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## Clinical Differences Among Patients Treated for Mental Health Problems in General Medical and Specialty Mental Health Settings in the National Comorbidity Survey Replication (NCS-R)

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### Abstract

**Objective**—General medical (GM) treatments for mental health disorders are less likely to be adequate than specialty mental health (SMH) treatments. We explored whether differences in clinical characteristics of patients treated in each sector (GM-only or SMH-only) or in both sectors (GM + SMH) may help to explain this finding.

**Method**—We analyzed data from the National Comorbidity Survey Replication (NCS-R), a nationally representative household survey of 5692 English-speaking adult household residents that was carried out in 2001–03. The NCS-R used a fully-structured diagnostic interview to assess DSM-IV disorders, including mood, anxiety, impulse-control, and substance use disorders. We classified disorders in terms of a three-category severity gradient (serious, moderate, mild) based on information about clinically significant distress and role impairment. We collected self-report data on chronic physical conditions, socio-demographics, and type of treatment received for emotional and substance use problems in the 12 months before the interview.

**Results**—Patients who received GM+SMH treatment had more severe mental disorders and a higher prevalence of mood and anxiety disorders than patients who received treatment in only one of the two sectors. Patients seen in the GM-only and GM+SMH had more chronic physical conditions than patients seen in SMH-only.

**Conclusions**—Patient characteristics may partially explain the lower intensity and adequacy of GM treatment.

### Keywords

health services research; National Comorbidity Survey Replication

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Many people in the U.S. rely upon the general medical (GM) sector to receive care for their mental disorders. In the Epidemiologic Catchment Area (ECA) study conducted in the 1980s,

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an equal proportion of those with 12-month mental disorders received treatment in the GM sector as in the specialty mental health (SMH) sector [1]. Recent data from the National Comorbidity Survey Replication (NCS-R), which was conducted in 2001–2003, suggests that 23% of respondents with a mental disorder within the prior 12 months received mental health treatment in the general medical sector (whereas 22% received treatment in the specialty mental health sector) [2]. Overall, the use of the GM sector for mental health treatment increased greatly throughout the 1990s [3].

Although widely used, GM treatments tend to consist of fewer visits and lower rates of adequacy than SMH treatments [4–6]. Reasons for this lower intensity and quality of GM vs. SMH sector treatments are unclear. Earlier studies found that primary care physicians' abilities to correctly diagnose and treat mental disorders were lower than for mental health specialists [7–9]. In the last decade, such findings led to the development of brief screening tools for use in GM settings as well as numerous educational and training initiatives for primary care physicians [10]. However, in spite of these efforts to improve physician recognition, education, and training, the recent NCS-R found that GM patients still receive far fewer mean visits and are much less likely to receive minimally adequate treatment than SMH patients [2].

These NCS-R findings naturally raise questions over the extent to which other non-physician factors, including clinical characteristics of patients, may help to explain the lower intensity and adequacy of GM vs. SMH treatments. One possibility is that patients seeking help from GM physicians have less serious or more self-limiting disorders; if so, less intensive GM treatments or even “watchful waiting” may be appropriate. Previous research has shown that increasing severity of mental illness is clearly associated with an increased likelihood of service use [11–14]; however, evidence is mixed as to whether increasing severity predicts use of the SM sector over the GM sector [11,12,14–21].

A second possibility is that patients treated for mental disorders in the GM sector may have more comorbid general medical conditions than patients treated in the SMH sector. Several previous studies have found that poorer physical health and/or increased physical impairment increases likelihood of receiving mental health treatment [13,14,20,22]. As yet, evidence has been mixed as to whether physical health problems are associated with choice of sector for mental health treatment [11,15,18,20–22]. However, if GM physicians do experience more “competing demands” on their limited time and resources than SMH providers do, this may decrease their ability to adequately treat psychiatric illnesses [23,24]. (Although note that some researchers have not found that comorbid medical illness reduces adequacy of treatment of mental illness [25].)

