Integrated specialty mental health care among older minorities improves access but not outcomes: results of the PRISMe study

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SUMMARY

Objective   In this secondary data analysis of Primary Care Research in Substance Abuse and Mental Health for the Elderly (PRIMSe) study, we hypothesized that older minorities who receive mental health services integrated in primary care settings would have greater service use and better mental health outcomes than older minorities referred to community services.
Method   We identified 2,022 (48% minorities) primary care patients 65 years and older, who met study inclusion criteria and had either alcohol misuse, depression, and/or anxiety. They were randomized to receive treatment for these disorders in the primary care clinic or to a brokerage case management model that linked patients to community-based services. Service use and clinical outcomes were collected at baseline, three months and six months post randomization on all participants.
Results   Access to and participation in mental health /substance abuse services was greater in the integrated model than in referral; there were no treatment by ethnicity effects. There were no treatment effects for any of the clinical outcomes; Whites and older minorities in both integrated and referral groups failed to show clinically significant improvement in symptoms and physical functioning at 6 months.
Conclusions   While providing services in primary care results in better access to and use of these services, accessing these services is not enough for assuring adequate clinical outcomes. Copyright © 2008 John Wiley & Sons, Ltd.

KEY WORDS — geriatrics; minorities; mental health services; substance abuse services

INTRODUCTION

Ethnic disparities are well documented in almost every aspect of the health care system and across all age groups (Fiscella *et al.*, 2000). Ethnic minorities have lower levels of access to mental health and substance abuse services than do Whites, even when they intentionally seek out these services (Hu *et al.*, 1992; Lasser *et al.*, 2002). Disparities are due to stigma, mistrust of formal services, financial constraints, lack

of public transportation, low availability of services, and lack of culturally competent services (Blank *et al.*, 1994; Bazargan *et al.*, 1998; Rosenheck and Stolar, 1998; Thompson and Akbar, 2004).

Integrating mental health services into primary care has been found to be effective in reducing service use disparities among minority populations (Miranda *et al.*, 2003; Arean *et al.*, 2005a), as this model involves medical staff that assess potential barriers to service use and provide assistance in overcoming these barriers. But critical aspects of integrated care, such as the use of care managers, are not reimbursed by existing insurance providers (Arean *et al.*, 2005b). Hence, brokerage case management models may be a

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cost effective way to link patients to needed community mental health and substance abuse services (Peterson *et al*., 1997; Mueser *et al*., 1998; Blow *et al*., 2000; Simpson *et al*., 2003; Levkoff *et al*., 2004).

This is a secondary data analysis of the Primary Care Research Study in Substance Abuse and Mental Health Services for the Elderly (PRISMe) study. The parent study found that the integration of mental health treatment into primary care clinics resulted in better access to care (Bartels *et al*., 2004) and comparable clinical outcomes for both intervention arms (Krahn *et al*., 2006; Oslin *et al*., 2006). The present study extends this research by evaluating access to services and clinical outcomes in ethnic minorities. The study adds to past research that found that the integration of mental health services into primary care overcomes ethnic disparities in access to mental health services (Ayalon *et al*., 2007), by focusing on the entire clinical sample (in contrast to site-specific data) and by evaluating both services and clinical outcomes. The purpose of this study is to compare mental health/substance abuse service (MH/SA) integration in primary care to brokerage case management on: (a) access to services; and (b) treatment outcomes for older minorities and Whites. We expect the integration of mental health into primary care to be as effective for ethnic minorities as it is for Whites. Because the integrated model of care allows for proximity to primary care as well as the capitalization on already established trust in and familiarity with primary care providers and setting, we expect the brokerage case management model to have less favorable access and treatment outcomes for both White and ethnic minority older adults,

METHODS

The PRISMe study was a multi-site randomized controlled study conducted in ten different primary care clinics (five VA medical centers, three community mental health centers, and two outpatient hospital networks). One VA site did not use patient level randomization, and was thus excluded from this analysis. Subjects from the ten study sites were randomly assigned to either integrated care or enhanced referral care and followed for up to 6 months. For a detailed description of study procedures see Levkoff *et al*. (2004).

Participant selection

Twenty four thousand nine hundred and thirty persons over the age of 65 were screened for inclusion in the study. Participants were initially selected through patient registries based on their age and were approached by their primary care providers for initial interest in participation. Interested patients were screened using the General Health Questionnaire (GHQ; Goldberg, 1992), the Blessed Mini Mental Status Exam (Katzman *et al*., 1983), and an alcohol quantity/frequency scale (Sobell *et al*., 1988). Those who screened positive on the GHQ or the alcohol screen, had a Blessed score of 16 or less, and were not currently in mental health treatment were eligible to complete a more comprehensive intake evaluation to determine final eligibility.

