Use of Pulse Oximetry During Restraint Episodes

To the Editor: I read with interest the special section in the September issue on the use of seclusion and restraint in psychiatric treatment settings. Physical restraint—the holding of an individual by staff to contain dangerous behavior—is used at many different levels of care, from hospitals and residential facilities to group homes and schools, especially with children and adolescents (1,2). Unpublished data for 1995 to 2004 from the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) indicate that among 3,000 sentinel events that involved severe injury or death, 115 restraint-related fatalities occurred. Fourteen percent of the restraint-related deaths involved “take-down and hold” maneuvers. Death resulted from asphyxia because of inability to expand the chest or from obstruction of the airway, usually with a face towel to prevent spitting or biting (personal communication, Croteau R, 2005). A JCAHO study of 20 restraint-related deaths found that chest compression had limited the patients’ air exchange, which led to inadequate oxygenation (3). Similar problems have been noted for sitting restraints, such as the basket hold.

Currently, when a person is restrained, adequacy of oxygenation is assessed through pulse, blood pressure, and respiration measurements, which are confounded by anxiety and anger. Pulse oximetry is a noninvasive direct measure of oxygenation that has been used in medical facilities to measure the oxygen saturation of hemoglobin. Portable oximeters are accurate and reliable (4).

To determine the usefulness of pulse oximetry during restraint procedures, baseline pulse oximetry readings were obtained for all patients at our residential treatment facility, which has an average daily census of 84. The residents were given information by a licensed practical nurse about the use of pulse oximetry readings to decrease the possibility of suffocation during restraint. Residents included male and female adolescents aged 12 to 18 years who had psychiatric and behavior problems and who lived in seven separate units in the facility.

Oxygen saturation was measured during 31 physical restraint episodes (12 patients) over 70 days (March 10 to May 19, 2005) by using a probe from a portable oximeter that was clipped to a finger or toe (2) by licensed practical nurses. The oximeter used was the 503 DX model from Criticare Systems Mini SPO2T. In seven of the restraint episodes, the patients were prone; in the remainder, the patients were in standing positions. The mean±SD duration of an individual episode was 9±6 minutes. Baseline oxygen saturation readings were 96 percent or greater; readings during restraint episodes were 95 percent or greater. No incidents of respiratory distress were noted either by the staff or by the residents during restraint. Oximetry was well accepted by staff and patients. In fact, we found that placing the finger probe on the adolescent’s hand and asking him or her to turn on the oximeter, if interested, sometimes distracted everyone involved, diffused tension, and ended the restraint.

It will be necessary to see how oximetry performs under conditions of impaired oxygenation. There is concern that it might give an inaccurate reading during acute dyspnea, making repeat readings and clinical correlation essential (4). In addition, in one study when volunteer staff of a mental health facility were restrained in either a prone or a supine position and then directed to exercise, those subjected to prone restraint showed prolonged pulse recovery after exercise, which may suggest a link with sudden death during prone restraint (5). Although the oximetry measures for the volunteers did not show abnormalities, measurements during clinical situations could help clarify any role that oxygenation plays in pulse abnormalities.

Our investigations suggest that oximetry in medical settings, such as hospitals, and nonmedical settings, such as group homes, may be a viable, cost-effective tool that could protect persons who are subjected to physical restraint from respiratory embarrassment, suffocation, and death.

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Service Use by Asian Americans

To the Editor: In the June issue of Psychiatric Services Barreto and Segal reported findings regarding the use of mental health services by Asian Americans in California (1). They examined data from the California Department of Mental Health’s client and service information system and concluded that “East Asians make more extensive use of public mental health services in California than do members of other ethnic subpopulations.” However, this conclusion may be somewhat misleading in that the data reported are based on a clinical sample—that is, the sample included only individuals who had at least one episode of service. So, more precisely, their data show that East Asians who are already enrolled in the public mental health system make more extensive use of these services than do other ethnic subpopulations. The data do not indicate how likely Asians in nonclinical samples are to seek and use mental health services compared with other ethnic groups.

