# PREVALENCE AND CORRELATES OF DEPRESSIVE SYNDROMES AMONG ADULTS VISITING AN INDIAN HEALTH SERVICE PRIMARY CARE CLINIC

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*Abstract : Depression is common among patients visiting primary care clinics. In order to describe the prevalence of depressive syndromes in an American Indian primary care clinic population and to help define the clinical correlates of depressive syndromes in this setting, a clinic-based research study of depression was undertaken by the Indian Health Service (IHS). One hundred and six patients from an IHS primary care clinic were systematically enlisted for participation in the study. Participants completed the Inventory for Diagnosing Depression (IDD). Twenty-two (20.7%) responded with answers scoring positive for a depressive syndrome. Nine of these 22 (8.9% of the 106 participants) met IDD criteria for a major depressive syndrome. A diagnosis of depression, a past history of depression, use of mental health facilities, unexplained pains, and antidepressant medication use were associated with the presence of a depressive syndrome.*

Depression is common among patients visiting primary care clinics (Coyne, Fechner-Bates, & Schwenk, 1994; Depression Guideline Panel, 1993; Zung, Broadhead, & Roth, 1993). Studies in primary care settings show that 6% to 10% of all patients have major depressive disorder and up to 30% of all patients have depressive symptoms (Katon, 1987). For a variety of reasons, depressed patients are frequently not recognized and often inadequately treated (Depression Guideline Panel, 1993). Information that can lead to improved recognition and treatment of depression is needed to avoid the serious social, medical, and economic consequences of failing to make the diagnosis of depression.

Several studies have described the prevalence of depression in American Indian and Alaska Native communities and in Indian Health Service (IHS) mental health clinics (Kinzie et al., 1992; May, 1988; Shore & Manson, 1981; Shore, Manson, Bloom, Keepers, & Neligh, 1988). There is general agreement that depression is at least as common, if not

more so, in American Indian and Alaska Native communities as it is in other communities. Initial studies of the prevalence of mental illness in IHS outpatient populations have been done (Goldwasser & Badger, 1989; Rhodes et al., 1980), but the prevalence of depression in American Indians and Alaska Natives visiting primary care clinics has not been systematically studied. In order to describe the prevalence of depressive syndromes in an American Indian primary care population and to help define the clinical expression of depressive syndromes in this setting, an IHS clinic-based research study of depression was undertaken.

## Setting

The study site was a single primary care outpatient clinic at an IHS hospital on a reservation in the southwestern United States. All patients were American Indian and were eligible for care in the IHS system. The facility, a hospital, provides daily primary care clinics as well as 24-hour-a-day emergency care and inpatient services. It is the only IHS facility on or in the vicinity of the reservation and thus provides medical care to the majority of American Indians in the area. The dominant culture on the reservation is that of a southern Athabascan people. Traditional American Indian practices remain very strong in the community. There is also a significant influence from Caucasian cultures in communities near the reservation borders. Approximately 5,000 American Indians receive their care through the hospital. According to the 1990 U.S. Census, 37.3% of the reservation population over age 16 is unemployed and 41.6% of the population over 18 lives below the poverty level. English is the primary language spoken in 64.2% of the homes on the reservation (U.S. Bureau of the Census, 1990).

## Methods

During a 1-month period, every fourth adult who signed the registration log for the primary care clinic was recruited for the study. Patients who came for specialty clinics, emergency room care, or afterhours urgent care clinics were excluded. Study enrollment was halted when 100 completed questionnaires were obtained.

Participants completed the Inventory for Diagnosing Depression (IDD) (Zimmerman & Coryell, 1987), a 22-item self-administered multiple choice questionnaire of depressive symptoms. The questions are based on *Diagnostic and Statistical Manual III-R* (*DSM III-R*) criteria for major depressive disorder and scored accordingly. In this study, participants were considered to have a depressive syndrome if they reported a depressed mood and at least four of eight associated neurovegetative symptoms. Participants were considered to have major depressive syndrome if they indicated that the duration of each of these symptoms was greater than 2 weeks. For the purposes of this study, patients who

reported the duration of these symptoms to be less than 2 weeks were considered to have minor depressive syndrome. Participants' charts were reviewed blindly to describe the medical and historical factors present in the study population. A factor was considered to be present if it was written by a physician in a progress note within the year prior to the study, in an admission note at any time, or on the medical record problem list.