Eligibility criteria included the presence of either major depression, minor depression, dysthymia, depression NOS, generalized anxiety disorder, panic disorder, anxiety NOS, or alcohol misuse. Diagnosis was determined based on the MINI-International Neuropsychiatric Interview (MINI; Sheehan *et al*., 1988). The final sample for this study consisted of 2,022 older adults 999 in integrated care and 1,023 in brokerage case management.

Interventions

Integrated care. Primary care clinics were required to provide MH/SA services on-site and included medication management, psychotherapy (group, individual and family), case management and a brief behavioral alcohol intervention based on Harm Reduction and Motivational Interviewing Techniques (Barry *et al*., 2001). No specific algorithm was used for any treatment. The primary care provider conducted an initial evaluation and discussion about treatment options with the patient; if the patient agreed to treatment, the primary care provider prescribed medication to those patients who wanted to be treated with medication, and referred all patients to the MH/SA provider in the primary care clinic for follow-up, care management, and/or psychotherapy.

Brokerage case management. Patients randomized to this arm were initially evaluated by the primary care provider, who referred the patient to a nurse or a medical social worker. Patients received an evaluation of patient need and access use barriers. Patients were linked to social services to overcome access barriers; for instance, transportation services for those who cannot drive. MH/SA services were provided in a separate location from the primary care clinics by licensed MH/SA providers, and included medication management, psychotherapy and Alcoholics Anonymous model treatment for heavy drinking. Specialty

MH/SA service providers were instructed to coordinate care with the patient's primary care providers to the best of their abilities and to complete on-going documentation of service delivery. Again, no specific algorithm or treatment was offered and, thus, treatment varied form provider to provider.

Outcome variables

In this paper, we report on both service use and clinical outcomes. *Service use outcomes* were assessed using a *treatment tracking form* (Levkoff *et al.*, 2004), completed by the treating provider. We used the following items to determine service use: (a) access: whether or not first MH/SA appointment took place; (b) participation: overall number of MH/SA appointments; and (c) time from initial evaluation to first MH/SA visit. *Clinical outcomes* were depression level as measured by the CES-D (Radloff, 1977), anxiety level as measured by the BAI (Beck, 1988), alcohol symptoms as measured by the G-MAST (Conigliaro *et al.*, 2000), and physical functioning as measured by the SF-36 (Ware and Sherbourne, 1992). We used the screening GHQ to control for distress in the outcomes analysis.

Statistical analysis

Data related to service outcomes and clinical outcomes were collected at baseline, 3 months and 6 months. In all service access and use outcomes, we controlled for overall distress level, as distress is a

well-known predictor of service use. For whether or not first MH/SA appointment took place, we conducted a logistic regression. Number of MH/SA visits and time from baseline evaluation to first visit (of any type, among those with at least one visit) were analyzed using linear regression models. To accommodate the clustering by clinics, we used a generalized estimating equations (GEE) approach for the analyses described above. All clinical outcomes were analyzed using mixed effects regression models allowing subject-specific slopes and intercepts. These models accommodate the repeated measures through inclusion of random effects. All analyses were intent-to treat analyses; participants were analyzed as randomized, and data were collected for all time points regardless of whether or not services were accessed. Least squares means were used to estimate average values of longitudinal variables across all visits for various subgroups. All analyses were conducted in SAS version 9.1.

RESULTS

Sample characteristics

Table 1 summarizes the clinical characteristics of the sample and the service utilization. Of the 2,022 participants in the study, 1,046 were white, 499 Black, 297 Latino, 112 Asian, and 68 identified as 'other'. The sample was primarily male (73%) with less than high school level of education (78%). The average age was 73 (SD $= 6.1$) and, on average, participants had five (SD $= 2.5$) chronic conditions. Only 22.9% had at

