purpose of the Study

The purpose of this study is to present the rationale for using the Addiction Severity Index–Multimedia Version as the main assessment instrument in intensive outpatient substance abuse treatment centers. The standard instrument used at most substance abuse treatment centers for assessment is the Standard Addiction Severity Index, which is a structured clinical interview that measures the severity of a range of problem areas typically associated with substance abuse (Rosen, et al., 2000).

Research Questions

The research questions that will be addressed in this study are: is the Addiction Severity Index–Multimedia Version easier to use than the standard Addiction Severity Index; is the Addiction Severity Index–Multimedia Version more valid than the Standard Addiction Severity Index; is the Addiction Severity Index–Multimedia Version more cost efficient than the standard Addiction Severity Index; is the Addiction Severity Index–Multimedia Version more reliable than the standard Addiction Severity Index; is the Addiction Severity Index–Multimedia Version easier to score than the standard Addiction Severity Index; and does the Addiction Severity Index–Multimedia Version have a more reliable severity rating than the standard Addiction Severity Index?

Nature of the Study

This study is a quantitative study using a case study format. Many sources of data and information will be used to try and prove the hypothesis in question (Stake, 1995). When comparing two assessment instruments one must obtain as much data as possible to improve the validity of the research study (Stake, 1995). This allows one to use literature on both the standard Addiction Severity Index and the Addiction Severity Index–Multimedia Version and also to look at previous research studies that have information that will help with the validity of this study. This approach will allow the study to look at as many different sources of information that are needed to verify the strength of the Addiction Severity Index–Multimedia Version as an assessment tool in intensive outpatient substance abuse treatment centers (Stake, 1995).

Significance of the Study

The significance of this study is the importance of the Addiction Severity Index–Multimedia Version as an effective assessment tool in intensive outpatient substance abuse treatment centers. Many clients entering treatment centers have poor literacy and are difficult to engage (Sia, Dansereau, and Czuchry, 2000). The Addiction Severity Index–Multimedia Version is highly interactive, interesting and attractive with on-screen characters, engaging graphics, and sound (ASI-MV, 2003). This makes it possible for those with reading difficulties to self-administer the Addiction Severity Index–Multimedia Version effectively (ASI–MV, 2003). The program is set up as a virtual city where the client is introduced to two guides that lead them to interviews in onscreen offices. Each office represents the seven domains of the standard Addiction Severity Index, where the client focuses on a particular domain (ASI–MV, 2003). The Addiction Severity Index – Multimedia Version, when compared to the standard Addiction Severity Index, will significantly improve the reliability and validity of assessing clients entering substance abuse treatment centers.

Operational Definition of Terms

Construct validity refers to the degree to which inferences can legitimately be made from the hypotheses in this study to the theoretical constructs on which those hypotheses were based (Rosen, et al., 2000). Construct validity involves generalizing from your program or measures to the concept of your program or measures (Rosen, et al., 2000). In other words, is this study a valid measure of how the Addiction Severity Index–Multimedia Version performs better as an assessment instrument than the standard Addiction Severity Index?

Convergent and discriminant validity are both considered subcategories and subtypes of [construct validity](#) (Rosen et al., 2000). The important thing to recognize is that they work together, if one can demonstrate that evidence for both convergent and discriminant validity is available, then one has by definition demonstrated that there is evidence for construct validity (Rosen et al., 2000). But, neither one alone is sufficient for establishing construct validity. Convergent validity shows that the two assessment tools the Addiction Severity Index – Multimedia Version and the Standard Addiction Severity Index, are closely related to one another (Rosen et al., 2000). In this study both Addiction Severity Index's are used as assessment tools in intensive outpatient substance abuse treatment centers and measure the same seven problem areas. Discriminant validity shows that there are differences between the two assessment tools and will show that the Addiction Severity Index–Multimedia Version is a more efficient assessment tool.

Overall, test-retest reliability is an index of score consistency over a brief time period, typically several days (Rosen et al., 2000). It tells how much the individual's normative score is likely to change on near-term retesting. Score change could be caused by day-to-day fluctuation in performance, or the individual's recollection of the earlier administration (Rosen et al., 2000). A test-retest coefficient is a statistical measure that is obtained by administering the same test twice, with a certain amount of time between administrations, and then correlating the two score sets (Rosen et al., 2000). In this study some clients will be tested twice (some with the Standard Addiction Severity Index, and some with the Addiction Severity Index–Multimedia Version) with a period of three days separating the tests to make sure their answers are not just from memory. This should help determine which of the two tests is more reliable.

