Gareth Stack - Lab Group 2

Date of practical - 28/01/04 / Date of Submission - 12/02/04

Psychometric Assessment: Evaluation of the MMPI-2

ABSTRACT

The Minnesota Metaphasic Personality Inventory-2, a clinical personality inventory, was investigated. A small group of undergraduate students of mixed age and gender, completed the first 361 of the 567 question statements on the MMPI-2. Responses to these questions were then scored on four scales; depression (2), hypochondriasis (1), lie (L), and frequency (F), and individual z-scores were found for each of these measures. As MMPI-2 answering patterns, rather than specific scales are typically used for clinical diagnosis, no conclusions were inferred from the scores on these scales.

The development of personality inventories as a tool for clinical diagnosis was discussed, and the use, reliability, and validity of the MMPI-2 was assessed. Finally this participant's impressions of the process of completing the assessment, and issues it raised, were related. Caution was suggested in viewing MMPI-2 scores out of the context of a complete clinical investigation.

TABLE OF CONTENTS

Page No.

INTRODUCTION

The valid psychological study, assessment and classification of personality and disorder are fraught with potential difficulties. Does personality exist? Are traits, types and characteristics of personality fixed and identifiable? Are these features solely cultural, completely inherited or the result of the impact of environment on a pre-existing genetic diathesis?

The origin of the application of psychometric assessments to the study of personality, can be traced back to the development of statistical measures of psychological characteristics by Sir Francis Galton (1822-1911); Galton's work laid the groundwork for the emergence during the interwar years of a series of personality assessments which attempted to correlate self reported surveys to personality characteristics and psychological disorders. The first of these, the Woodworth Personal Data sheet, was a logical-content scale, which was developed by attempting to deduce responses which would indicate a particular disorder or characteristic (Hathaway & McKinley, 1943, quoted in Kaplan and Saccuzzo, 1997). Personality assessments reached their culmination in the Minnesota Multiphasic Personality Inventory (MMPI), developed using a criterion group strategy, where statements which produced a differentiated correlation between clinical patients and 'normal' controls, were selected from amongst many potential indicators of pathology provided by clinicians, to represent final test questions.

Personality inventories, self administered psychometric measures of attitudes, beliefs and tendencies, attempt to provide a quantifiable insight into the nature of personality and the characteristics of abnormal psychological disorder. Personality inventories (as distinct from intelligence or aptitude tests) make several basic assumptions in order to generalize theoretical categorisations across the variance of individual human personality. One assumption is the equation of deviance with mental illness, for example on the MMPI-2 (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) personality inventory, holding 'deviant' attitudes or beliefs will raise scores on several scales correlated with a variety of disorders, although these beliefs do not in themselves imply psychological illness.

Personality inventories assume a degree of continuity of personality (the reliability of which is judged by retesting), additionally, when used as a measure of disorder, they take for granted that homogeneity of scores, across a group suffering from a given

clinical disorder, can produce patterns predictive of pathology (Lanyon & Goodstein, 1997).

Interestingly while the wider psychometric assessment of personality adopts a nomothetic paradigm of trait or type fixity (for example Eysencks three dimensions of personality, or a five factor model), by utilizing scales correlated with disorder as a diagnostic tool, inventories such as the MMPI-2 (Butcher, et al, 1989) are based upon presumptions of a degree of fluidity (i.e.: treatability) of psychological disorder.

The MMPI-2 (Butcher, et al, 1989), a revision of Hathaway and McKinleys's original 1943 test, is a tool used today to psychologically assess people for a variety of purposes. In the setting of a psychotherapy consultation or assessment, the MMPI-2 (Butcher, et al, 1989) can provide a clinician with a 'normative framework' from the perspective of which a therapist may comparatively weigh the severity and nature of a client's clinical, and sub-clinical problems (Butcher, 1990). However in the United States the MMPI-2 (Butcher, et al, 1989) has outgrown its original use and is currently used as part of prison admission process (Gallaghar, Somwaru, & Ben-Porath, 1999), forensic assessments (Berry & Butcher, 1998) and even child custody proceedings (Hartman-Crouch, Tanya 2000), arguably extending the test beyond its ethical usefulness.

The MMPI-2 (Butcher, et al, 1989) includes 10 basic clinical scales; seven validity scales (lie, defensiveness, infrequency, back f, variable response inconsistency, true response inconsistency, and cannot say); content scales, content component scales, and supplementary scales (Van Rooyen, 2002). For this study, only four of these scales, Lie (L), Frequency (F), Hypochondriasis (1) and Depression (2) were measured.