Participants gave written informed consent prior to participation. They completed the study questionnaire in private, most participants completed the questionnaire within a 10- to 30-minute period. Approval for the study was obtained from the local tribal leadership, the local IHS administration, and the IHS Area Institutional Review Board.

Statistics were computed using public domain software developed by the Centers for Disease Control and Prevention (Dean, Dean, Burton, & Dicker, 1990). Two-tailed Fisher's Exact test was used for analysis unless otherwise noted in the text (Ware, Mosteller, Delgado, Donnelly, & Ingelfinger, 1992).

## Results

Of 204 patients eligible for enlistment, 106 people participated in the study. A comparison between the study participants and the nonparticipating adult clinic population in the same clinic in the same time period is shown in Table 1. The reasons for individuals not participating in the study are shown in Table 2. The most common reason for a clinic visit was "acute self-limited medical problems" (minor colds, gastroenteritis, etc.; 28.3% of visits), followed by "other" (follow-up care, paperwork, questions; 13.2%), "preventive health care" (12.4%), "trauma" care (12.4%), "other infectious illnesses" (10.4%), and "gynecologic/obstetrical care" (8.9%). No other primary complaint constituted more than 5% of visits. The frequencies of the medical and historical events noted in the charts of the participants are shown in Table 3.

Table 1
Participant Characteristics

| | | Study Participants N=106 | Adult Clinic Population N=859 |
|---|---|---|---|
| Age | (Mean) years | 35.2 | 40.1 |
| | (Median) years | 32.5 | 34.5 |
| Female | | 66% | 62% |
| Walk-in (non-appointment) | | 78% | 77% |

Of the 106 participants, 22 (20.7%) responded with answers scoring positive for the depressive syndrome. A description and comparison of the clinical characteristics of the 22 participants who had the

Table 2
Enlistment Data

| N (% of total) | |
|---|---|
| 198 (100) | Adults potentially enlisted |
| 66 (33) | Not approached |
| 132 (67) | Approached |
| | Reasons for not enrolling: |
| | 10 refused without specific reason |
| | 3 patients had "no time" |
| | 2 patients "too angry" |
| | 2 patients could not read |
| | 2 patients "too sick" |
| | 1 patient had no glasses |
| | 1 patient "too intoxicated" |
| 111 (52) | Enlisted |
| 5 (3) | Not completed |
| 106 (54) | Study population |

Table 3
Chart Notation

| Chart Notation (Study Participants) | (%) |
|---|---|
| Alcohol abuse | 42 (40) |
| Trauma | 39 (37) |
| Assault | 21 (20) |
| Unexplained pain | 20 (19) |
| Hospitalization within last year | 17 (16) |
| Depression | 16 (15) |
| Domestic problem | 14 (13) |
| Low Back Pain | 11 (10) |
| MVA | 11 (10) |
| Headache | 7 (7) |
| Suicide | 7 (7) |
| Anxiety | 3 (3) |

depressive syndrome and the 84 who did not meet depressive syndrome criteria is shown in Table 4. Patients with the depressive syndrome were

more likely to have had a history of depression noted on the chart (32% vs. 11%, $p = .02$), to have depression noted at the clinic visit by the primary care physician (18% vs. 1%, $p = .006$), and to use the mental health facilities in the month after the clinic visit (18% vs. 0%, $p = .001$). Patients with the depressive syndrome were also more likely to have been prescribed medication in the month preceding the study (60% vs. 32%, $p = .02$ Mantel-Haenszel). However, the difference in prescription drug usage in this study was attributable to a more frequent use of antidepressant medication among the participants with the depressive syndrome. Patients with the depressive syndrome were also more likely to have had a visit within the previous year for the symptom of a pain that was not explained by a specific etiology as indicated by chart review (36% vs. 14%, $p = .02$).