Criterion Validity draws an inference from test scores and performance. A high score of a valid test indicates that the tester has met the performance criteria (Rosen et al., 2000). Criterion validity is about prediction rather than explanation (Rosen et al., 2000). Can the assessment tools in this study predict how a client will perform in intensive outpatient substance abuse treatment and which of the two assessment tools is a more valid predictor of client success in treatment?

Assumptions

One assumption that will be made in this study is that clients using either the Addiction Severity Index–Multimedia Version or the Standard Addiction Severity Index will answer the questions in the seven domains honestly (Butler, Budman, Goldman, Newman, Beckley, Trottier, and Cacciola, 2001). Which of these two assessment tools will better promote honesty amongst the clients while the answering the same questions on each test? This is another question that must be answered.

Another assumption that will be made in this study is that clients taking the Addiction Severity Index–Multimedia Version do not have a pre-existing bias against computers (Butler et al., 2001). The counselor starting the Addiction Severity Index–Multimedia Version may have to assess the amount of bias and try to help the client work through their computer bias.

Limitations

One limitation I see in this study is the practicality of using a computer to conduct the Addiction Severity Index–Multimedia Version in a real-world clinical setting. A clinic using the Addiction Severity Index–Multimedia Version must have computers available for client use in a room where the client will not be bothered while taking this assessment test (Butler, et al., 2001).

When comparing the Addiction Severity Index–Multimedia Version to the Standard Addiction Severity Index, the amount of training received by the counselors who administer the Standard Addiction Severity Index raises serious questions about the validity of the Standard Addiction Severity Index (McLellan, et al., 1990). The essential subjectivity inherent in the framing of questions, making ratings and scoring, influences the quality of data in the Standard Addiction Severity Index (McLellan, et al., 1990).

The Addiction Severity Index–Multimedia Version has no interviewer and therefore there are no interviewer severity ratings. The severity ratings for each of the seven Addiction Severity Index domains comprise one of the two scores traditionally used to summarize client data on the Addiction Severity Index (Butler et al., 2001). Without an interviewer it may be hard to compare severity ratings between these two assessment tests (Butler et al., 2001).

Organization of the Remaining Chapters

The remainder of this research study will be divided into four more main sections: Review of the Literature; Methods; References; and Appendices. The Review of the Literature will be divided into seven subsections: Introduction; Independent and Dependent Variables; Representative Sample, Research Methods; Data Collection; Relevant Topics; and Summary. The Methods section will be divided into nine subsections: Research Design; Target Population; Selection of Participants, Variables and Measures; Procedures; Research Questions; Data Collection; Data Analysis; and Expected Findings. The Reference section consists of fourteen references. The Appendix section consists of: the Informed Consent form used in this study; table one, characteristics of clients with substance abuse disorders; and table two, ASI reliability correlations among clients with substance abuse disorders.

Review of the Literature

Introduction

This study will discuss the efficacy of the Addiction Severity Index–Multimedia Version as compared to the Standard Addiction Severity Index. The proposal will present the rationale for using a self-administered Multimedia Version of the Addiction Severity Index in place of the Standard Addiction Severity Index and compare the test-retest reliability, criterion validity, and construct validity of these two assessment instruments.

Thomas McLellan (McLellan, et al., 1990) and his colleagues developed the Standard Addiction Severity Index. As originally designed, the Standard Addiction Severity Index is a structured sixty-minute, face-to-face clinical interview for substance abusers that enables a trained interviewer to obtain a clear and consistent picture of the difficulties and levels of

functioning of a client in seven important domains (McLellan, et al., 1990). These domains include: medical Status, employment status, drug use, alcohol use, legal status, family/social relationships, and psychiatric status. (McLellan, et al., 1990).

The Addiction Severity Index-Multimedia Version is a Compact Disc-Read Only Memory or CD-ROM based simulation of the interview-administered Standard Addiction Severity Index (ASI-MV, 2003). The development and field-testing of the Addiction Severity Index-Multimedia Version was funded by a grant from the National Institute on Drug Abuse or NIDA (ASI-MV, 2003). The Addiction Severity Index–Multimedia Version presents questions of the standard interview version of the Addiction Severity Index in a virtual interview. The interview is conducted by on-screen interviewers who introduce the user to the program and present the questions much as an interviewer might. The user answers by using the mouse to press buttons on the screen representing their answers (ASI-MV, 2003). Rosen, et al., (2000) states that the Addiction Severity Index–Multimedia Version provides both of the Standard Addiction Severity Index's summary scores: the Composite Scores for each Addiction Severity Index domain and a mathematically derived, reliable estimate of the Interviewer Severity Ratings. The Addiction Severity Index–Multimedia version questions are presented in both text and audio for those who cannot read. As the answers are read, the relevant button is highlighted so users who are illiterate can tell which on-screen button represents their answer (ASI-MV, 2003). The audio and video is produced using professional actors and state-of-the-art, high-quality production values. Literate users can answer questions and move ahead at their own pace (Hunsinker, 2003).

