

# Inpatient Psychiatric Treatment of Deaf Adults: Demographic and Diagnostic Comparisons With Hearing Inpatients

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**Objective:** This study examined the diagnostic and clinical features of deaf psychiatric inpatients. **Methods:** Archival clinical data for deaf and hard-of-hearing adults (N=30) were compared with data for a random sample of hearing adults (N=60) admitted to a state psychiatric hospital from 1998 to 2008. **Results:** Significant differences were found between deaf and hearing inpatient groups in the frequency of impulse control disorders (23% versus 2%), pervasive developmental disorders (10% versus 0%), substance use disorders (20% versus 45%), mild mental retardation (33% versus 3%), and personality disorders (17% versus 43%). The deaf group had a larger proportion with diagnoses of psychotic disorder not otherwise specified (17% versus 2%). Deaf inpatients had longer hospitalizations than hearing inpatients (17 months versus ten months). **Conclusions:** Clinicians working with the underserved, understudied population of deaf and hard-of-hearing psychiatric inpatients should be aware of the cultural and linguistic differences in assessment and treatment and make efforts to modify their approach. (*Psychiatric Services* 61:196–199, 2010)

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The deaf and severely hard-of-hearing population remains an underserved group in mental health care. In fact, recent and reliable estimates of the number of deaf and hard-of-hearing people with psychiatric problems are unavailable. Similarly, specialized inpatient mental health programs for the deaf are rare and are usually confined to state-operated hospitals and facilities (1).

A review of early studies through the 1960s showed rates of psychotic disorders diagnosed in the deaf inpatient psychiatric population between 20% and 54% (1). Authors of these early studies suggested that these figures represent diagnostic inaccuracies resulting from cultural and linguistic bias. More recent work has found that psychotic disorders are diagnosed in 11% to 33% of deaf inpatient samples (1–4). Authors have attributed these discrepancies to several issues. First, in the past psychotic disorders were likely used as catch-all diagnoses if clinicians were unable to make accurate assessments as a result of ignorance of the impact of language dysfluency and Deaf culture (1,4–6). Second, the development of specialized psychiatric treatment facilities for the deaf has improved diagnostic accuracy and cultural sensitivity (2,4). Last, changes in the Americans With Disabilities Act have resulted in better communication access (7).

In contrast to the decline in psychotic disorder diagnoses among deaf inpatients over time, diagnoses of developmental disorders and mental retardation have remained static in this population. Similar to early re-

search, recent work reported that 34% of deaf inpatients had intellectual disability or developmental disorder diagnoses, compared with only 4% of the hearing inpatients (4). The greater number of intellectual problems in the deaf population has often been assumed to be related to the etiology of the deafness, although this assumption has not been tested.

Recent work suggests a greater prevalence of personality disorders in the deaf inpatient population (4,8) than in the hearing population. Mood, substance use, and posttraumatic stress disorders have been uncommon diagnoses among deaf persons, but they are gradually being diagnosed at increasing rates (4,9,10).

The purpose of the study presented here was to contribute to the sparse body of literature on the diagnostic and clinical features of deaf and hard-of-hearing psychiatric inpatients. Using a retrospective design, we compared the diagnoses, demographic characteristics, and clinical data from all deaf and severely hard-of-hearing people from a state-operated inpatient psychiatric unit from 1998 to 2008 with those of a randomly selected hearing sample. Specific clinical variables examined include demographic characteristics, diagnostic type and prevalence rates, and length of hospitalization. This brief report also reviews assessment and treatment issues.

## Methods

Archival data of 90 adult inpatients admitted to a Midwestern state psychiatric hospital between January 1, 1998, and November 20, 2008, were

reviewed for this study. A university-based institutional review board examined and approved all study procedures. Informed consent from participants was not required because of the use of archival data. The patients were divided into comparison groups based on hearing status. The deaf patient group (N=30) was composed of individuals with a *DSM-IV-TR* (11) axis III diagnosis of bilateral deafness or severe hardness of hearing (that is, only partial ability to comprehend verbal communication, even with the use of assistive devices). A comparison group of hearing patients (N=60) was randomly selected from the same hospital population. Hearing patients were defined as those without an axis III diagnosis of deafness or hardness of hearing. All patients were 18 years of age or older.

In the deaf group, 16 (53%) were male and 14 (47%) were female. In the hearing group, 28 (47%) were male and 32 (53%) were female. The mean±SD age of the deaf group was 36.0±14.8 years, and the hearing group had a mean age of 36.9±13.3 years. For the racial and ethnic composition, 22 (73%) persons in the deaf group were Caucasian, two (7%) were Asian, three (10%) were African American, two (7%) were Native American, and one (3%) was Middle Eastern. Thirty-eight persons (63%) in the hearing group were Caucasian, 20 (33%) were African American, and two (3%) were Hispanic. The mean number of years of education was 11.0±2.1 for the deaf group and 11.8±2.5 for the hearing group. In the deaf group, 23 persons (77%) attended a deaf residential school, one (3%) attended a blind residential school, and ten (33%) attended a public school; the type of school was unknown for three (10%) (categories were not exclusive).

