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The BEHAVIORAL MEASUREMENTS *Letter*

Behavioral Measurement Database Services

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Enriching the health and behavioral sciences by broadening instrument access

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Vol. 3, No. 1
Fall 1995

Introduction to This Issue

Greetings. I am Al K. DeRoy, the new Editor of *The Behavioral Measurements Letter*. Before summarizing the contents of this issue, I would like to communicate briefly with you, person-to-person, colleague-to-colleague.

You, our readers, are important to us who produce The BML. Therefore, we would appreciate your feedback — any comments or suggestions you may have. If warranted and as space permits, your communication may appear in The BML as a letter to the editor. Address your comments and suggestions to The Editor, *The Behavioral Measurements Letter*, Behavioral Measurement Database Services, PO Box 110287, Pittsburgh, PA 15232-0787. Whether published or not, your feedback will be attended to and appreciated.

We also are soliciting contributions to The BML. Submit, at any time, a brief column (1000 words) or book review on a BML-relevant topic to The Editor at the address supplied above. Each submission will be given careful consideration.

In this issue, Florence S. Downs provides a stern reminder that we must attend to the practical as well as statistical significance of differences between pre- and post- measures of outcomes. In so doing, she stresses the critical importance of instrument quality and the clinical assessment of differences in this time of increasing emphasis on cost containment, and in assessing differences, the importance of thoughtful consideration of what the data actually represent. Fred Bryant presents findings from a recent study of Type A behavior and contrasts them with findings published in a

clinical treatise on the subject. Then, in view of differences between the two sets of findings, he suggests additional variables to be studied and measures to be included in future work on Type A behavior. A brief column "HaPInings," contains news about the HaPI database and recent grants to BMDS. The next column, "Ways to Measure Demographic Variables," discusses a resource to locate items, the *Drug Abuse Instrument Handbook*, published by the National Institute on Drug Abuse (NIDA). This column also introduces two new services available from BMDS, delivery of instrument items covered in the *NIDA Handbook*, and collection and delivery of additional items used to measure demographic variables. Finally, "HaPI Thoughts" presents an unusual drawing that, like a cloud, invites the viewer to decide what the drawing depicts.

As your new editor, it is my hope that The BML will contribute to your knowledge of the broad domain of measurement, for measurement is the basis of advances in both basic and clinical science. And just as the contributions of those who preceded us serve as the foundation of our current work, so that work will serve as the foundation for future work. Progress will be swifter and more substantive if we today utilize the best measuring tools and best practices available, or where such are unavailable, use existing instruments and practices in fashioning new ones. That is the idea underlying the Health and Psychosocial Instruments database, to provide means for us to avoid "reinventing the wheel" and to accelerate the progress of science while improving its products.

HaPI reading

HaPInings

We are continuing to expand and improve the HaPI database in order to provide greater and better services to our users. Thus:

- With our December update, HaPI will contain more than 34,000 records.
- HaPI's coverage is expanding to include more medical journals, public health journals, and education journals.
- In selected records the abstract will include a statement of the instrument's purpose.
- HaPI is adding commercially available instruments from test publishers. Records include the current citation and a citation to the most recent edition.

We believe that these latest improvements will make for HaPIer users.

BMDS is under contract with the National Library of Medicine (NLM) to develop a database of instruments relevant to health services research.

BMDS is also a subcontractor on a National Cancer Institute grant to evaluate a speech device for rehabilitating laryngectomy patients. The subcontract is to identify instruments to measure the quality of life of laryngectomy patients before and after introduction of an artificial voice production system.

Have you learned lessons only of those who admired you, and were tender with you, and stood aside for you?

Have you not learned great lessons from those who braced themselves against you, and disputed the passage with you?

—Walt Whitman

On Differences

Florence S. Downs

The use of measurement is such a common practice that we give little thought to assigning a value to some attribute of an object. However, that value remains a fact until it is contrasted with values drawn from other sources. It is evaluation of contrasts that leads to concern about the adequacy of measures, since all researchers want instruments that are sufficiently accurate and robust to detect differences. However, determining the adequacy of those qualities is only one judgment that needs to be made. To be effective, measurement must be a seamless process that extends from instrument evaluation through interpretation of the results. Therefore, it is equally important to consider what the differences that are found between measures really indicate.