Independent and Dependent Variables

According to Butler, Newman, Cacciola, Frank, Budman, and McLellan (1998) clients in treatment self-administered the Addiction Severity Index–Multimedia Version to examine the test-retest reliability, criterion validity, and construct validity of the Addiction Severity Index–Multimedia Version. Excellent test-retest reliability was observed for composite scores and severity ratings. Criterion validity, tested against the interviewer-administered Addiction Severity Index, was good for the composite scores (Butler, et al., 1998). For severity ratings, variable agreement was observed between the scores of the Addiction Severity Index–Multimedia Version and each interviewer of the Standard Addiction Severity Index, suggesting poor interrater reliability among interviewers of the Standard Addiction Severity Index (Butler, et al., 1998). A finding of superior construct validity for both composite scores and severity ratings compared to the Standard Addiction Severity Index bolstered this conclusion. The Addiction Severity Index–Multimedia Version is a viable alternative to the expensive and potentially unreliable interviewer-administered version of the Addiction Severity Index (Butler, et al., 1998).

Comparison measures, administered to participants in the construct validity study, were selected to be comparable to those used by McLellan in the Standard Addiction Severity Index and according to McLellan (McLellan, et al., 1990) the Addiction Severity Index Alcohol domain was compared with the Michigan Alcoholism Screening Test or MAST. The Michigan Alcohol Screening Test is a twenty-five-item questionnaire that screens for and assesses seriousness of alcohol abuse (McLellan, et al., 1990). The Addiction Severity Index Drug domain was compared with the Drug Abuse Screening Test or DAT. Modeled after the Michigan Alcohol Screening Test, the Drug Abuse Screening Test is a twenty-item assessment of drug abuse and dependence (McLellan, et al., 1990). The legal domain comparison measure was the Antisocial Behavior Checklist or ABC, a forty-six-item measure that taps clients' histories of antisocial behaviors, such as running away from home, defaulting on debt, resisting arrest, and so forth. The Antisocial Behavior Checklist differentiates individuals with long histories of criminal activity from others (McLellan, et al., 1990). The family/social domain comparison measure was the Extended Family Subscale of the Social/Antisocial – Severity Rating. This subscale taps concepts around family attachment and level of conflict within the family (McLellan, et al., 1990).

Finally, the Addiction Severity Index Psychiatric domain was compared with the Hopkins Symptom Checklist, a popular self-report measure of a wide array of psychiatric symptoms. The Global Assessment of Functioning or GAF is a one-hundred-point tool, rating overall psychological, social and occupational functioning of people eighteen years of age and older. The Global Assessment of Functioning has good psychometric properties and is widely accepted as a measure of psychiatric distress (McLellan, et al., 1990).

Standard Addiction Severity Index Composite Scores

The Standard Addiction Severity Index is an interview designed to detect and measure the severity of potential treatment problems in seven areas commonly affected by alcohol and drug dependence. These areas are: medical, employment, alcohol, drug, legal, family/social and psychiatric problems. When the instrument was constructed, these problem areas were specifically selected and questions were included to tap potential problem symptoms in each area (McLellan, Luborsky, Cacciola, and Griffith, 1984).

The Standard Addiction Severity Index was made to be a reliable and valid measure of patient status in each of the seven areas: measures which could be compared at the start of treatment and at subsequent evaluation points as a means of detecting improvement (McLellan, et al., 1984). Two types of these general status measures are used in the Standard Severity Index. First, the "severity ratings" allow a trained interviewer to estimate problem severity in each of the ASI areas, using a ten-point scale. These ratings produce reliable and valid estimates of patient status in each area and are of great practical value in 1) summarizing the patient's overall status at treatment admission, 2) formulating an initial treatment plan and 3) providing a general prognosis for treatment (McLellan, et al., 1984). However, despite their reliability and validity these severity ratings are subjective estimates of patient status and may not be appropriate as criteria for measuring change (Cronbach and Furby, 1970).

For this reason, the Standard Addiction Severity Index uses a second type of general status measure in each problem area based upon the sum of several individual questions within the problem area. There is no evidence to suggest that any single item should be weighted more than any other item in the determination of the general problem status measure (Cronbach and Furby, 1970). The selective combination of items from each of the Standard Addiction Severity Index problem areas has resulted in general measures of patient status in each area. These measures are mathematically derived and have shown reliability and validity in several settings (McLellan, et al., 1984). These composite score measures may be calculated from the Standard Addiction Severity Index results and are appropriate as change measures or outcome indicators in all standard analyses (McLellan, et al., 1984).