The most severely mentally ill patients may, in fact, be receiving treatment in both GM and SMH sectors. Emerging trial data have shown that combined use of pharmacotherapies and psychotherapies may be particularly efficacious for severe mental disorders [26,27]. A very common way that many patients receive such combined treatment is through pharmacotherapies prescribed by their GM provider plus psychotherapies in the SMH sector. For this reason, one might expect to see preferential use of GM + SMH treatment among patients with the most severe or complex disorders.

Although previous research has examined the question of differences between patients who receive treatment in different sectors, we note that this work has several limitations, including use of patients only from a small group of patients or a particular health care system [16,17], or focus only on depression and not on other mental illnesses [11,15,18,21,22]. Significantly, much of the previous work is based on data that is at least ten years old [12,14–17,20–22]. It is well-documented that the numbers of people receiving mental health treatment greatly increased during the 1990s [3,28]. Furthermore, the distribution of mental health treatment

among treatment sectors has shifted over that time [3]. These changes make it imperative that we examine newer data to determine service usage patterns.

The aim of the current report was to determine whether predictors of service use (socio-demographic and clinical characteristics) differ in three groups, including respondents receiving mental health services in: GM-only, SMH-only, and both GM + SMH. To do so, we examined data from the NCS-R, which is a nationally representative survey conducted between 2001 and 2003. We hypothesized that respondents receiving GM- only treatment would be less likely to have a mental disorder, would have less severe mental disorders, and would have more general medical comorbidities than those treated in the SMH- only. As reviewed above, some of the previous research examining these hypotheses failed to find differences between groups; one possible reason is that most studies did not separately examine the group of patients that reported having received treatment in both settings (for an exception, see [19]). Therefore, we thought it methodologically important to do so. We hypothesized that respondents using both GM+ SMH were more likely to have a mental disorder and had more severe mental disorders than those treated in only one of these sectors.

## Methods

### Sample

The NCS-R is a nationally representative household survey of respondents ages 18 and older in the coterminous United States [29,30]. Face-to-face interviews were carried out with 9282 respondents between February 2001 and April 2003. Part I included a core diagnostic assessment administered to all respondents. Part II assessed risk factors, correlates, service use, and additional disorders. Part II was administered to all Part I respondents with lifetime disorders plus a probability sub-sample of other respondents, for a total of 5692 Part II respondents. The overall response rate was 70.9%. The NCS-R recruitment, consent, and field procedures were approved by the Human Subjects Committees of both Harvard Medical School and the University of Michigan. More details on the NCS-R sampling procedures are presented elsewhere [29].

### Measures

**Diagnostic assessment of 12-month mental disorders**—DSM-IV diagnoses were made using the World Health Organizations (WHO) World Mental Health (WMH) Survey Initiative version of the Composite International Diagnostic Interview (CIDI) [31], a fully structured lay –administered diagnostic interview that generates both ICD-10 [32] and DSM-IV [33,34] diagnoses. Twelve month DSM-IV disorders considered here include mood (bipolar I and II disorders, major depressive disorder, dysthymia), anxiety (panic disorder, agoraphobia without panic, specific phobia, social phobia, generalized anxiety disorder, obsessive-compulsive disorder, post-traumatic stress disorder), impulse control (intermittent explosive disorder, ADHD), and substance disorders (alcohol and drug abuse and dependence). All diagnoses are considered with organic exclusions and with diagnostic hierarchy rules, with the exception of the substance disorders, where abuse is defined with or without dependence. Blind clinical reappraisals using the Structured Clinical Interview for DSM-IV (SCID) [34,35] showed generally good concordance between WMH-CIDI diagnoses and SCID diagnoses for anxiety, mood, and substance disorders. WMH-CIDI diagnoses of impulse-control disorders have not been validated.