I work in a mental health agency in Los Angeles County that focuses its services on the Asian community. The daily experiences of my colleagues and I would lead us to conclude that Asians living in California continue to encounter significant barriers—both systemic and culturally based—that decrease the probability of their seeking and obtaining mental health services for the first time. Consistent with previous reports, we have noted that many Asian families are still reluctant to seek mental health services because of the shame and stigma associated with mental illness, lack of awareness about the causes and treatments for mental illnesses, lack of health insurance, and lack of mental health professionals fluent in Asian languages (2). Asian Americans often seek treatment late in the course of their illness, which frequently results in more severe and chronic symptoms at the time of first contact with mental health services (3). Furthermore, recently published data show that high-risk Asian American youths remain much less likely than youths from other ethnic groups to receive formal mental health services (4).

Barreto and Segal’s data are encouraging in that they suggest that Asians are becoming more accepting of mental health services once they are enrolled in the mental health system. This finding may be due to the increasing availability of culturally and linguistically competent mental health services (3), simultaneous access to case management services, demographic changes—including increasing acculturation—in Asian communities in California, or greater awareness of the effectiveness of psychiatric treatment. But given the public policy implications of such data, it is critical that they not be misinterpreted in ways that could jeopardize continued adequate funding of mental health services and outreach efforts for Asian-American communities.

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Dr. Sevilla is medical director of children’s services at Asian Pacific Counseling and Treatment Centers in Los Angeles.

References

In Reply: I thank Dr. Sevilla for emphasizing the fact that our article confines itself to describing the utilization experience of East Asians and other ethnic groups (of the total sample of 104,773 persons, 10,262 were identified as Asian Americans). Dr. Sevilla’s letter highlights the need for better and more current information about access problems, because much of the information he provided is drawn from review articles (1,2) whose authors draw conclusions on access and utilization issues that are predicated upon research studies of questionable validity (3,4). These studies are a quarter-century old and not sufficient in scope or representativeness to justify resource allocation decisions. We all recognize the issue of language barriers, especially for new immigrants. It is most important that new information on this issue and other access and utilization issues address the unique as well as the shared needs of specific Asian-American subpopulations.

Lin and colleagues (4) tell us that the Asian population is as varied, if not more varied, in cultures and traditions as is the population of Americans with European ancestry. Our finding of significant utilization differences between East Asians, Southeast Asians, and “other” Asian subgroups (even after adjustment for the severity of illness) suggests that combining the experiences of these groups under the “Asian” umbrella presents an inaccurate picture. Given this observation, it would seem that there is a significant need to present Asian Americans’ problems with access to services differentially as well. Dr. Sevilla correctly notes that a recent study of high-risk youths found that Asian Americans and Pacific Islanders (N=88) were less likely than youths from other ethnic groups to receive formal mental health services; however, the study does not help us target the specific Asian-American subgroup and thus more directly address its needs (5). I thank Dr. Sevilla for pointing to the need for better information on access to mental health services and hope that such research will better target disparities in equal opportunities for receipt and use of mental health services.

Steven P. Segal, Ph.D.
Client Involvement in Services Research

To the Editor: Government agencies and consumer organizations are calling for the meaningful involvement of clients in research evaluating mental health services (1,2). However, a recent review noted that few papers have been published on this issue (3). To increase understanding of this topic, I report on key lessons learned from my experience as an academic consultant to a mental health day service, which was based on the clubhouse model. I conducted a collaborative evaluation with clients to inform future planning. Because this letter reports reflections rather than hard data, it was not necessary to obtain internal review board approval and informed consent was not.

Clients made significant contributions to the successful development of the evaluation in a number of important ways. First, they assisted in the development of a questionnaire, ensuring that it covered clients’ concerns. This approach prevented bias toward the provider’s perspective, which has been identified as a potential disadvantage of traditional questionnaire research (4). Second, clients used their insight to suggest suitable modes of data collection that were successfully implemented, notably an anonymous “suggestion box” and focus groups. The suggestion box proved popular because it allowed clients to comment in their own time with complete guarantees of anonymity. The focus groups were well attended and well liked because they allowed clients who were uncomfortable with the questionnaire to participate. They also provided “safety in numbers” in that clients liked being able to voice concerns in the presence of fellow clients.