Representative Sample

According to Butler, et al., (2001) many clients coming to public drug or alcohol facilities have poor literacy, little computer experience and are difficult to engage. Butler, et al., (2001) used two hundred clients between the ages of eighteen and seventy-five to participate in their study. Inclusion criteria for participation included: primary diagnosis of substance abuse or dependence, enrolled in treatment for at least three days, deemed stable enough to complete study procedures, and willingness to sign informed consent (Butler, et al., 2001). Stabilization of the client was a subjective decision made by the treatment staff and clients were compensated for participation in the study (Butler, et al., 2001). The two hundred clients in substance abuse treatment served as participants in the study and were exposed to the Addiction Severity Index–Multimedia Version. Participants for the reliability and validity studies overlapped, so some participants' data contributed to two studies. All participants were exposed to the Addiction Severity Index–Multimedia Version assessment program. (Butler, et al., 2001).

Butler, et al., (2001) obtained demographic data from answers to the Addiction Severity Index–Multimedia Version; this stated that the study participants' average age was thirty-four

with a standard deviation of nine and a range of eighteen to seventy-three years. The sample was composed mostly of men (sixty-two percent) and was mostly Caucasian (sixty-four percent); thus, a bit more than one third of the sample (thirty-six percent) were minority participants. Butler, et al., (2001) used a sample of clients that generally reflects the ethnic and gender distributions found nationally for substance abusers in treatment. This sample slightly under sampled Hispanic persons in treatment. Most participants used alcohol (eighty-five percent), cocaine (sixty-four percent), and marijuana (seventy-two percent). The largest percentage (forty-two percent) reported alcohol and drug use as their primary problem, followed by alcohol only (twenty percent) and polydrug use (twelve percent). Finally, the mean education level was twelve years; however, nearly thirty percent of the sample had less than a high school education (Butler, et al., 2001).

Sia, Dansereau, and Czuchry, (2000) state that clients who are legally coerced into substance abuse treatment often have low intrinsic motivation to participate, are less ready for treatment, and are consequently more problematic to treat and less satisfied with their treatment than are voluntary clients. Based on their response to an intake interview, probationers were categorized as having low, medium, or high readiness for treatment (Sia, et al., 2000). According to (Sia, et al., 2000) probationers with higher initial levels of readiness for treatment rated their counselors, sessions, and treatment staff higher than did probationers with lower levels. The results suggest that readiness training activities may help probationers become more involved in treatment and that this may lead to greater satisfaction with therapists and sessions (Sia, et al., 2000). The population to be used for my study consists of probationer and parolees who are all felons, and are enrolled in a court-mandated intensive outpatient substance abuse treatment program.

Research Methods

The Addiction Severity Index–Multimedia Version was tested in an extensive scientific trial (Butler, et al., 2001) where it was found that the reliability and validity of this multimedia version is as good as or better than the Standard Addiction Severity Index. It is also clear that the Addiction Severity Index–Multimedia Version is much cheaper to use than the Standard Addiction Severity Index (Butler, et al., 2001). More reliable and consistent data can be obtained from the Addiction Severity Index–Multimedia version at a fraction of the cost of the Standard Addiction Severity Index (Butler, et al., 2001). Butler, et al., (1998) was even able to deal with the severity-rating problem (the interviewer's subjective rating) by developing a scientifically derived algorithm that consistently generates a severity rating, which highly correlates with severity rating scores from expert standard Addiction Severity Index interviewers.

Butler, et al., (2001) used an overall design that called for three studies: study one was an examination of the test-retest reliability of the Addiction Severity Index –Multimedia Version; study two was an assessment of criterion validity of the Addiction Severity Index – Multimedia Version; and study three examined convergent-discriminant or construct validity of the Addiction Severity Index–Multimedia Version. Inclusion criteria were the same across all studies.

Study one proceeds to examine test-retest reliability. Sixty participants completed the Addiction Severity Index– Multimedia Version at two times separated by three to five days (Butler, et al., 2001). This procedure was similar to that of (McLellan, et al., 1990), who argued that a three-day separation would be enough to reduce the likelihood of participants' simply repeating answers from memory and short enough to reduce the possibility of genuine changes in the clients' situations. After a brief introduction, all clients completed the Addiction Severity Index–Multimedia Version without assistance. Three to five days later (depending on participants' schedules), a return visit was scheduled for the participant to complete the Addiction Severity Index–Multimedia Version a second time (Butler, et al., 2001).