**Mental disorder severity**—NCS-R respondents who reported 12-month DSM-IV disorders were asked to focus on the month in the past year when symptoms were most persistent and severe and to rate role disability during that month. Sheehan Disability Scales (SDS) [36] responses were used to define a severity gradient of serious, moderate, or mild. Serious cases

met criteria for: bipolar I or II disorder or substance dependence with physiological dependence; a suicide attempt with serious lethality intent; at least two areas of “severe” or “very severe” SDS role impairment; or a multivariate functional impairment score equivalent to a Global Assessment of Functioning (GAF) [37] of 50 or less. Moderate cases were defined as those with: at least “moderate” interference from a mental disorder in any of the four SDS life domains; or substance dependence without physiological dependence. All other mental disorders were classified as mild. In a previous examination of validity of these ratings [3], a statistically significant gradient ( $F_{2,5692} = 17.7, p < .001$ ) was found in the average (mean) number of days out of role reported by cases classified as serious (88.3), moderate (4.7), and mild (1.9).

**Twelve month use of mental health services**—All Part II respondents were asked whether they ever received treatment for “problems with your emotions or nerves or your use of alcohol or drugs.” A list of treatment providers was presented in a Respondent Booklet to provide a visual recall aid. Separate assessments were made for different types of professionals, support groups, self-help groups, mental health crisis hotlines (assumed to be visits with non-psychiatrist mental health specialists), complementary and alternative (CAM) therapies, and use of other treatment settings including admissions to hospitals and other facilities (each day of admission was assumed to include a visit with a psychiatrist). Follow-up questions asked about age at first and most recent contacts as well as number of visits in the past 12 months.

Reports of 12-month health service use were classified into the following categories: SMH (psychiatrist, psychologist or other non-psychiatrist mental health professional in any setting, social worker or counselor in a mental health specialty setting, use of a mental health hotline), GM (primary care doctor, other general medical doctor, nurse, or any other health professional not previously mentioned), human services professional, and CAM professional. In this report, we focus only on visits to general medical (GM) or specialty mental health (SMH) providers. We distinguish respondents who received treatment in the GM sector but not the SMH sector (GM-only), those who received treatment in the SMH sector but not the GM sector (SMH-only), and those who received treatment in both sectors (GM+SMH).

**Chronic physical conditions over the previous twelve months**—Part II respondents were asked whether they had experienced or had any treatment for the following conditions in the prior 12 months: back or neck problems, frequent or severe headaches, any other chronic pain, high blood pressure, tuberculosis, diabetes or high blood sugar, ulcer, or cancer. Respondents were also asked whether they had ever experienced arthritis or rheumatism, stroke, heart attack, heart disease, asthma, chronic lung disease, HIV, or epilepsy or seizures. These were assumed to be ongoing chronic conditions.

**Socio-demographic predictor variables**—Socio-demographic variables included: cohort (defined by age at interview and categorized as 18–29, 30–44, 45–59, 60+); gender; race-ethnicity (Non-Hispanic White, Non-Hispanic Black, Hispanic, Other), completed years of education (0–11, 12, 13–15, and 16+), marital status (married, separated/widowed/divorced, never married).

## Analysis Methods

NCS-R data were weighted to adjust for differences in probabilities of selection, differential non-response, residual differences between the sample and the US population, and over-sampling in the Part II sample [29]. The composition of the three different treatment groups (e.g., socio-demographic groups, percent with a disorder type, number and severity of mental health disorders, number of chronic physical conditions) was examined by computing simple proportions. As described by Begg and Gray [38], three sets of binary logistic regression

analyses [39] were used to study the predictors of each of three types of treatment: GM-only (vs. no treatment), SMH-only (vs. no treatment), and GM+SMH (vs. no treatment). The logistic regression coefficients in the prediction equations were exponentiated and interpreted as odds-ratios (ORs) for ease of interpretation. In order to evaluate whether predictors differed across the three types of treatment, interactions of predictors with type of treatment were estimated and tested for statistical significance. Standard errors and 95% confidence intervals were estimated using the Taylor series method as implemented in SUDAAN [40]. Significance of predictor sets, as well as the significance of the interactions of predictors with type of treatment, was evaluated using Wald chi-square tests based on Taylor series coefficient variance-covariance matrices. Statistical significance was evaluated using two-sided design-based tests and the .05 level of significance.