Table 4
Comparison of Patients With and Without a Depressive Syndrome

| | Depressive Syndrome Present N = 22 (%) | Depressive Syndrome Absent N = 84 (%) | *p* value |
|---|---|---|---|
| Depression on visit | 4 (18) | 1 (1) | .006 |
| Hx of depression | 7 (32) | 9 (11) | .02 |
| Mental health next month | 4 (18) | 0 (0) | .001 |
| Unexplained pain | 8 (36) | 12 (14) | .02 |
| Prescribed medication | 13 (60) | 27 (32) | .02* |
| Alcohol abuse | 11 (50) | 31 (37) | .26* |
| Trauma | 8 (36) | 31 (37) | .96* |
| Assault | 6 (27) | 15 (17) | .37 |
| Hospitalization within last year | 5 (22) | 12 (14) | .33 |
| Domestic problem | 5 (22) | 9 (10) | .16 |
| Low back pain | 2 (9) | 9 (10) | 1.00 |
| MVA | 2 (9) | 9 (10) | 1.00 |
| Headache | 3 (13) | 4 (5) | .15 |
| Suicide | 1 (5) | 6 (7) | 1.00 |
| Anxiety | 1 (5) | 2 (2) | .51 |

* (Mantel-Haenszel test)

Of the 22 patients who reported a depressive syndrome, 21 indicated the duration of the symptoms. Nine of the 22 patients with the depressive syndrome (8.9% of the 106 people studied) reported that the duration of each symptom was greater than two weeks. These 9 patients are described as having a major depressive syndrome. Twelve of the 22 participants with the depressive syndrome (11.3% of the 106 patients

studied) reported that the duration of each symptom was less than two weeks. These 12 patients are described as having a minor depressive syndrome. One patient did not report the duration and is not included in any subgroup analysis.

Although the numbers are small, a differentiation of the characteristics of patients with major depressive syndrome, with minor depressive syndrome, and without a depressive syndrome can be made (Tables 5 and

Table 5
Comparison of Patients With and Without Major Depressive Syndrome

| | Major Depressive Syndrome Present N = 9 (%) | Major Depressive SyndromeAbsent N = 84 (%) | *p* value |
|---|---|---|---|
| Depression on visit | 3 (33) | 1 (1) | .002 |
| Hx of depression | 5 (55) | 9 (11) | .003 |
| Mental health next month | 2 (22) | 0 (0) | .008 |
| Unexplained pain | 4 (44) | 12 (14) | .04 |
| Prescribed medication | 5 (55) | 27 (32) | .26 |
| Alcohol abuse | 6 (67) | 31 (37) | .14 |
| Trauma | 3 (33) | 31 (37) | 1.00 |
| Assault | 2 (22) | 15 (17) | .66 |
| Hospitalization within last year | 2 (22) | 12 (14) | .62 |
| Domestic problem | 4 (44) | 9 (10) | .02 |
| Low back pain | 2 (22) | 9 (10) | .23 |
| MVA | 1 (11) | 9 (10) | 1.00 |
| Headache | 1 (11) | 4 (5) | .40 |
| Suicide | 1 (11) | 6 (7) | .52 |
| Anxiety | 0 (0) | 2 (2) | 1.00 |

6). Of the 9 participants with major depressive syndrome, 3 (33%) had depression documented in the clinic visit for that day. A documentation of depression was more common for patients with major depressive syndrome than for patients who did not report a depressive syndrome (33% vs. 1%, $p = .002$). The group with major depressive syndrome also had more frequent documentation of unexplained pains (44% vs. 14%, $p = 0.04$), domestic violence (44% vs. 10%, $p = .02$), history of depression (55% vs. 11%, $p = .003$), and visits to the mental health facility in the month following the study (22% vs. 0%, $p = .008$) than patients without a depressive syndrome. The only differences between patients with minor depressive syndrome and those with no depression were a higher use of mental health facilities in the month following the study (16% vs. 0%, $p = 0.01$) and

Table 6
Comparison of Patients With and Without Minor Depressive Syndrome

| | Minor Depressive Syndrome Present N = 12 (%) | Minor Depressive SyndromeAbsent N = 84 (%) | *p* value |
|---|---|---|---|
| Depression on visit | 1 (8) | 1 (1) | .23 |
| Hx of depression | 2 (16) | 9 (11) | .62 |
| Mental health next month | 2 (16) | 0 (0) | .01 |
| Unexplained pain | 4 (33) | 12 (14) | .11 |
| Prescribed medication | 8 (66) | 27 (32) | .02 |
| Alcohol abuse | 5 (41) | 31 (37) | .75 |
| Trauma | 5 (41) | 31 (37) | .75 |
| Assault | 4 (33) | 15 (17) | .24 |
| Hospitalization within last year | 3 (25) | 12 (14) | .39 |
| Domestic problem | 1 (8) | 9 (10) | 1.00 |
| Low back pain | 0 (0) | 9 (10) | .59 |
| MVA | 1 (8) | 9 (10) | 1.00 |
| Headache | 2 (16) | 4 (5) | 1.00 |
| Suicide | 0 (0) | 6 (7) | 1.00 |
| Anxiety | 0 (0) | 2 (2) | 1.00 |

a higher frequency of prescription medication use (66% vs. 32%, $p = 0.02$) in the patients with minor depression. Again, the difference in medication use is explained entirely by antidepressant medication.