Butler, et al. (2001) used study two to examine criterion validity, and evaluated criterion validity by comparing the Addiction Severity Index–Multimedia Version with a gold standard, in this case, the Standard, interviewer-administered Addiction Severity Index. One hundred and forty-two participants were administered both the Addiction Severity Index–Multimedia Version and the Standard Addiction Severity Index three to five days apart. Order of administration was counterbalanced in order to minimize any order effect (Butler, et al., 2001).

In study three, which covers construct validity, Butler, et al., (2001) had one hundred-ten clients participate in the study. Participants completed the Addiction Severity Index–Multimedia Version followed by the comparison measures listed above. Some participants also served in the test-retest study, and some also served in the criterion validity study described above. Because those who served in the criterion study also were administered the Standard, interviewer version of the Addiction Severity Index, these participants' data was used to examine the discriminant validity of the Standard version of the Addiction Severity Index (Butler, et al., 2001).

Butler, et al. (2001) had seven staff members who were referred by the participating sites to undergo Standard Addiction Severity Index training and administer the Standard Addiction Severity Index for the research project. DeltaMetrics, Inc. conducted the two-day Standard Addiction Severity Index training, to ensure that official Standard Addiction Severity Index training procedures were used (McLellan, et al., 1990). DeltaMetrics was used as the site for all training, as this company is the primary source of Standard Addiction Severity Index training for research and clinical purposes. The training covered the goals and objectives of the Standard Addiction Severity Index: coding and rating procedures; a coding quiz; scoring of video vignettes; and skill building exercises, including role-plays (McLellan, et al., 1990). Two months after the training, a quiz on Addiction Severity Index knowledge was administered and scored by DeltaMetrics, and feedback was given to the interviewers. Five months after training, DeltaMetrics conducted a one-day booster session. Finally, a scored Addiction Severity Index from each rater was sent to DeltaMetrics for review, comments, and feedback. These procedures reflect state-of-the-art Addiction Severity Index training (McLellan, et al., 1990).

Data Collection

One of the goals of the Addiction Severity Index–Multimedia Version is to develop a tool that is easily used by clients in substance abuse treatment (ASI-MV, 2003). In order for the Addiction Severity Index–Multimedia Version to be accepted by this population it has to be simple to use, highly interactive, interesting and attractive. The Addiction Severity Index–Multimedia Version uses video, on-screen characters (actors), engaging graphics and sound. These visual and audio prompts have made it possible for those with reading difficulties to successfully self-administer the program (ASI-MV, 2003). The Addiction Severity Index–Multimedia Version uses a program with a virtual city as its format. In this virtual city the client is introduced to two guides who bring them to interviews in onscreen offices (ASI-MV, 2003). These offices represent the seven sections or domains of the Addiction Severity Index. In each of these offices clients meet an interviewer who focuses on a particular domain of the Addiction Severity Index. For example, in the medical section, the client is brought to a doctor's office to be interviewed by an onscreen physician regarding his or her health issues (ASI-MV, 2003). Throughout the Addiction Severity Index – Multimedia Version the client is reinforced for continuing the assessment, for example, "you are doing really well, now let's go to the employment office, where Mr. Rivera will ask you a few questions" (ASI-MV, 2003). In the original version of the Addiction Severity Index–Multimedia Version the program was run on a computer with a touch screen monitor, but it was found that these monitors were costly and prone to breakdown, so the program was changed to use a mouse (ASI-MV, 2003). It was found that even those clients with no prior computer experience, easily learned to use a mouse in under three minutes (ASI-MV, 2003).

Hunsinker, (2003) believes that multimedia technology may overcome some of the drawbacks of self-report. Concerns about illiteracy were minimized by using audio (spoken text) as well as video qualities of the interactive media. Presentation of interview questions by on-screen personalities may approximate a rudimentary relationship with the client (Hunsinker, 2003). Indeed, it is possible that the less interpersonal contact offered by the computer may enhance the quality of information obtained from clients, for example, if clients feel less threatened by judgments of an interviewer, they might give more accurate information about substance use and other socially undesirable life circumstances. This has been found to be true in computer surveys of sensitive information, such as high-risk sexual activities or injection drug use (Hunsinker, 2003).

Rosen, et al. (2000) found that one problem with a computerized, self-administered Addiction Severity Index is that without an interviewer, there can be no interviewer severity ratings. Severity ratings for each of the Addiction Severity Index domains comprise one of the two scores traditionally used to summarize client data on the ASI. Unlike the composite scores, which are derived from equations, the Interview Severity Ratings are the subjective ratings of interviewers. Although the Standard Addiction Severity Index's authors cautioned against use of the severity ratings (McLellan et al., 1990), they remain a popular summary statistic in clinical settings. To address this problem regression equations were derived that result in predicted severity ratings for each Addiction Severity Index domain using several large data sets of research-based severity ratings (Butler et al., 1998). These equations permit the calculation of severity ratings that achieve reliability coefficients with expert Addiction Severity Index interviewers that are as good as or better than specially trained human interviewers (Butler et al., 1998). Thus, the Predicted Severity Ratings permit the Addiction Severity Index–Multimedia Version to estimate Interview Severity Ratings. Furthermore, because standard Addiction Severity Index training does not include formal tests of interrater reliability, these equations may provide superior estimates of experts' ratings and ratings that do not drift or are otherwise biased (Butler, et al., 1998).