In the wake of cost containment, many new ideas have been developed about how the delivery of health care services can be streamlined and made more efficient. The pragmatics of evaluating these services underscore the essential place of measurement in maintaining the quality and viability of patient care. It is no longer sufficient to translate effectiveness into vague measures of staff or patient satisfaction. Hard evidence is needed to support the position that innovations in patient care make a real difference in quality of care, without increasing costs. This means that measures of outcomes must be carefully chosen and appraised for reliability and validity before use. It is also important that after they have been used, the differences that the measures show be evaluated for both clinical and theoretical significance.

The ordinary method for determining what differences in measurement are of consequence is to apply statistical tests to the data. When the tests show statistical significance, investigators are inclined to rejoice. When they fail to show significance, they feel disheartened. In either case, the clinical magnitude of the difference is frequently ignored. Numbers that indicate statistical significance are allowed to stand as the measure of effect. Clinical researchers who fail to examine their data as well as the significance

level do so at their peril. Clearly, they have forgotten that measures have a meaning in the real world that should not be ignored.

A common source of discrepancies between statistical and clinical significance results from using finely calibrated instruments to measure differences that must be relatively large to have meaning. Body temperature and blood pressure measures are common and readily available clinical instruments that can serve as examples. Small differences in these values between samples are often statistically significant, even though they are of no practical importance. Therefore, investigators need to make a decision about how much difference between groups will be considered clinically worthwhile before beginning a study. Should the intervention be considered successful if there is one degree Fahrenheit difference between the groups? Would a smaller value be acceptable? If so, how much smaller?

In the case of blood pressure, would 5 mm Hg be enough to indicate a change in practice? To what extent does consideration need to be given to whether the difference is shown in systolic or diastolic pressure? These determinations are primarily a function of the investigator's clinical understanding of the meaning of the measures and the boundaries of normal fluctuation. In such cases, clinical expertise cannot be separated from the interpretation of the results.

Once the nature of a reasonable difference has been decided upon, the sample size and the power of the test of significance need to reflect that decision. It is common knowledge that sample size can inflate or deflate statistical significance. Why so many investigators choose to ignore this truism is difficult to understand. But it remains one of the most frequent reasons for missing differences that exist or finding some that are without meaning.

In many ways, the clinical significance of changes in physiological measures is easier to determine than that of many measures of psychological change. Frequently, there are no published norms to guide the interpretation of variations. How much change is indicative of real clinical differences is rarely discussed. Researchers are often overawed by small differences in variables such as anxiety, depression, or attitudes that occur over the time of an intervention. This is especially

true if the values are in the desired direction or appear to have a pattern.

Commonly, samples show low values on measures at the beginning of the study. This matter often goes unnoticed. I recall one study in which depression was compared between mothers of premature infants and mothers of full term infants over a three-month period. Although, the scale used was a popular measure of depression, there were no published norms. Values for both groups were clustered at the low end of the scale. However, there was a minimal increase in depression over time among mothers of prematures and a corresponding decrease in depression among mothers of full term infants. This created a statistically significant difference between the groups. Despite the fact that neither group could have been considered depressed, remedial intervention was recommended for the mothers of prematures. Clearly, this is a distortion of the data and represents a naive approach to measurement. However, it is not an uncommon occurrence and is cited to underscore the critical need to interpret data with care.

If clinical measures are to be used as the means for judging the need for or the outcomes of interventions, the meaning of differences cannot be ignored. It is not merely a matter of financial considerations, although cost is increasingly used as a measure of effectiveness. When changes are made in clinical practice, we want them to be those that are most likely to be of benefit to the patients for whom we care. Therefore, it is important to demand evidence that is unambiguous and unbiased by slavish worship of the statistical significance level.

Florence S. Downs, EdD, FAAN, has taught research design and methods to doctoral students in nursing for over 25 years. She has, in addition, edited Nursing Research since 1979. A former associate dean of graduate studies at the University of Pennsylvania School of Nursing, Dr. Downs is currently a Visiting Scholar and Interim Dean for Graduate Studies at the School of Nursing, University of Maryland at Baltimore. In recognition of her scholarly contributions to nursing, Dr. Downs has received the 1995 Martha E. Rogers Award from the National League for Nursing.

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Ways to Measure Demographic Variables

Much time is often devoted to creating a measuring device when an adequate one already exists, resulting in duplication of effort, considerable waste of resources, and loss of uniform comparability of data.