## Results

### 12-Month Disorder Prevalence and Service Use

As reported previously [41], estimates of 12-month prevalence of classes of mental disorders are: anxiety disorders 18.1%, mood disorders, 9.5%, impulse control disorders 8.9%, and substance disorders, 3.8%. 15.3% of NCS-R respondents reported receiving treatment for mental health or substance abuse problems in some part of the health care sector in the year before interview [2] (see Table 1). Six and one half percent of respondents reported receiving GM-only treatment; 6.0% SMH-only treatment; and 2.8% GM + SMH treatment.

### Demographic Predictors of Service Use

Table 2 presents the socio-demographic characteristics of the three groups. A larger proportion of respondents receiving GM-only treatment were older, married, and female than in the other two groups. Those receiving SMH-only treatment were more highly educated, and included a larger proportion of African Americans. Finally, there was a smaller proportion of Hispanics in the GM+SMH group than in the other two groups.

The five socio-demographic variables were all significant predictors of treatment. The odds of receiving treatment for two of the five (marital status and education) did not differ significantly by type of treatment (see Table 2). In comparison, the three other socio-demographic variables (age, race-ethnicity, and gender) did differ significantly in their associations with the three types of treatment. Although age was a significant predictor of treatment in all sectors, the association with GM-only treatment was due to the youngest respondents having significantly lower odds of treatment than the oldest respondents, whereas the associations of age with SMH-only and GM+SMH treatment were due to younger respondents having consistently higher odds of treatment than the oldest respondents. Race-ethnicity was a significant predictor of treatment in two sectors only, GM-only and GM+SMH. In both sectors, racial-ethnic minorities had significantly lower odds of receiving treatment than Non-Hispanic Whites. Finally, women were consistently more likely to obtain treatment than men, although the difference was greatest for GM-only treatments.

### Mental and Physical Health Predictors of Service Use

Table 3 presents the profiles of the three treatment groups. The clinical composition of the three treatment groups was different, with the GM+SMH treatment group tending to have the highest proportion of respondents with severe mental illness, followed by the SMH-only group. There were also differences by disorder type: approximately 50% of GM+SMH respondents had a mood disorder, compared to less than 30% of GM-only and SMH-only respondents. In contrast, rates of anxiety disorders and substance use disorders were similar among GM+SMH and SMH-only respondents, and higher than among the GM-only respondents. Treatment groups were also different with regard to number of chronic medical conditions: GM-only

respondents tended to have the most medical conditions, and SMH-only respondents had the least.

Table 3 shows that having a mental health disorder consistently predicted an increased likelihood of receiving treatment. The odds of receiving mental health treatment if one had an anxiety, mood, or substance use disorders differed significantly by treatment type; the odds for impulse control disorders did not. As expected, the odds of receiving GM +SMH treatment if one had either an anxiety or a mood disorder were higher than the odds of receiving GM-only or SMH-only treatment. Having a substance use disorder increased the odds of receiving GM + SMH or SMH-only treatments, but not GM-only treatment.

Number of mental health disorders was a significant predictor of treatment in all three equations (see Table 3), with more comorbidity being associated with an increased likelihood of treatment. Odds ratios did not differ significantly by type of treatment.

As depicted in Table 3, increasing severity of mental health disorders was consistently associated with an increased likelihood of receiving treatment. However, odds differed by treatment type. As expected, ORs in the GM+SMH equation were consistently larger than ORs for the other two sectors. Furthermore, having a severe mental illness (vs. no mental illness) was more strongly associated with receiving SMH-only treatment than GM-only treatment.

Finally, having more chronic physical conditions was consistently associated with a greater likelihood of receiving treatment. ORs did differ by treatment type. ORs were somewhat larger for the GM-only sector than for the SMH-only sector; ORs for the GM + SMH sector were intermediate in value.