Relevant Topics

Recently researchers completed and tested a Spanish language version of the Addiction Severity Index–Multimedia Version and are in the process of developing and testing a Chinese version in Mandarin and Cantonese (ASI-MV, 2003). They are also developing a multimedia, adolescent Addiction Severity Index that fixes many of the problems that have been found in substance abuse evaluation tools for teens (ASI-MV, 2003).

The field trial completed by Butler and his colleagues (Butler, et al., 2001) was conducted at five substance abuse treatment centers in New England. Sites were selected to achieve a multistate sample of clients with a range of characteristics and from a variety of treatment settings. Two sites, a prison diversion facility and a residential facility, were located in New Hampshire. The New York site was both a day treatment and residential facility. The sites in Massachusetts and Rhode Island were residential facilities (Butler, et al., 2001).

Butler, et al. (2001) states that his project was supported, in part, by Small Business Innovative Research Grant 2R44DA09938 from the National Institute on Drug Abuse; he also acknowledges Tom McLellan for encouraging him to pursue the idea of a computer-administered Addiction Severity Index.

Summary

Butler and his colleagues (Butler, et al., 2001) had an objective to develop a self-administered computer version of the Addiction Severity Index, the Addiction Severity Index–Multimedia Version, and to conduct evaluations of its test-retest reliability (Study 1), criterion validity (Study 2), and construct validity (Study 3).

The Addiction Severity Index–Multimedia Version is a computer-administered version of the Standard Addiction Severity Index that requires minimal staff time and has client completion

time that is comparable to the standard interview (Butler, et al., 2001). Financially hard-pressed agencies would find that the Addiction Severity Index–Multimedia Version represents a rational distribution of resources and would free clinical staff to attend to direct clinical matters (Butler, et al., 2001). In comparison to the Standard Addiction Severity Index, Butler and his colleagues (Butler, et al., 2001) showed that the Addiction Severity Index–Multimedia Version demonstrates acceptable test-retest reliability, good criterion validity, and acceptable construct validity. According to Butler the Addiction Severity Index–Multimedia Version should be more acceptable and successful for most clinical and research purposes than the standard Addiction Severity Index (Butler, et al., 2001). The present data suggests further that the Addiction Severity Index–Multimedia Version may not only provide a more economical assessment than the standard Addiction Severity Index, but it may also generate more reliable and valid data than a Standard Addiction Severity Index conducted by trained and untrained interviewers (Butler, et al., 2001).

It is conceivable that a self-administered computerized version of the Addiction Severity Index, such as the Addiction Severity Index–Multimedia Version, would come to reflect greater standardization of the Addiction Severity Index assessment process, uninfluenced by variability in training procedures, rater drift, and pressures to meet certain outcome or admission criteria (Rosen, et al., 2000).

Methods

Research Design

This quantitative study was chosen as a way to compare the Standard Addiction Severity Index to the Addiction Severity Index–Multimedia Version as assessment tools in intensive outpatient substance abuse treatment centers. The study will examine aspects of reliability, validity, and utility of both assessment tools administered to participants with substance abuse disorders enrolled in an intensive outpatient substance abuse programs. The overall design of the proposal calls for three studies: study one will examine the test-retest reliability of the Addiction Severity Index–Multimedia Version and the Standard Addiction Severity Index; study two will assess the criterion validity of the Addiction Severity Index–Multimedia Version and the Standard Addiction Severity Index; and study three will examine the construct validity of the Addiction Severity Index–Multimedia Version and the Standard Addiction Severity Index. All three studies of this proposal will have the same inclusion criteria for participants in the study. Spearman-Brown and Pearson correlation coefficients will be calculated to examine the extent of agreement among client responses.

Target Population

The sample of participants reflects the ethnic and gender distributions found locally in the Inland Empire for substance abusers in outpatient treatment centers. A Matrix survey of substance abuse treatment centers in the Inland Empire indicates that about thirty-two percent of substance abusers in treatment locally are female, and about fifty-seven percent are White, twenty-five percent are Hispanic, fourteen are African-American, and three percent are of other nationalities (Brethen, 2000). The sample of participants in this study used methamphetamine, marijuana, and alcohol respectively as their drugs of choice (Brethen, 2000). The mean education level will be twelve years; however, nearly thirty percent have less than a high school education (Brethen, 2000).