Third, training key clients as research assistants to assist with data collection and analysis was methodologically fruitful. The clients appeared to be particularly sensitive and skillful in helping other clients complete the questionnaire. This appeared to increase the response rate and also encourage more open and honest responses from clients, repeating a phenomenon observed when client interviewers have been used in other studies (5). Trained clients also worked with staff and myself in analyzing the data. Client involvement at this stage may increase the validity of the findings, as the different parties must reach consensus on emerging conclusions and their significance with staff, clients, and independent academics acting as a check and balance on one another’s biases.

Overall, I noted that some clients, even some with serious mental illnesses, were quite capable of quickly understanding the scientific basis of research. Some key clients had attained master’s or doctoral degrees before they became ill; others had attended related training courses. Their contribution to the design and implementation of the evaluation sometimes outstripped that of the organization’s staff. In contrast, some staff (and other clients) had less understanding of the scientific basis of research. Thus, although some facilities and programs may want to conduct co-operative research, some time must be spent in meetings explaining methodologic issues in lay language.

Client involvement did have some disadvantages. Most notably, much greater resources in terms of time, labor, and finances are needed in this kind of cooperative research. One final issue that should be considered by academics is the endpoint of their involvement. Many researchers will feel that their interest should cease once the evaluation is complete. However, some clients may feel that academics should use their skill and leverage to act as “agents of change” after the evaluation and may feel a sense of betrayal if this is not the case. Discussion and agreement on this point at the beginning of the research may prevent possible ambiguity and conflict at the end.

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References


Sample for Validation of Jail Mental Health Screen

To the Editor: In their otherwise excellent article reporting on validation of the Brief Jail Mental Health Screen (BJMHS) published in the July 2005 issue, Steadman and colleagues (1) made a subtle but critical analytic error, which, when corrected, leads to different conclusions. They studied the performance of the BJMHS in screening for mental health treatment needs among more than 10,000 prisoners in four jails. From this population, they selected samples, stratified...
by sex and BJMHS outcome, to create groups of men and women—each group with a ratio of approximately 2:1 of individuals with negative BJMHS outcomes to individuals with positive BJMHS outcomes. These participants were interviewed with the Structured Clinical Interview for DSM-IV (SCID), which was used as the criterion standard. The authors calculated sensitivities, specificities, and other scale statistics by comparing BJMHS results with SCID results. However, they erred when, having stratified by BJMHS outcome, they changed the proportion of negative-to-positive outcomes from about 9:1 in the population to about 2:1 in the SCID sample without making a correction in the final calculations.

The authors present a 2 x 2 table for BJMHS and SCID outcomes among male prisoners that shows 38 true-positive cases, 20 false-negative cases, 117 true-negative cases, and 36 false-positive cases. According to the authors, 9.6 percent of the male population screened positive; thus 90.4 percent screened negative. Assuming a male population of 8,979, and assuming that the proportions of correct and incorrect predictions among positive and negative screened participants remains constant, it is possible to calculate population estimates for the number of true positives (N=443), false negatives (N=1,185), true negatives (N=6,932), and false positives (N=419). This yields an estimated sensitivity of 27.2 percent, in contrast to the reported sensitivity of 65.5 percent. Specificity, recalculated in a similar way, rises to 94.3 percent, and the “hit” rate rises to 82.1 percent. Because the sensitivity declines, the estimated rate of psychopathology in the male jail population as a whole becomes 18.1 percent, which is in accord with many published findings.

Inmates who had screened negative on the BJMHS were less likely to receive SCID interviews, which disproportionately reduced the number of false negatives and inflated the sensitivity statistic. The corrected sensitivity, which is based on a cutoff point selected by the authors under different assumptions, is unacceptable for screening purposes. A higher sensitivity can be achieved by adjusting the cutoff point down, although this adjustment may produce a false-positive rate that is too high for the BJMHS to be of practical value.

James E. Dillon, M.D.

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References


In Reply: Dr. Dillon highlights a point that we made in a footnote to our table. As he correctly notes, the reported results for sensitivity and specificity were calculated on the validation sample and not weighted back to the jail admissions during the study period at the four jails. It did not seem to us that weighting back to the full admission sample was the most useful approach for data presentation. Realizing that some readers would want to calculate sensitivity and specificity, we did include them in the footnote. To be consistent with the approach taken in other studies, we chose not to weight the data in any way. If we had, the results would relate exactly to the admissions of the four jails studied but would not necessarily be generalizable to other U.S. jails. We intentionally included the raw data so that any jail could weight it back to their own detainees, as Dr. Dillon has done here for the four jails we studied.