## Discussion

This was a study of self-reported depressive symptoms using *DSM III-R* criteria among adult American Indians attending an IHS primary care clinic. The systematic enlistment of patients, the standardized criteria for depressive syndromes, and the blinded chart review add power to the study's conclusions.

The study does have some potential limitations. One concern lies in the fact that only 54% of patients eligible for enlistment participated in the study. In this clinic, a registration log is signed by patients on their arrival. The order of the registration is based only on order of arrival. Every fourth adult person who signed this log was considered eligible to participate. Approximately 10 adult patients per day could have been enlisted for each of the 20 clinic days during this study period. Sixty-six patients (32%) who should have been solicited for enlistment were not approached. Most of these patients appear to have signed in

late in the day, when time constraints of the clinic interfered with the completion of the study work. These omissions were spread evenly among the study period. Patients approached who did not choose to participate gave a variety of reasons for not enlisting. Because the study's participants had characteristics similar to the nonparticipating clinic patients during the same time period (Table 1) and because no consistent pattern of selection bias was identified (Table 2), we believe that the low rate of participation did not have a major adverse affect on the quality of the results of this study. Another concern in interpreting the results of this study is the potential for cultural differences in the expression of depressive symptoms between American Indian and Alaska Native people and the majority population (Manson, Walker, & Kivlahan, 1987). If significant differences exist, the IDD might not be a valid instrument for defining depressive syndromes despite the fact that it is based on *DSM III-R* criteria. Although the IDD has been highly reliable in testing American Indian adolescents (Ackerson, Dick, Manson, & Baron, 1990), it had not previously been used to test this population. Because the study design did not include a diagnostic interview, a specific diagnosis of a mental disorder cannot be correlated with the responses to the questionnaire. There is a chance, therefore, that the questionnaire results in this study are not a true description of depressive illness in this population. The definition of depressive syndromes in this study is therefore limited to the self-reported quality and duration of depressive symptoms offered by this questionnaire.

In this study, the prevalence of any depressive syndrome was 20.7%. When symptom duration criteria were used, the prevalence of major depressive syndrome was 8.9%. Patients who had a minor depressive syndrome, by our definition, represented 11.3% of the study population. In other studies, estimates of depressive symptoms in primary care settings range from 15% to 50% when using nonspecific instruments. Estimates for major depressive syndrome range from 2% to 9% of patients in studies that use specific criteria and diagnostic interviews as the standard (Katon, 1987). In a recently reported study of primary care practices in Michigan in which the Center for Epidemiologic Studies Depression-Scale (CES-D) followed by a structured clinical interview of a weighted sample and a definition of depression based on *DSM III-R* criteria were used, any form of a depressive disorder was found in 22.6% of all patients and a major depressive disorder was present in 13.5% of all patients (Coyne et al., 1994). Therefore, despite differences in methodology, instrumentation, and populations, the epidemiology of depression in this study appears to be strikingly similar to the epidemiology of depression in other general clinic populations that have been studied.

Also, as in other studies, depression appears to be either underreported or underrecognized by physicians in this IHS clinic. Two previous studies have attempted to describe the prevalence of mental health