## Discussion

These results should be considered in light of five sets of potential limitations. First, people who were homeless or institutionalized were excluded from the NCS-R; however, this is a small percentage of the total population. Second, not all DSM-IV disorders were assessed in the NCS-R; therefore, some people who may have met criteria for a disorder were classified as not having one. Third, the CIDI diagnoses of impulse-control disorders have not yet been validated. Fourth, the validity of the self-reports of treatment use in the NCS-R is unknown. Although the NCS-R did exclude a small percentage of respondents (<1%) who would not agree that they would think carefully and answer honestly in response to survey questions, it is still possible that respondents overestimated [42,43] or underestimated [44] service use. However, note that the Healthcare for Communities Survey found similar rates of service utilization for people with mental disorders[2,45]. Finally, it is unknown whether patients in the GM + SMH group saw providers from different sectors serially or concurrently within the previous year.

In spite of these potential limitations, these results shed light on important differences in the clinical characteristics of patients who are treated in particular health care sectors. It appears that cases receiving GM-only treatments are less likely to have severe mental disorders than those receiving SMH-only treatments. Some of the earlier investigations have also found that patients seeking help from general medical physicians tend to have a less serious profile of disorders than those treated in other sectors [12,15,16,21]. In some mild cases, the less intensive care delivered in GM settings (vs SMH) [2,4–6] may be appropriate. On the other hand, other investigators have not found substantial differences in severity or impairment between primary care and specialty samples[11,14,17,19,20]. Reasons for differences between older results and the current study are uncertain, but could be due to changing patterns of care. The current results do indicate that in absolute terms there continue to be many patients with serious

disorders who are treated in the GM sector alone (i.e., 15% of these patients have a severe mental illness). It is essential that these patients receive high quality treatments.

As expected, cases treated in both the GM + SMH settings do indeed have more severe forms of psychiatric illness than those seen in either SMH or GM alone. Similarly, Lesage et al. [19] also reported that individuals receiving joint care exhibited more severe role impairment. This may be partially due to an association between the number of visits and the severity of mental illness [2]. That is, by definition, in order to receive treatment in two sectors, one must have a minimum of two mental health visits, whereas only one visit is required to receive treatment in a single sector. However, because two visits in two separate sectors may take a much greater effort on the part of the patient than two visits to the same sector, it is unlikely that this completely accounts for the greater severity of mental illness in this group.

A limitation of the NCS-R data is that we do not know to what extent people receiving care in both settings were receiving concurrent care from two providers, versus to what extent the care was serial. That is, the GM + SMH group may include a) patients that GM practitioners referred to a SMH provider, who then assumed responsibility for mental health care or b) patients who dropped out of SMH treatment and then presented to their GM for mental health treatment. To the extent that the GM + SMH group does represent people receiving truly combined treatment, these findings provide some grounds for encouragement, given the data from clinical trials suggesting that combined modality treatments are particularly effective for severe mental illnesses [26,27]. The scenario in which GM practitioners refer these more severely ill patients to SMH providers is also encouraging: these may be the patients who are appropriately treated by a specialist. Of more concern is the scenario in which severely ill patients drop out of SMH treatment. [46] Further investigation of who receives GM + SMH care and exactly what this care consists of is warranted.

Consistent with some of the previous research[18,21,22] is the fact that patients receiving GM treatment (whether alone or with SMH treatment) were more medically ill. Exact reasons for this are unclear but may include the possibility that patients with complex medical problems find it more comfortable or convenient to also have their mental health needs met by their GM provider. Regardless, the fact that primary care physicians must manage all of a patient's health needs, including the considerable general medical comorbidity that afflicts primary care populations, almost certainly exacerbates "competing demands" on physicians' limited time and resources and may lead to less intensive and adequate treatment of mental disorders[23, 24]. More surprising is the fact that SMH providers also see many people with general medical conditions, with over 60% of SMH cases having two or more chronic physical conditions. Although general medical disorders are not necessarily their responsibility, SMH providers clearly have the potential to have an impact on their patients' general medical treatments and overall health outcomes (e.g., through interventions to improve adherence, increase exercise, or improve diet).

Our results suggest that there are some demographic differences amongst the three sectors. If certain groups, such as the elderly, comprise a larger proportion of the GM sector (relative to the other two sectors), and are less likely to accept mental health treatment [47,48], this may also contribute to the decreased adequacy of GM treatment. However, women also comprise a larger proportion of the GM sector, and women may be more accepting of mental health diagnoses than men [49]. Therefore, it is unlikely that demographic differences between sectors would explain the differing degrees of adequacy of treatment. On the other hand, the demographic differences between sectors do reinforce the need to either ensure that the different sectors provide adequate treatment or decrease barriers to access (especially to combined GM + SMH treatment).