METHOD

Design

Participants were tested in a single trial on a one to one basis. Each participant was asked to complete the first 361 of the 567 dichotomous multiple choice questions comprising the MMPI-2. Results were then scored on four scales, Depression (2), Hypochondriasis (1) , Lie (L) and Infrequency (F).

Participants

Approximately 20, mixed gender students of University of Dublin, Trinity College, participated in the experiment as part of a course in 'Practicals Methodology and Statistics'. Participants were of Irish nationality; and included both mature and post secondary first and second year students.

Procedure

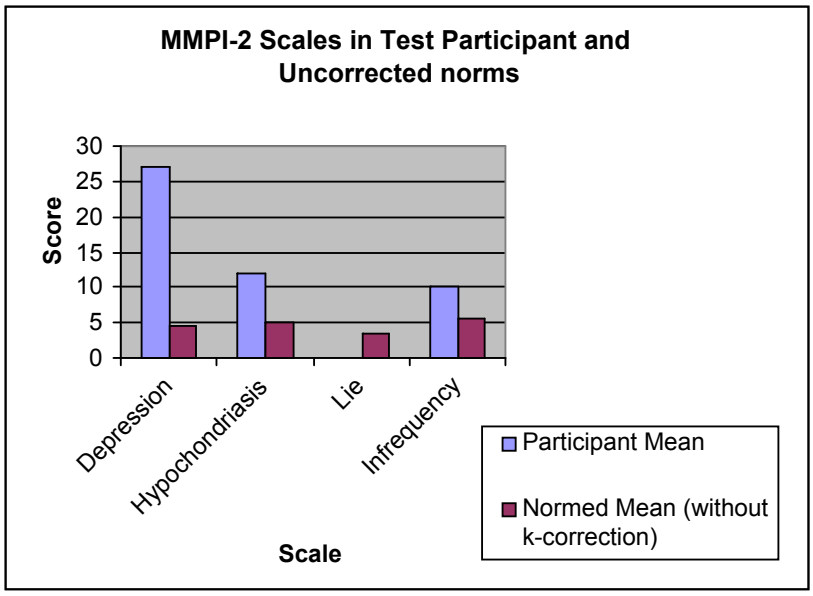
The experiment conducted was a measurement study. Participants were presented with the revised Minnesota Metaphasic Personality Inventory–2, and given approximately fifteen minutes to complete it. Participants scored their own individual tests, and produced their own z-scores.

Materials

The MMPI-2, a pen and paper personality inventory.

RESULTS

This participants raw, and z-normalized scores, were as follows. Depression Scale (2), score = 27, z = 1.89; Hypochondriasis Scale (1), score = 12, z = 1.82; Lie Scale (L), score = 0, z = 1.55; Infrequency Scale (K), score = 10, z = 1.69.



DISCUSSION

It seemed clear to this participant from the outset that the MMPI-2 was testing a deliberately disordered series of questions on a variety of scales, however the amount or specific type of criteria being measured were not immediately obvious. Some scales, such as depression, paranoia, and introversion were highlighted by the stereotypical behaviours outlined in several of their questions (e.g.: Q. 56. “I wish I could be as happy as others seem to be”, scores on the depression (2) scale).

Whilst this participant attempted to answer the MMPI-2 (Butcher, et al, 1989) as honesty as possible, it appeared obvious, a priori, that a lie scale was in operation. Although questions on this scale varied in their subtly, it subjectively appeared relatively easy to achieve a low score whilst dishonestly answering other parts of the test. Although the study of psychology sensitised this participant to the use of scales within this inventory, knowledge of lie scales extends to many well educated people (and could arguably be easily inferred from participation in the test), thus while a psychology student may be more aware of what impression their answers are conveying, if he or she attempts to complete the MMPI-2 (Butcher, et al, 1989) honestly, prior knowledge should present no more of a confound than exists for lay test takers.

The test did not follow a continuous theme, with questions jumping from one area of investigation to another (for example Q. 95. the relatively innocuous mood measure, ‘I am happy most of the time’, was followed by Q. 96. “I can see things or animals or people around me others do not see”). There are several potential purposes behind this scattering of questions, for example it obfuscates the true intent of the measure (making dishonest strategies, such as faking-good more difficult); if subtle statements were grouped with more extreme statements addressing a similar dimension or scale, all but the most clinically disturbed test sitters, would find the results easy to manipulate. Additionally the non-linearity of the MMPI-2 (Butcher, et al, 1989) allows the inclusion of scales designed to detect invalidating bias, such as dishonesty or defensiveness.

