uncensored observations offered by the original investigators. In addition, his reanalysis of data regarding the factors associated with the length of stay of mentally ill patients at Broadmoor is an example of the types of analytical gains which can be had by using the actual length of stay as a dependent variable in a Cox's proportional hazards model, given that observations which pertained to patients still in detention at the time of the study were considered censored. His findings were substantially more revealing than those given by the original investigators since they merely categorized the length of stay variable (short, intermediate, and long) and compared it with other explanatory variables via a series of simple χ^2 tests.

Everitt offers an interesting alternative approach regarding teaching statistics to psychiatrists. I concur with his appraisal that in order to conduct the type of course he has suggested considerably more time and effort, by both the instructor and the student, would be required as compared to a conventional service course. Also, the type of course Everitt describes would be appropriate for a homogeneous set of students—say, medical residents.

I have taught service statistics courses in Schools of Public Health, Medicine, and Nursing for a number of years. As such I've experienced the seemingly myriad of competing priorities which impinge on these students. In order to attempt to deal with some of these factors, our faculty (Department of Biostatistics, School of Public Health, The University of North Carolina at Chapel Hill) currently offers three different service courses. Each of these courses covers elements of descriptive and inferential statistics; but, they differ in student backgrounds assumed, the depth to which they go into theoretical issues, and the speed with which they move through the material. However, only our third-level course requires students to complete assignments using various computer packages; and, these students are a heterogeneous set of bachelor's, master's, doctoral, and postdoctoral individuals from many health disciplines. The group discussion aspects which Everitt suggests would probably not fare well for such classes.

I would suggest the following to any applied statistician who contemplates collaborating with allied health professionals:

1. There are vast differences in the types and analytical levels of training to which the myriad of allied health professionals are exposed.
2. Health professionals operate in subgroups—areas of specialization. It is necessary to know and work through existing hierarchies.
3. Understanding and co-operation is fundamental to collaboration.

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Comment

Joseph S. Verducci

I congratulate Dr. Everitt for his sure-footed climb up the mountain that is psychiatric statistics. His narration of consulting encounters strikes a few shivers of recognition from my own work at the Mental Research Institute (MRI) in Palo Alto and the Western Psychiatric Institute and Clinic (WPIC) in Pittsburgh. The chilling effect is from the enormity of the work that psychiatric researchers have undertaken.

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The practice of "mind-healing" has grown from Franz Mesmer's gazes into the 18th century psyche to PEP scans of glucose glowing in 20th century brains. Since its inception, psychiatry has been developing much too rapidly to accommodate the slow scrutiny of physical scientists. For example, it wasn't until Thurstone's work (1927) that Fechner's (1859) experiments on psychophysics could be analyzed, and not until Mosteller's work (1951) that they could be formally analyzed. Psychiatry would have probably evolved much differently if Freud had waited for a statistician to analyze the data he had amassed on "free" word associations.

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Psychiatrists do seem to have had little patience with plodding statisticians. Jung (1952) publicly chided a mathematician he had hired to prove that the position of the moon in couples' astrological charts influenced their prospects for a successful marriage. The unimaginative mathematician could find no more than a chance relationship. How could he have forgotten to include the relative angle of the sun to the moon in his calculations!

With megabytes of software in his backpack, today's consulting statistician carries the burden of sometimes displaying mirages in full color; but tools like Cox regression or growth curves or structural equation models have led and will lead to genuine insights, as in the case of the clinical trial of bromocriptine described by Dr. Everitt. I have a few reservations about that particular analysis, but it certainly is a step in the right direction.

For me, the pleasure of doing psychiatric statistics comes from the richness of the problems. The closer one looks the more one sees, and more careful scrutiny leads to novel statistical approaches. For example, at MRI our research term's use of Block's (1961) Q set with people formerly treated for schizophrenia led to a new method (Heavlin, 1980) of analyzing Q sort data. While I was in the psychiatric statistics program at Carnegie Mellon University, a group of us studied the problem of estimating the reliability of psychiatric diagnoses at WPIC and discovered the benefits of developing a special technique for rare diagnoses (Verducci, Mack and DeGroot, 1982, 1986). Similarly, studying data about word associations helped to formulate new probability models for rankings (Fligner and Verducci, 1986, 1987).

Ideally, the statistician becomes involved in psychiatric research as soon as the psychiatrists decide to submit their ideas "to measurement and number." The biggest problems then are more psychometrical than statistical. It may be very difficult to measure benefits to the human spirit without waiting for twenty years to see the fruit of reclamation.

The following anecdote describes the plight of the psychiatric statistician:

There was recently a study conducted in a psychiatric ward for depression. The psychiatrist in charge had developed a series of more and more difficult computer games and puzzles. Each day each patient would work on his own personal computer until he won the next game or solved the next puzzle. The theory was that a computer game would be an excellent diversion from the more demanding stimuli of the real world, yet allow the patient some healthy mental activity. Moreover, quitting after a success apparently helped patients to regain self-confidence and to look forward to their next session.

However, there was one fellow in the study who spent hours in front of the computer without solving the puzzle. After two sleepless days of typing and staring and drinking coffee, the poor fellow looked much worse than when he had entered the hospital. Finally the nurse approached the psychiatrist in charge and begged the psychiatrist to give this fellow some medication to let him rest. The psychiatrist responded, "I would, but there's nobody else who can analyze the data."

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