Given that primary care physicians do treat a substantial number of people with moderate-severe mental illness, it is important to improve the quality of GM treatments. Several promising models of outreach and enhanced treatment that incorporate SMH providers in primary care practices have already proven to be effective. A recent study shows that, when primary care physicians and psychiatrists use protocol-driven, measurement-based care to pharmacologically treat depression, they achieve similar outcomes [50]. A series of studies have also demonstrated improved outcomes in primary care settings with the use of a non-physician depression care manager, who is supervised by a SMH provider, and who follows depressed patients closely, helps the patient and physician to develop a treatment plan, monitors treatment adherence and response, and may offer brief psychotherapy [51–53]. There is evidence to suggest that these types of interventions are not only effective but also cost-effective [54].

Likewise, the fact that the majority of patients in both GM and SMH treatments have multiple chronic physical conditions also presents enormous opportunities to improve the general health outcomes of patients with mental disorders. As an example, research has found that a collaborative primary care-based depression treatment program improves depression outcomes amongst patients who have diabetes [55]. However, despite the fact that depression is associated with poorer diabetes outcomes, this treatment program did not result in improved diabetes management. These authors suggest that an integrated disease management intervention that focuses on diabetes-related self-care as well as depression may be needed in order to effect changes in diabetes outcomes as well. In general, the high degree of comorbidity between physical and mental health problems suggests that there is a need for development and testing of integrated disease management interventions that treat common comorbid mental and physical health problems [56]. These programs may be useful in both SMH and GM settings.

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**Table 1**  
Prevalence of Mental or Substance Abuse Treatment

	%	(se)
General Medical Only	6.5	(0.3)
Specialty Mental Health	6.0	(0.4)
Both General Medical and Specialty Mental Health	2.8	(0.2)
Total	15.3	(0.6)

**Table 2**  
Demographic composition of different service sectors and prediction of 12-month service use

	GM Only <sup>d</sup> (n = 372)			SMH Only <sup>d</sup> (n = 342)			GM + SMH <sup>d</sup> (n = 157)					
	%	(se)	OR	(95% CI)	%	(se)	OR	(95% CI)	%	(se)	OR	(95% CI)
<b>Age</b>												
18-29	14.5	(1.7)	0.7*	(0.5-0.9)	27.1	(2.4)	3.8*	(2.7-5.5)	25.8	(3.6)	3.8*	(2.0-7.3)
30-44	31.3	(2.4)	1.2	(0.9-1.6)	38.3	(2.0)	4.7*	(3.4-6.4)	37.2	(3.1)	4.7*	(2.5-8.7)
45-59	33.2	(3.1)	1.4	(1.0-2.0)	27.8	(2.4)	3.7*	(2.3-5.9)	30.5	(3.4)	4.1*	(2.3-7.4)
60+	20.9	(2.0)	1.0	--	6.7	(1.1)	1.0	--	6.5	(1.8)	1.0	--
$\chi^2_{3,b}$			25.0*				123.5*				26.9*	
$\chi^2_6$ for Treatment Type=21.7*												
<b>Years of Education</b>												
0-11	17.9	(2.1)	1.3	(1.0-1.8)	13.9	(1.6)	0.7*	(0.5-0.9)	18.5	(2.3)	1.3	(0.8-2.2)
12	36.8	(2.9)	1.4*	(1.1-1.9)	26.5	(2.9)	0.6*	(0.5-0.9)	26.4	(4.2)	0.9	(0.5-1.6)
13-15	27.0	(2.2)	1.3	(0.9-1.7)	30.0	(2.9)	0.9	(0.6-1.2)	35.2	(3.5)	1.5*	(1.8-2.3)
16+	18.4	(2.0)	1.0	--	29.6	(2.5)	1.0	--	19.9	(3.7)	1.0	--
$\chi^2_{3,b}$			7.6				14.2*				7.1	
$\chi^2_6$ for Treatment Type=5.0 <sup>c</sup>												
<b>Marital Status</b>												
Married	55.2	(2.5)	1.3	(1.0-1.8)	39.2	(2.7)	0.5*	(0.4-0.6)	45.5	(4.0)	0.7*	(0.5-0.9)
Single/Widowed/Divorced	28.1	(2.3)	2.0*	(1.4-2.9)	30.1	(2.2)	1.2	(0.9-1.5)	26.3	(2.8)	1.1	(0.8-1.6)
Never married	16.7	(1.9)	1.0	--	30.8	(2.3)	1.0	--	28.2	(3.6)	1.0	--
$\chi^2_{2,b}$			16.3*				35.9*				11.0*	
$\chi^2_4$ for Treatment Type =3.4 <sup>c</sup>												
<b>Race/ Ethnicity</b>												
Hispanic	8.9	(1.6)	0.7	(0.5-1.0)	10.2	(2.2)	0.8	(0.5-1.4)	5.5	(1.6)	0.4*	(0.3-0.8)
Black	6.7	(1.3)	0.5*	(0.3-0.7)	9.8	(1.6)	0.7	(0.5-1.0)	6.7	(2.0)	0.4*	(0.2-0.8)
Other	2.6	(1.0)	0.6	(0.2-1.3)	3.6	(1.1)	0.9	(0.5-1.5)	3.4	(1.0)	0.7	(0.4-1.5)
White	81.8	(2.7)	1.0	--	76.4	(2.9)	1.0	--	84.5	(2.7)	1.0	--
$\chi^2_{3,b}$			15.8*				4.5				14.6*	