Similarly, the varying of positive and negative wording within most of the scale, helps in theory to prevent easy interpretation of what is being measured by the MMPI’s

questions, and reduces the likelihood of acquiesce (i.e.: the tendency to agree, in order to appear compliant), as test sitters are less likely to form a pattern of agreeable or disagreeable answering, if the not all positively worded statements represent a positive characteristic and vice versa.

The MMPI-2 (Butcher, et al, 1989), although appropriate for the testing of adults of normal intelligence and reading ability requires a minimum reading age of US grade 8 (Butcher, 1989), and as such is not suitable for adults with learning difficulties, and or low literacy levels. Additionally the MMPI-2 (Butcher, et al, 1989) is not recommended for children under 18, as in addition to possible issues of comprehension and age appropriateness, population norms for this age group are different to those of the adult population. For this reason the MMPI-A (Minnesota Multiphasic Personality Inventory – Adolescent) was developed for use with clients under the age of 18 (Graham, 2000). Additionally it is important to remember that norms for a given society or culture must be obtained before comparisons can be made when non-US groups (which may deviate from the 1980 U.S census figures used as a sample frame for normalisation of the MMPI-2) are being tested.

Although it may not be possible to measure all aspects of psychological functioning (some, for example sociability, have no ecological validity in an unbiased testing environment), what is required for construct validity is a significant correlation with whatever aspects of personality a given test purports to measure. For example I.Q tests do not measure a g factor directly, but provide a normalised quotient from the application of several tests of varying cognitive functioning (e.g.: verbal fluency, mathematical reasoning etc) from which g is inferred (Barret, 2000).
While admittedly the MMPI-2's (Butcher, et al, 1989) scales do not measure the degree of their nominative labels (e.g.: A high score on the schizophrenia scale does not predict the onset of schizophrenia itself), through the history of their application, the answering patterns generated by the averaged answers of clinically diagnosed patients with a variety of disorders have been recorded and used to predictively assess a variety of disorders, for example eating disorders and neurological disorders (Graham, 2000).

Hence the MMPI-2 (Butcher, et al, 1989) provides a useful indicator of the nature and presence of psychopathology, as part of a wider clinical assessment. It must be remembered that, as the MMPI-2 (Butcher, et al, 1989) relies for its predictive capacity on patterns of correlation, it is subject to the same potential for Type I and II sampling errors as any other normalised statistic. Thus caution should be taken in interpreting the results of an MMPI-2 (Butcher, et al, 1989) in isolation.

REFERENCES

Barret, P. (2000). Intelligence, Psychometrics, Iq, G, and Mental Abilities: Quantitative Methodology Dressed as Science. Retrieved 10 February, 2004 from http://psycprints.ecs.soton.ac.uk/perl/local/psyc/makedoc?id=46&type=xml

Berry, David T. R., Butcher, James N.(1998) Detection of feigning of head injury symptoms on the MMPI-2. In C.R. Reynolds, (Ed), Detection of malingering during head injury litigation. Critical issues in neuropsychology (pp. 209-238). New York: Plenum Press

Butcher, J.N., Dahlstrom, W.G., Graham, J.R., Tellegen, Kaemmer, B. (1989). Minnesota Multiphasic Personality Inventory-2: Manual for administration and scoring. Minneapolis: University of Minnesota

Gallaghar, R. W., Somwaru, D. P., & Ben-Porath, Y. S. (1999). Current usage of psychological tests in state correctional settings. National Journal for Corrections, The Corrections Compendium, 24, 7.

Graham, J.R. (1999). Mmpi-2: Assessing Personality and Psychopathology. UK: Oxford Press.

Hartman-Crouch, Tanya (2000) The Minnesota Multiphasic Personality Inventory-2 in the context of child custody litigation. Dissertation Abstracts International. 61, 2762-.

Kaplan, R.M., Saccuzzo, D.P, (1997). Psychological Testing. Principles, Applications and Issues. USA: Brooks/Cole

Lanyon, R.I., Goodstein, L.D., (1997) Personality Assessment. USA: John Wiley and Sons

Tsushima, W.T., Tsushima, V.G. (2001). Comparison of the Fake Bad Scale and other MMPI-2 validity scales with personal injury litigants. Assessment, 8, 2, 205-212.

Van Rooyen, J. (2002) MINNESOTA MULTIPHASIC PERSONALITY INVENTORY-2. Produce Overview. Retrieved 12 February, 2004 from http://www.vanrooyen.co.za/Products/MMPI-2-TM.htm