disorders in American Indian outpatient clinics. In a review of ambulatory visit diagnoses based on a standardized reporting format, Rhodes et al. (1980) found that mental disorders accounted for 2.1% of all IHS outpatient visits in 1975. Neurosis, which included depressive and anxiety diagnoses, was the most common mental disorder seen (Rhodes et al. 1980). In a review of outpatient visit diagnoses from the study clinic in the year prior to this study, "neurosis," which includes depressive disorders, was found in 2% of ambulatory visits (Wilson, Unpublished Service Unit Data). Goldwasser and Badger in 1988 used the General Health Questionnaire (GHQ) in a nonrandomized sample of volunteers from a different IHS general clinic (Goldwasser & Badger, 1989). They demonstrated a high prevalence of psychiatric symptoms in their volunteer population, with 36% scoring 5 or above on the GHQ, indicating probable psychiatric morbidity. However, only 4.3% scored 5 or above on the depressive subsection. In the present study, physicians in the clinic were not specifically instructed to diagnose or treat depression as a part of the protocol. Therefore, any diagnosis of depression made and recorded in the chart was done only as a part of routine care. The fact that patients with depressive syndromes by IDD criteria were more likely to be diagnosed with depression by the clinic physician suggests that patients with depressive syndromes by IDD criteria are more likely to be depressed by clinical criteria as well. However, because patients answering the questionnaire may have had their clinical presentation altered by the act of answering a questionnaire prior to seeing the physician and because the criteria for diagnosing depression by clinic physicians were not necessarily based on standardized research quality criteria, a direct validation of the questionnaire or of the ability of clinic physicians to diagnose depression cannot be made. It is important to emphasize that even in the study setting, only 18% (4 out of 22) patients with a depressive syndrome by IDD criteria had a chart notation of depression by the physician at the clinic visit. If the results of this study are valid, it and other studies, suggest that depression is as underrecognized and/or underreported in American Indian primary care clinics as it is in other primary care clinic settings.

The clinical and historical determinants in patients who reported a depressive syndrome covered a broad range of situations and presentations. Age, sex, and other common demographic information were not different between patients with and without depressive symptoms. However, more frequent use of mental health facilities, a diagnosis of depression, antidepressant medication use, and a history of unexplainable pains did correlate with the depressive syndrome. These characteristics have been correlated with depressive symptoms in several studies of depression in primary care settings (Smith, 1992). Alcohol use, anxiety, headache, and low back pain have been associated with depression in some other studies but were not significant in this study (Chung & Hraybill, 1990; Coyne et al., 1994; Depression Guideline Panel, 1993). It is important to remember

ber that the relatively small size of the present study may have limited the ability to determine differences between the syndrome groups.

Dividing the patients with any depressive symptoms into those with major depressive syndrome and those with minor depressive syndrome may have some important clinical implications. The only symptom difference given by these groups was the duration of their depressive syndrome. However, the minor depressive syndrome group differed from the nondepressed group only in the use of mental health facilities and antidepressant medication. Patients with the major depressive syndrome differed from the nondepressed group in several additional ways, including history of depression, depression on the visit, unexplained pains, and domestic problems. Differences in the quality of depressive syndromes are important because several studies have shown that up to 30% of patients with depression in primary care clinics will improve in several weeks without specific depression treatment (Depression Guideline Panel, 1993). Patients with so-called minor depression are particularly less likely to show benefit from antidepressant medication treatment than are patients with full-blown major depression (Elkin, Shea, & Watkins, 1989). It is possible that patients with time-limited depressive symptoms should be treated differently than patients with full-blown major depressive syndrome. Before specific recommendations can be made, however, further research is needed to determine the natural history of depressive syndromes in this setting.

Even though a screening device such as the IDD cannot diagnose depression, in this study it did identify a group of people with important emotional and physical complaints. Identifying such individuals might help in delivering the appropriate mental health, social service, and compassionate medical intervention to those most in need. Goldwasser's study suggests that the information offered in the GHQ improved clinical recognition of these problems by the primary care physicians in their IHS clinic (Goldwasser & Badger, 1989). Continued investigations into the development of appropriate questionnaires and optimal screening strategies in a variety of IHS clinical settings, however, are needed to better describe the role for depression symptom screening in American Indian primary care populations.

Because of the wide variety of cultures and situations in the American Indian primary care populations, replication studies are needed to determine the epidemiology and characteristics of depression in other IHS primary care settings. Future research should focus on validating and improving the results of self-report questionnaires among people with varying cultures and medical conditions. Future research should also focus on the effect of treatment strategies and service delivery on the quality of life, medical service use, and the economic impact of depression in American Indians and Alaska Natives.

On the basis of this study, health care providers in IHS primary care clinics should recognize that depressive symptoms are common among adult patients. Potentially important clues when evaluating individual patients about depressive symptoms might include a history of depression, visits for unexplainable pains, antidepressant prescription medication use, use of mental health facilities, and a history of domestic violence. Based on this study and on other research, symptom duration may have clinical importance and may help define populations of patients who have different depressive syndromes. Combined with an increased awareness of depression, this type of information might lead to improved clinical recognition of this common and treatable condition.

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