The BJMHS was created to be a tool for jails to use in screening new inmates for mental illness. We presented data in a way that would permit jail administrators to make decisions based on their jail and not on the four jails we studied. Although Dr. Dillon’s recalculation of sensitivities (down from 65.5 percent), specificity (up from 76.5 percent), and overall “hit rate” (up from 73.5 percent) are correct for the four jails, these figures would change for other jails depending on the number of persons with mental illness.

What would not change is the calculation of a false-negative rate (inmates whom we classified as not symptomatic and who received diagnoses by use of the SCID as having a mental illness) of 14.6 percent for the males in the study and a false-positive rate of 48.6 percent. These are the most telling results and the numbers that jail administrators should use when making decisions on whether to use the BJMHS. Whether the accuracy rate is 73.5 percent for the validation data or 82.1 percent for the data weighted for the four jails, we still believe that the BJHMS is the best tool currently available.

Henry J. Steadman, Ph.D.

An Innovative Inpatient Psychotherapy Unit in South Africa

To the Editor: The recently published World Mental Health Survey (1) has shown that depression and anxiety are at least as common as primary psychotic disorders. As such, these disorders demand the attention of mental health services. In South Africa, community and outpatient resources for individuals suffering from high levels of distress and trauma are limited. However, there is an innovative psychotherapy unit in Valkenberg Hospital in Cape Town, South Africa, which is an acute psychiatric hospital that serves a population of approximately one million. The unit was established at the hospital in the early 1970s after new wards were built.

Most individuals who are referred to the acute adult service have schizophrenia or bipolar mood disorder. Persons with anxiety or depressive disorders are not easily served in this high-turnover system, and a separate unit has been created to manage these problems. This separate unit admits men and women
Individuals are usually referred to the program when they are experiencing a crisis, but they must be willing to take part in a weekly program. The referral problem is usually exacerbated by a range of psychosocial stressors.

Patients participate in a range of individual and group therapies. Groups are run by two facilitators three times a week. Brief-term individual therapy is offered by case managers; life skills and goal-setting groups and psychosocial education sessions form part of the weekly program. The unit has a consultant psychiatrist, a psychiatric registrar, a psychologist, and a psychology intern. Nursing staff play a supporting role but do not manage cases. In general, patients with active psychosis and suicidal ideation are excluded from the program. A collaborative approach is encouraged, with the main goals of the admission being to ameliorate psychiatric symptoms and promote reintegration into the community. Psychosocial needs are addressed when brought as a focus for clinical attention. In most cases, this involves creating a care plan that extends beyond the admission into community care.

A survey of this unit was conducted from January 2003 through January 2004. The study was approved by the research ethics committee of the health sciences faculty at Cape Town University, and all participants gave informed consent. We found that two-thirds of the patients in the unit were women (74 patients), and most (92 patients) had some type of depressive disorder. Anxiety disorders and borderline personality disorder were common—of the 100 patients surveyed, 32 had borderline personality traits. The mean±SD length of stay was 5.7±2.4 weeks. Among the patients with depression, 87 (90 percent) reported having received a moderate or high degree of help.

This inpatient psychotherapy unit plays an important role in addressing a range of psychiatric problems in our service. However, ongoing evaluation of the program and its relevance to patients is recommended.

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Reference

Submissions for Datapoints Invited

Submissions to the journal’s Datapoints column are invited. Areas of interest include diagnosis and practice patterns, treatment modalities, treatment sites, patient characteristics, and payment sources. National data are preferred. The text ranges from 350 to 500 words, depending on the size and number of figures used. The text should include a short description of the research question, the database and methods, and any limitations of the study.

Inquiries or submissions should be directed to Harold Alan Pincus, M.D., or Terri L. Tanielian, M.S., editors of the column. Contact Ms. Tanielian at RAND, 1200 South Hayes Street, Arlington, Virginia 22202 (terri_tanielian@rand.org).