Table 1. Clinical characteristics of the sample and service utilization

Clinical characteristics	All ($n = 2022$)[a]	White ($n = 1046$)	Black ($n = 499$)	Hisp/Latino ($n = 297$)	Asian ($n = 112$)	Other ($n = 59$)	P-Value[b]
Male (n, %)	1457 (73.3)	834 (81.0)	404 (81.3)	125 (42.2)	50 (47.6)	44 (74.6)	0.5885
Mean (SD) Age	73 (6.1)	74.1 (6.2)	72.8 (6)	72.6(5.8)	70.5 (5)	74.9 (5.7)	0.1507
Married (n, %)	971 (48.4)	590 (56.5)	175 (35.1)	106 (35.9)	75 (67.0)	25 (42.4)	0.1030
Less than high school graduate (n, %)	870 (43.4)	267 (25.7)	276 (55.4)	232 (78.4)	74 (66.1)	21 (35.6)	0.0689
Limited finances[¶] (n, %)	414 (21.0)	98 (9.6)	78 (15.9)	178 (61.4)	50 (45.0)	10 (17.2)	<0.3632
Mean (SD) # Chronic diseases	5.0 (2.5)	5.0 (2.5)	5.0 (2.5)	5.0 (2.4)	3.5 (2)	6.0 (2.5)	0.1843
Mean (SD) Physical functioning	38.3 (10.6)	38.5 (11.2)	38.4 (10.4)	37.3 (8.5)	41.8 (9.6)	33.4 (10.9)	0.1860
Mean (SD) Mental functioning	41.2 (12.9)	46.3 (12.4)	40.8 (12)	32.9 (11)	27.8 (10)	43.6 (11.5)	0.3325
Depression disorder (n, %)	1524 (75.7)	687 (65.7)	404 (81.0)	280 (94.3)	105 (93.8)	48 (81.4)	0.1257
Anxiety disorder (n, %)	511 (25.4)	272 (26.0)	124 (24.8)	63 (21.2)	29 (25.9)	23 (39.0)	0.4430
At-risk drinking (n, %)	559 (27.8)	391 (37.4)	133 (26.7)	20 (6.7)	4 (3.6)	11 (18.6)	0.1028
Dual diagnosis (n, %)	147 (7.3)	81 (7.7)	51 (10.2)	7 (2.4)	3 (2.7)	5 (8.5)	0.3261
Service utilization							
At least 1 mental health visit (n, %)	460 (22.9)	184 (40.0)	72 (15.7)	125 (27.2)	64 (13.9)	15 (3.3)	0.4509
Mean (SD) no. of mental health visits	2.5 (3.7)	2.3 (3.6)	2.2 (3.3)	2.9 (3.4)	3.5 (5.0)	3.2 (5.2)	0.3770

[a]Totals may not add up due to missing data.
[b]P-values are from PROC GENMOD to account for clustering by clinic.

Table 2. Percentage of subjects having at least one mental health visit and total numbers within the given race and treatment group and adjusted odds ratios (ORs) with 95% confidence intervals (CIs)

Ethnicity	Treatment assignment		Treatment OR[a] (95% CI)	P-Value	Interaction OR* (95% CI)	P-Value*
	Referral % (n)	Integrated % (n)				
White	12% (538)	23% (508)	2.23 (0.95, 5.22)	0.0658	1	
Black	17% (248)	12% (251)	0.71 (0.14, 3.75)	0.6890	0.32 (0.07, 1.52)	0.1512
Asian	64% (59)	49% (53)	0.53 (0.37, 0.77)	0.0009	0.24 (0.09, 0.61)	0.0026
Latino	27% (148)	57% (149)	3.6 (2.22, 5.82)	<0.0001	1.62 (0.68, 3.84)	0.2758
Other	19% (26)	30% (33)	1.8 (0.6, 5.41)	0.2924	0.81 (0.23, 2.81)	0.7402

[a]ORs are Odds Ratios of having at least one mental health visit in Integrated group relative to Referral group within the given ethnicity adjusted for overall distress; 95% Confidence Intervals are in parentheses.
*ORs are ratios of the OR for a given group relative to the OR of the White group.
The p-value for the overall interaction is 0.3905.

least one mental health visit, with an average number of mental health visits being 2.5(SD = 3.7). There were no ethnic group differences on any of the demographic variables (see Table 1).

Service use

Access. In the overall analysis, we found no significant interaction between ethnicity and treatment assignment (p-value for interaction of 0.39), and no main effect for access. However, after controlling for overall distress, for Asians, the odds of accessing care for the integrated group (64%) were 0.53 the odds of the referral group (49%) [95% Confidence Intervals (CI): 0.37–0.77, p = 0.0009, see Table 2). In contrast, Latinos in the integrated group (57%) had 3.6 greater odds to access care than Latinos in the referral group (27%) (95% CI: 2.22–5.82, p < 0.0001). For Blacks,

there were no differences in access to services between the two arms of the study (12%, 17%, respectively).

Time to first mental health visit. Mean time (in days) from baseline evaluation to first mental health visit was shorter in the integrated than in the referral arm, however, other than in the Asian sample, we found no differences in time to treatment within ethnic group (see Table 3).