Selection of Participants

My study used 62 participants that were selected from a cross-sectional sample of clients enrolled in an intensive outpatient chemical addiction treatment center. All participants are on probation or parole and are court mandated to be in intensive outpatient substance abuse treatment. Inclusion criteria for participation includes: participants between the ages of eighteen and sixty-five; participants who have a primary diagnosis of substance abuse or dependence on methamphetamine, marijuana or alcohol; participants who have been in treatment for at least

three days; participants who are deemed stable enough to complete study procedures; participants who are court mandated to enroll in chemical addiction intensive outpatient treatment services; and participants willing to sign an informed consent form which states that they will consent to being audiotaped and videotaped (Appendix A). Participants agreed to an initial orientation interview and an exit interview; participants were compensated for both interviews and for taking both assessment tests.

Measures and Variables

The measures and variables for this research were observed in three studies: study one is an examination of the test-retest reliability of the Addiction Severity Index-Multimedia Version and Standard Version; study two is an assessment of the criterion validity of the Addiction Severity Index-Multimedia Version and Standard Version; and study three examines the construct validity of the Addiction Severity Index-Multimedia Version and Standard Version.

All participants were required to submit a urine sample, and the urine samples were tested for methamphetamine, marijuana, and alcohol. This testing took place at the conclusion of the first Addiction Severity Index-Multimedia Version or Standard Addiction Severity Index assessment. Participants that tested dirty had their assessment results removed from the study.

Procedures

Procedures to examine test-retest reliability had participants complete the Addiction Severity Index-Multimedia Version and Standard Version at two different times, separated by three days. Half the participants took the Addiction Severity Index – Multimedia Version twice and the other half took the Standard Addiction Severity Index twice. This procedure is similar to that of McLellan (McLellan, Luborsky, Cacciola, Griffith, Evans, et al., 1985) who believed that a three-day separation would be enough to reduce the occurrence of participants simply repeating answers from memory and short enough to reduce the occurrence of real changes occurring in the participants life. These participants were asked to try and focus on the present Addiction Severity Index and not the questions from the first Addiction Severity Index they completed three days earlier. After a short explanation, all participants completed the Addiction Severity Index-Multimedia Version without assistance and the Standard Addiction Severity Index with an interviewer. I was the interviewer for all participants taking the Standard Addiction Severity Index in this proposal. Three days later a return visit was scheduled for the participants to complete the second Addiction Severity Index.

Procedures to examine criterion validity were measured by comparing the Addiction Severity Index-Multimedia Version to the Standard interviewer-administered Addiction Severity Index. A different group of participants than were used in study one will take both versions of the Addiction Severity Index, and their scores were compared. The order of the tests will be counterbalanced to minimize any order effect (McLellan, et al., 1985).

Procedures to examine the construct validity of the Addiction Severity Index–Multimedia Version had the participants complete the Addiction Severity Index–Multimedia Version followed by the comparison measures listed above. Some participants also participated in the test-retest study (study one), and some participated in the criterion Validity study (study two) described above. Participants in study one and study two took both versions of the Addiction Severity Index; therefore this data will be used to examine the construct or convergent-discriminant validity of the Standard Addiction Severity Index and the Addiction Severity Index–Multimedia Version.

Research Questions

The primary objective of this research study was to evaluate the Addiction Severity Index–Multimedia Version and the Standard Addiction Severity Index on their test-retest reliability, criterion validity, and construct validity. Is a client self-administered Addiction Severity Index–

Multimedia Version a rational resource for financially hard-pressed substance abuse treatment facilities? Will the Addiction Severity Index–Multimedia Version reflect greater standardization of the Addiction Severity Index assessment process? Is the Standard Addiction Severity Index influenced by variability in training procedures, rater drift, and pressures to meet certain outcome or admission criteria, while the Addiction Severity Index–Multimedia Version is not?

Data Collection

The field trials for this proposed research project were all held in the same office at the Matrix Institute on Addictions. Introductions were given to the participants before they took the Addiction Severity Index–Multimedia Version and Standard Version, this took place on the same computer or desk with the same surroundings. All test results were kept in a locked filing cabinet in this same office at the Matrix Institute.

All participants received a thirty-minute interview to introduce them to the study and to determine if they meet the inclusion criteria of this proposed study. The interview also explained to the client what the study is about and how the study will work. Clients who meet the inclusion criteria were asked to sign and date an informed consent document (Appendix A); this form will also be signed by me. The Institutional Review Board (IRB) must approve this informed consent document (Appendix A) before it can be used. These forms will then be locked into a file cabinet in the Matrix office. The Addiction Severity Index–Multimedia Version computer program calculates all of the Addiction Severity Index–Multimedia Version test scores. The Standard Addiction Severity Index interviews and results will be conducted and hand scored by me. These results will also be kept in a locked file cabinet in the same Matrix office.