The quotation above parallels much of the rationale for the Health and Psychosocial Instruments database. It is taken from the Preface to the *Drug Abuse Instrument Handbook* (Nehemkis, Macari, & Lettieri, Eds.), published in 1976 by the National Institute on Drug Abuse (NIDA). Despite its age (it is out of print), the *Handbook* is a unique and useful compendium of selected items used in health and psychosocial research, containing more than 2,000 items from 40 instruments.

Researchers often find that measurement of what are often thought of as simple variables, such as age, ethnic origin and gender, is, indeed, not simple. For example, age may be measured in years, months or days, with the resultant degree of precision correlating with the measurement unit used. Furthermore, age may be measured in terms of categories (such as under 21, 22 to 64, 65 and over), with the number of categories employed dependent upon the purpose of the question. Moreover, age may be determined by asking the question in any of a number of ways, such as "How old are you?" "How old were you on your last birthday?" "In what year were you born?"

Thus, in the area of demographic variables, researchers in a broad spectrum of fields and disciplines are continually seeking valid and reliable ways to determine the characteristics of their samples. As shown in Table 1, the *NIDA Handbook* provides more than 200 examples of how to ask questions, i.e., items, to measure various demographic variables. There are nine variables in the demographic category. These are listed in Table 1 along with the number of items, culled from the 40 instruments covered in the *Handbook*, used to measure each.

It takes two to speak the truth . . .
one to speak and another to hear.

—Henry David Thoreau

Table 1
Demographic Variables and Items in the
NIDA Handbook

Variable	Number of Items
Age	10
Sex	9
Marital Status	10
Ethnic Background	24
Religion	13
Socioeconomic Status	50
Residence	28
Family Composition	23
Education	56
Total	223

The *Drug Abuse Instrument Handbook* relates directly to the prime purposes of the HaPI database, for HaPI permits researchers and other instrument users to identify instruments suited to their needs, and to obviate the need for instrument users to perpetually "reinvent the wheel." Like HaPI, researchers in any health or social science field or discipline should find the *Handbook* to be a useful resource. In an effort to make this out-of-print resource available to our readers and database subscribers, HaPI staff will gladly copy and send the items used to measure a given variable, and will do so for as many of the 40 variables as you specify. You will be charged a fee to cover copying costs, postage and handling. Send your request to Behavioral Measurement Database Services, PO Box 110287, Pittsburgh, PA 15232-0787, phone your order by calling BMDS at (412) 687-6850, or fax your order to (412) 687-5213.

In addition, to make this service even more useful, we are collecting and making available additional items to measure demographic variables. We invite you to contribute to this collection. Please send any instruments containing demographic items, or any demographic items or set of such items,—instruments or items that you and/or your colleagues have developed, and/or those you identify otherwise—to BMDS at the above address, or fax them to (412) 687-5213. All contributors will be listed in *The Behavioral Measurements Letter* along with our expression of gratitude.

Although our emphasis here is on demographic variables, items in the other three categories covered in the Handbook — Interpersonal, Intrapersonal, and Drug — are also useful for health and psychosocial research. For your information, therefore, these variables are presented by category in Table 2.

Table 2
Additional Variables by Category in the
NIDA Handbook

Interpersonal Variables	
Group Affiliations	Peer Relationships
Family/Parental Relationships	Family vs. Peers
	Interpersonal Adjustment
Intrapersonal Variables	
Education	World View
Religion	Self-Concept
Marriage, Sex, Parental Role	Deviancy
Career/Life Goals	Psychological Adjustment
Personal Values	Health
Socio-Political Orientation	Personality (General)
Drug Variables	
Drug Usage, Ever—General; Frequency and Extent	
Drug Usage, Recent or Current—General; Frequency and Extent	
Drug Use History	
Social Context of Drug Use	
Reasons for Drug Use	
Reasons for Non-Use	
Interest in Trying, Maintaining and Changing Drugs	
Methods of Administration and Dosage	
Availability of Drugs	
Attitudes Toward Drugs	
Knowledge of Drugs	
Effects of Drug Use	
Treatment History	

There is no such thing as absolute
certainty, but there is assurance
sufficient for the purposes of
human life.*

—John Stuart Mill

*Nobelist Herbert Simon calls this "satisficing."