In the deaf group, 20 persons (67%) were deaf, one (3%) was deaf-blind, and nine (30%) were hard of hearing. Hypoxia was the etiology of hearing loss for one person (3%), Usher's syndrome was the cause for two persons (7%), hydrocephalus was the cause for one (3%), and infection was the cause for five (17%). Twenty persons in the deaf group (67%) communicated only in American Sign Language (ASL), six

(20%) with ASL and English, two (7%) with English only, and two (7%) with gestures. Data on patients' levels of ASL fluency and English fluency were not available.

Patients included in the sample were all committed by the court to psychiatric treatment and admitted to locked psychiatric units. The deaf patients were all admitted to a single, combined hearing and deaf unit with specialized group programming for the deaf and full-time ASL interpreters. None of the psychiatrists assigning diagnoses were fluent in ASL or specialized in mental health treatment for the deaf.

## Results

The gender and ethnic characteristics of the groups were examined with two-way contingency table analysis. The deaf and hearing groups were not significantly different with regard to gender. However, the groups differed significantly in racial and ethnic composition ( $\chi^2=15.56$ ,  $df=5$ ,  $p=.01$ ). Age and education were analyzed with an independent-groups *t* test and were not significantly different.

The axis I and axis II discharge diagnoses of the hearing and deaf groups were grouped for analysis into major diagnostic categories (for example, psychotic disorders and mood disorders) listed in the *DSM-IV-TR*. Two-way contingency table analyses were used to examine the prevalence of disorders. The obtained frequencies of the diagnostic categories are presented in Table 1.

For axis I disorders, the deaf and hearing patient groups did not differ significantly in the frequency of psychotic disorder diagnoses. Interestingly, 38% of the 13 deaf patients with psychotic disorders were diagnosed as having psychotic disorder not otherwise specified, but only 3% of the 37 hearing patients with psychotic disorders were given that diagnosis. Moreover, only 15% of the 13 deaf patients with psychotic disorder were assigned a diagnosis of schizoaffective disorder, in comparison to 51% of the 37 hearing patients with psychotic disorders. Deaf and hearing patients were not significantly different in rates of mood disorders, anxiety disorders, eating disorders, learning or

**Table 1**

Axis I and axis II diagnoses among psychiatric inpatients, by hearing status

Diagnosis	Deaf and severely hard of hearing (N=30)		Hearing (N=60)		p
	N	%	N	%	
Axis I diagnosis					
Psychotic disorder	13	43	37	62	ns
Schizophrenia	6	20	17	28	
Schizoaffective disorder	2	6	19	32	
Psychotic disorder not otherwise specified	5	17	1	2	
Mood disorder	10	33	23	38	ns
Bipolar disorder	3	10	11	18	
Major depression	3	10	9	15	
Other	4	13	3	5	
Anxiety disorder	6	20	11	18	ns
Impulse control disorder	7	23	1	2	.01
Pervasive developmental disorder	3	10	0	—	.05
Substance use disorder	6	20	27	45	.05
Learning or language disorder	3	10	2	3	ns
Eating disorder	0	—	1	2	ns
Cognitive disorder (for example, dementia)	1	3	1	2	ns
No diagnosis	1	3	1	2	ns
Axis II diagnosis					
Borderline intellectual functioning	2	7	7	12	ns
Mild mental retardation	10	33	2	3	.01
Personality disorder	5	17	26	43	.05

language disorders, or cognitive disorders (for example, dementia). However, the deaf group demonstrated significantly higher rates of impulse control disorders ( $p=.01$ , Fisher's exact test) and pervasive developmental disorders ( $p=.05$ , Fisher's exact test) and lower rates of substance use disorders ( $\chi^2=5.38$ ,  $df=1$ ,  $p=.05$ ).

For axis II disorders, the deaf and hearing patient groups did not demonstrate a significant difference in the frequency of borderline intellectual functioning diagnoses, but they differed significantly in the frequency of diagnoses of mild mental retardation ( $p=.01$ , Fisher's exact test) and personality disorders ( $\chi^2=6.30$ ,  $df=1$ ,  $p=.05$ ).

An independent-groups  $t$  test examined differences in length of hospital stay in the deaf and hearing groups. The mean length of stay for deaf patients was  $17.2 \pm 17.7$  months versus  $10.1 \pm 11.7$  months for hearing patients ( $t=2.22$ ,  $df=85$ ,  $p=.05$ ).