	GM Only <sup>d</sup> (n = 372)			SMH Only <sup>d</sup> (n = 342)			GM + SMH <sup>d</sup> (n = 157)		
	%	(se)	OR (95% CI)	%	(se)	OR (95% CI)	%	(se)	OR (95% CI)
$\chi^2_6$ for Treatment Type = 28.5 <sup>*c</sup>									
Gender									
Female	70.8	(1.9)	2.3 <sup>*</sup> (1.9–2.8)	58.3	(2.5)	1.4 <sup>*</sup> (1.1–1.7)	66.8	(4.0)	1.9 <sup>*</sup> (1.4–2.7)
Male	29.2	(1.9)	1.0 --	41.7	(2.5)	1.0 --	33.2	(4.0)	1.0 --
$\chi^2_1$ <sup>b</sup>			79.1 <sup>*</sup>			8.8 <sup>*</sup>			15.6 <sup>*</sup>
$\chi^2_2$ for Treatment Type = 8.9 <sup>*c</sup>									

\* Significant at the .05 level, two sided test.

<sup>a</sup> Reference group for the dependent variable in the logistic regressions was a “no treatment” group.

<sup>b</sup> This chi-square evaluates the significance of the strength of the association between the predictor and the dependent variable (i.e., treatment group vs. no treatment group).

<sup>c</sup> This chi-square evaluates the significance of the *difference* in the strength of association between the predictor and the dependent variable (treatment group) across the three different types of treatment.