Measuring Reminiscence in Research on Type A Behavior

Fred B. Bryant

Over the past two decades, much research has focused on Type A behavior (TAB) — a hard-driving, competitive, and hostile response to perceived threat to personal control that is associated with increased risk for coronary heart disease. Medical observers have argued (Friedman & Ulmer, *Treating Type A Behavior and Your Heart*, 1984) that the most pervasive and dysfunctional deficit of TAB is a disconnecting of oneself from one's past. That is, Type As are either unable or unwilling to reminisce about the past, thereby depriving themselves of pleasure and a sense of personal growth.

Assessing the validity of these clinical observations, my colleagues and I (Bryant, Yarnold, & Morgan, *Journal of Research in Personality*, 1991, 25, 410-433) found that Type As, relative to Type Bs, were less likely to report that they consciously look back on positive events in order to store details for later recall, and more likely to report that they typically reminisce about past achievements. We also found, however, that Type As and Type Bs did not differ in their reported frequency, style, or consequences of recalling positive memories. Our findings suggest that Type As differ from Type Bs in the storage and content of their positive memories, but recall these memories in the same ways, and with the same frequency and consequences.

Discrepant findings among researchers are, of course, not surprising. What is relevant for *The Behavioral Measurements Letter* is that our study underscores how limitations in the measurement of reminiscence can explain the discrepant findings. First, TAB-related deficits in positive reminiscence may only surface when Type As are immersed in stressful circumstances; that is, Type As may indeed reminisce less often and with less benefit than Type Bs, but only when they are experiencing meaningful stressors that challenge their sense of personal control. This context-specific view suggests that researchers should study naturally-occurring reminiscence in stressful, real-world settings.

Second, we asked subjects to reflect on their experiences and on how reminiscing makes them feel. However, these self-report measures may well have produced a "passive state" orientation, as opposed to an "action" orientation in which one focuses on plans of action aimed at attaining a desired future goal. Measures of reminiscence that do not evoke a passive state orientation, such as "process tracing" paradigms for analyzing free-form verbal protocols, might show greater differences between Type As and Type Bs.

Third, the scope of our dependent measures was relatively narrow. For example, we asked open-ended questions that required respondents to identify and report the presence of relevant emotions, behaviors, and cognitions, but provided little information about their intensity or strength. Thus, although As and Bs were equally likely to report experiencing positive affect as a consequence of reminiscing, we do not know whether the levels of their positive affect were equivalent. Clearly, a set of measures that incorporates an intensity/strength scale is needed to test Friedman and Ulmer's clinical observations more thoroughly.

Fourth, we did not include measures of several reminiscence-related constructs on which As and Bs may differ. Specifically, we did not assess the typical duration of an episode of positive reminiscence, the value/utility that respondents place on positive reminiscence, or the degree to which respondents base their self-esteem on past versus future accomplishments. Therefore, future research should include measures of relevant psychological outcomes, such as happiness, life satisfaction, anxiety, and depression, that are presumed to vary as a function of positive reminiscence, and which, fortunately, can now be readily accessed through HaPI.

Finally, our study focused exclusively on positive reminiscence and ignored respondents' recall of unpleasant memories. Some evidence, however, suggests that Type As spend more time reviewing negative, rather than positive, self-relevant information than do Type Bs. Perhaps Type As do not actively avoid recalling positive memories as much as they prefer to recall negative memories, which may actually enhance the subjective quality of the present through "contrast

effects.” Indeed, it may well be the balance between the frequency of positive and negative reminiscence that distinguishes Type As and Type Bs.

As is true for most conceptual variables, there is no single, universally accepted, “gold standard” measure of reminiscence. Different measurement strategies may yield different results. Fortunately, researchers can now use HaPI to compare alternative measures more efficiently and effectively, to make more informed choices concerning measurement.

Fred B. Bryant is professor of psychology at Loyola University Chicago. He received his Ph.D. from Northwestern University and completed postdoctoral training in survey research at the University of Michigan's Institute for Social Research. His current research interests include cognitive and behavioral processes in the self-regulation of emotions, automatic cognitions, and applications of structural equation modeling in the social sciences. His measurement interests include psychological well-being, emotional temperament, and Type A behavior.

HaPI Thoughts



It is difficult to measure subjective responses objectively. What is **your** response to this picture?

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