## Discussion

In interpreting the results of this research, several cultural and linguistic issues must be considered. First and foremost is the issue of language. ASL is not a direct translation of English into a visual form. Therefore, accurate assessment and treatment of deaf patients involves more than simply providing an ASL interpreter. It is critical that clinicians understand that working with deaf patients transforms the typical interview process. How clinicians and interpreters convey unfamiliar, hearing-based concepts (for example, auditory hallucinations) is crucial to the diagnostic process. If the deaf patient's comprehension of these concepts is not probed, there is a risk that the patient may misunderstand or even feign understanding in order to appear knowledgeable (12). Unfortunately, the diagnosticians in this study, although assisted by certified ASL interpreters, were not themselves trained in Deaf culture or fluent in ASL. Among patients with psychosis, our finding that deaf patients were more likely than hearing patients to be diagnosed as having psychotic disorder not otherwise specified (38% versus 3%) is a warning sign that clinicians had significant difficulty in accurately assessing the

deaf patients. Clinician discomfort and lack of experience with assessing a deaf person likely resulted in a tendency to lump deaf patients into this catch-all category. Historically, deaf patients have been incorrectly diagnosed as psychotic if they showed ungrammatical written English or dysfluent sign language production, because these demonstrations were misconstrued as evidence of a thought disorder (5). However, when deaf inpatients are assessed by culturally competent, ASL-fluent clinicians who are less likely to pathologize cultural differences and are able to accurately distinguish deviations in communication attributable to psychosis from those attributable to language dysfluency, the number of psychotic disorder diagnoses decreases significantly (4–6).

Cautious assessment is most important with deaf people who are language dysfluent. Experienced clinicians in the field of mental health and deafness found that two-thirds of their deaf inpatients were dysfluent in any language (4). Although the language fluency of patients in the study presented here was not formally assessed, it is probable that it was a significant factor influencing diagnostic assessments. Several inpatients in our sample had a history of delayed language acquisition as a result of not being identified as deaf until age two or three or not being exposed to a signing environment until enrolling at a residential school for the deaf. Two of the patients in the study had no exposure to ASL as children and could communicate only through gestures and "home signs." Because of their inability to communicate effectively with caregivers and peers, it is reasonable to suspect that these patients would have inadequate experience with socialization, problem-solving skills, and emotional regulation (4). This isolation from functional skill attainment likely contributes to the high rate of deaf patients displaying symptoms of socially inappropriate behavior, poor self-care, behavioral impulsivity, aggression and self-injury, leading to diagnoses of impulse control disorders, mental retardation, and pervasive developmental disorders.

Consistent with previous research, our study found longer hospital stays for deaf inpatients. Barriers to timely discharge on units lacking specialized services for persons who are deaf include misdiagnosis as a result of the issues described above, inadequate participation in medication consultations and psychoeducation as a result of language barriers, dysfluency, and a lack of culturally and linguistically appropriate individual, group, and milieu therapies. Even in specialized deaf inpatient treatment centers, finding appropriate outpatient placement and services that meet the psychiatric, intellectual, and linguistic and cultural needs of deaf patients is a challenge. Few outpatient mental health centers or agencies are equipped to address all of these needs for a single patient and those that hire interpreters or signing staff may still lack clinicians with expertise in mental health care for deaf persons. Some major cities with large deaf populations have specialized outpatient services for the deaf. However, as we have found, these agencies are likely to be overburdened with referrals and have waiting lists for services.

Limitations of the study presented here should be considered. First, this study utilized a retrospective design and archival data from patient charts. As a result, many factors could not be controlled for, such as unit characteristics, treatment approaches, and other potentially confounding variables. Second, as mentioned earlier, the diagnoses were assigned by clinicians who were not fluent in ASL and who did not have specialized training in Deaf culture, although they were aided by certified ASL interpreters. Third, the sample size of the deaf group was relatively small, so conclusions should be interpreted with some caution.

## Conclusions

Clinicians working with the underserved, understudied population of deaf and hard-of-hearing psychiatric patients should be aware of the cultural and linguistic differences in assessment and treatment and make efforts to modify their approach. Ideally, clinicians should be fluent in ASL, but as a practical matter many of

those treating this population will have little or no experience with ASL and Deaf culture. In such cases, the aid of a certified ASL interpreter with experience in mental health is crucial; however, even with experienced interpreters, communication difficulties with language-dysfluent patients will be common. If possible, assessment of language fluency should be undertaken to more accurately diagnose and treat these patients. Clinicians must also be educated about Deaf culture to avoid overpathologizing the expressive nature of ASL or Deaf cultural norms. Also, the availability of linguistic and culturally appropriate outpatient services is limited, even though such services are necessary. Connections between inpatient units and specialized outpatient services for the deaf need to be developed or enhanced to increase continuity of care and reduce rehospitalization (13). Treatment approaches should be tailored to the deaf population, especially for patients who are dysfluent in language. Deaf-friendly approaches, such as skills-based learning, visual aids, interactive role playing, and visual metaphors, should be utilized (13). Regular training of clinical staff on

Deaf culture is needed, as well as ASL-fluent staff at hospitals that regularly provide services to deaf patients. Also, clinicians should acquaint themselves with the growing body of insightful literature in this subfield and consult with clinicians experienced in the field of mental health and deafness.

### ***Acknowledgments and disclosures***

The authors thank Christopher J. McDougle, M.D., for his helpful review of this article before submission.

The authors report no competing interests.

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