**Table 3**  
Clinical composition of different service sectors and prediction of 12-month service use

Disorder type	GM Only <sup>d</sup> (n = 372)			SMH Only <sup>d</sup> (n = 342)			GM + SMH <sup>d</sup> (n = 157)		
	%	(se)	OR (95% CI)	%	(se)	OR (95% CI)	%	(se)	OR (95% CI)
Any anxiety ( $\chi^2$ for tx type = 8.2 <sup>*c</sup> )	42.3	(3.1)	4.7* (3.6-6.1)	58.1	(2.6)	3.9* (3.0-5.2)	60.5	(3.5)	9.8* (7.2-13.3)
Any mood ( $\chi^2$ for tx type = 22.8 <sup>*c</sup> )	26.9	(2.3)	6.2* (4.8-8.2)	28.5	(2.4)	6.8* (5.2-8.7)	51.9	(3.3)	18.3* (13.9-24.2)
Any impulse ( $\chi^2$ for tx type = 3.2 <sup>c</sup> )	10.6	(1.4)	2.4* (1.6-3.5)	13.9	(1.9)	3.2* (2.4-4.6)	16.5	(2.6)	4.0* (2.6-6.0)
Any substance ( $\chi^2$ for tx type=6.3 <sup>*c</sup> )	4.9	(1.2)	1.7 (1.0-2.7)	10.5	(1.7)	3.8* (2.7-5.4)	13.7	(2.2)	5.2* (3.8-7.1)
$\chi^2_{4}$			330.1*			431.0*			446.2*
$\chi^2_6$ for Treatment Type=21.7 <sup>*c</sup>									
Number of mental health disorders									
0	42.5	(2.5)	1.0	42.7	(2.0)	1.0	21.3	(3.4)	1.0
1	28.5	(2.1)	4.5* (3.5-5.8)	23.7	(1.7)	3.7* (2.8-4.8)	25.5	(3.4)	8.0* (4.8-13.3)
2	13.7	(1.6)	6.0* (4.4-8.2)	14.2	(1.5)	6.1* (4.3-8.9)	17.5	(2.6)	15.2* (8.6-26.7)
3+	15.3	(1.7)	7.9* (5.8-10.7)	19.4	(1.7)	9.9* (7.8-12.8)	35.7	(3.8)	36.8* (24.0-56.4)
$\chi^2_{3}$			252.4*			389.0*			309.9*
$\chi^2_6$ for Treatment Type=1.0 <sup>c</sup>									
Mental health disorder severity									
None	40.5	(2.7)	1.0	38.2	(2.1)	1.0	19.7	(3.3)	1.0
Mild	20.5	(2.1)	4.1* (3.0-5.7)	13.9	(1.8)	3.0* (2.1-4.3)	13.3	(3.3)	5.5* (2.8-11.0)
Moderate	24.5	(1.8)	6.0* (4.7-7.8)	21.8	(1.9)	5.7* (4.4-7.3)	27.0	(3.2)	13.6* (8.9-20.7)
Severe	14.5	(1.5)	8.8* (6.6-11.8)	26.1	(2.6)	16.8* (12.2-23.2)	40.0	(4.0)	50.0* (31.7-78.7)
$\chi^2_3$			318.4*			393.8*			394.9*

	GM Only <sup>d</sup> (n = 372)			SMH Only <sup>d</sup> (n = 342)			GM + SMH <sup>d</sup> (n = 157)					
	%	(se)	OR	(95% CI)	%	(se)	OR	(95% CI)	%	(se)	OR	(95% CI)
$\chi^2_6$ for Treatment Type=55.2 <sup>*c</sup>												
Number of chronic conditions												
0-1	24.0	(2.9)	1.0	--	38.9	(2.8)	1.0	--	29.3	(2.8)	1.0	--
2-3	37.3	(2.6)	2.2 <sup>*</sup>	(1.6-3.2)	37.2	(2.6)	1.4 <sup>*</sup>	(1.1-1.8)	40.9	(3.8)	2.0 <sup>*</sup>	(1.5-2.8)
4+	38.7	(2.6)	4.7 <sup>*</sup>	(3.3-6.7)	23.9	(2.5)	1.8 <sup>*</sup>	(1.3-2.5)	29.7	(3.4)	3.0 <sup>*</sup>	(2.1-4.1)
$\chi^2_2$	83.8 <sup>*</sup>											
$\chi^2_4$ for Treatment Type=12.6 <sup>*c</sup>	13.4 <sup>*</sup>											

\* Significant at the .05 level, two sided test.

<sup>a</sup> Reference group for the dependent variable in the logistic regressions was a "no treatment" group.

<sup>b</sup> This chi-square evaluates the significance of the strength of the association between the predictor and the dependent variable (i.e., treatment group vs. no treatment group).

<sup>c</sup> This chi-square evaluates the significance of the *difference* in the strength of association between the predictor and the dependent variable (treatment group) across the three different types of treatment.