Data Analysis

Test re-test reliability correlations are presented in a table along with the computer generated estimation of the Interviewer Severity Rating. This table compares results from the Addiction Severity Index – Multimedia Version and the Standard Addiction Severity Index.

The concept of criterion validity in this research study is very complex. Criterion validity consists of concurrent and predictive validity: does the Addiction Severity Index – Multimedia Version relate to the Standard Addiction Severity Index in terms of assessing the readiness of clients to enter into an intensive outpatient substance abuse program; and how well do these two assessments predict a clients performance in an intensive outpatient substance abuse program? Comparing it to the Standard Addiction Severity Index will validate the criterion validity of the Addiction Severity Index–Multimedia Version. When another measure is used as the criterion (comparison) a Pearson Correlation will be used to establish evidence of criterion validity (Butler, et al, 2001).

This study attempted to replicate the construct validity test conducted by McLellan (McLellan, et al., 1985). This assessment of validity requires that three conditions be met: each Addiction Severity Index–Multimedia Version domain score was correlated with its designated comparison test, the Standard Addiction Severity Index; each domain was more highly correlated with its designated comparison test (Standard Addiction Severity Index) domain, and a comparison test was more highly correlated with its paired Standard Addiction Severity Index domain score (McLellan, et al., 1985).

Expected Findings

Overall this study shows the Addiction Severity Index–Multimedia Version performs quite well as an assessment tool in an intensive outpatient substance abuse treatment center. Test-retest reliability was excellent, and higher than the Standard Addiction Severity Index, suggesting that the Addiction Severity Index–Multimedia Version is a valid and reliable assessment instrument. Construct (convergent-discriminant) validity analysis provided strong support for the Addiction Severity Index–Multimedia Version as a more valid and reliable assessment instrument than the Standard Addiction Severity Index.

Criterion Validity results showed that the Addiction Severity Index–Multimedia Version is a very reliable assessment tool to be used in substance abuse treatment centers. The Addiction Severity Index–Multimedia Version also showed better criterion validity than the standard Addiction Severity Index, reinforcing that clients tend to be more honest to a computer than to a person (Turner, Ku, Rogers, Lindberg, Pleck, 1998). If the participant feels less threatened by interviewer judgments they may give more accurate information about substance abuse and other socially undesirable behaviors to a computer (Turner, et al., 1998).

APPENDIX A Informed Consent Form

Researcher: Nicholas A. Nardone

Participant Name: Rhonda Research

Address: 1234 Psychology Lane

Phone Number: (909) 123-4567

Thank you for agreeing to participate in this study that will take place from May 25, 2005 to July 25, 2005. This form outlines the purposes of the study and provides a description of your involvement and rights as a participant.

The purpose of this study is to present the reasons for using the ASI-MV as the main assessment instrument in intensive outpatient substance abuse treatment centers.

To participate in this study one must be over eighteen years old and be actively participating in an intensive outpatient substance abuse treatment facility as an addicted client.

You will be asked to participate in an initial orientation and an exit interview when the study is complete. You will also complete two assessment tests on different days. You will be paid for both interviews and both assessment tests.

The methods used to collect information in this study will consist of taking two assessment tests. The tests will be the standard ASI or the ASI-MV, and three to five days will separate taking the two tests. The results of these tests and everything else you do in this study will be confidential. Your name will not be used in any of my reports.

I will guarantee that the following conditions will be met:

1. Your real name will not be used at any time during or after this research study.
2. If you grant me permission to audio or video tape you, no audiotapes or videotapes will be used for any purpose other than the study. These tapes will be destroyed at the end of the study.

Your participation in this study is voluntary; you have the right to withdraw at any time during the study; for any reason and without any prejudice. The information collected along with any records or reports written will be destroyed when the study is completed.

You will receive a copy of the final report, the same one that will be handed in to my instructor.

Do you grant permission to be quoted directly? Yes _____ No _____

Do you grant permission to be audiotaped and/or videotaped? Yes _____ No _____

I agree to all of the above terms:

Respondent _____ Date _____

Researcher _____ Date _____

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ACKNOWLEDGEMENTS AND NOTICES

This article was prepared by Nicholas A. Nardone, Dr.AD, who earned his Doctor of Addictive Disorders (Dr.AD) degree from Breining Institute. Dr. Nardone also holds a Master of Science in Addiction Psychology from Capella University.

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