+COverall number of visits. Results of the linear regression model of overall number of visits indicated a statistically significant interaction between treatment assignment and ethnicity (p < 0.0001). As shown in Table 4, Whites, Blacks, and Latinos in the integrated arm had a greater number of visits than those in referral arm. For across ethnic comparisons, the average number of sessions for Asians in the integrated arm relative to Asians in the referral arm

Table 3. Estimated mean number of time (days) to the first visit of any type and the differences of the means with 95% confidence intervals from the generalized linear model between integrated and referral groups within each ethnicity among subjects who had at least one visit

Ethnicity	Treatment Assignment		Treatment Diff[a]	P-Value	Interaction Diff*	P-Value*
	Referral mean[a] (SE)	Integrated mean[a] (SE)				
White	34.31 (3.6)	23.4 (3.1)	−10.91 (5.73)	0.0568	0	
Black	35.81 (1.0)	24.77 (2.7)	−11.04 (3.51)	0.0016	−0.13 (−9.97, 9.72)	0.9800
Asian	24.7 (9.9)	20.02 (7.5)	−4.68 (5.68)	0.4100	6.23 (−7.76, 20.22)	0.3827
Latino	28.29 (4.3)	27.37 (5.5)	−0.91 (3.79)	0.8095	10 (−3.49, 23.48)	0.1462
Other	32.03 (8.7)	23.98 (8.3)	−8.05 (14.34)	0.5747	2.86 (−29.44, 35.17)	0.8621

[a]Mean values were estimated using LSMEANS in SAS.
[b]Diff is difference in estimated mean number of days to the first visit in integrated group *vs* referral group for a given ethnicity,
*Diff are differences of the difference in mean number of days to the first visit in integrated group *vs* referral group for a given ethnicity compared to that in the White group.
P-Value represents P-values associated with diff.
The p-value for the overall interaction is 0.7686.

Table 4. Mean number of visits and differences of the means with 95% Confidence Intervals from the generalized linear model between integrated and referral groups within each ethnicity

Ethnicity	Treatment Assignment		Treatment Diff[a]	P-Value	Interaction Diff[*]	P-vlue[*]
	Referral mean[a] (SE)	Integrated mean[a] (SE)				
White	1.95 (0.4)	3.24 (0.2)	1.28 (0.55)	0.0194	0	
Black	1.38 (0.2)	2.72 (0.4)	1.34 (0.46)	0.0036	0.06 (−0.93, 1.04)	0.9105
Asian	4.36 (1.2)	2.49 (1.5)	−1.87 (0.67)	0.0052	−3.15 (−4.93, −1.37)	0.0005
Latino	1.53 (0.2)	3.1 (0.2)	1.57 (0.24)	<.0001	0.29 (−0.53, 1.12)	0.4844
Other	2.98 (1.2)	3.03 (0.6)	0.05 (1.55)	0.9748	−1.23 (−3.64, 1.18)	0.3168

[a]Mean values were estimated using LSMEANS in SAS.
[b]Diff is difference in estimated mean number of visits in integrated group versus referral group for a given ethnicity,
[*]Diff are differences of the difference in mean number of visits in integrated group versus referral group for a given ethnicity compared to that in the White group.
[*]P-Value represents P-values associated with diff*.
The p-value for the overall interaction is 0.6239.

was −3.15 (95% CI: −4.45−−1.86, $p < 0.0001$) than that of the Whites in the integrated relative to the referral arm. The average number of sessions of the other ethnic groups in the integrated arm relative to the referral arm did not differ significantly from that of Whites.

Clinical outcomes

Unlike the service outcomes described above, we did not observe any statistically significant treatment effect on mean depression, anxiety, drinking or physical disability within each ethnic group (see Table 5). In both treatment arms, all ethnic groups had relatively similar values at 6 months. Mean post treatment depressive, anxiety and alcohol symptoms remained relatively high. However, there was a non-significant trend towards greater improvement following alcohol treatment for Whites. In additional sensitivity analyses, we found no interaction between ethnicity and distress. When analyses were restricted to those who had at least one MH/SA treatment, there were several non-significant trends. However, given the multiple comparisons and the restricted sample, these should be viewed with caution.

DISCUSSION

Several studies have demonstrated the efficacy of integrated care to usual care in managing depression in older adults (Unutzer et al., 2002; Bruce et al., 2004). However, integrated care often depends on staff and resources not commonly available to primary care. This study is unique in identifying a different model of care for enhancing use of mental health services for older adults that accounts for the restrictions of insurance on services primary care can accommodate.

The service use outcomes mirror those found in other studies of this nature (Arean et al., 2005a; Ayalon et al., 2007); older adults, with the exception of Asian elderly, are more likely to access and use MH/SA services if services are integrated into primary care medicine than if they are offered in specialty mental health care, even if case managers are on hand to facilitate linkage to community services. Furthermore, in the integrated arm, there were no effects for ethnicity on any of the outcomes; ethnic minorities had similar access to care and clinical outcomes as the older Whites did in this study.

Although we were able to increase access to care, the treatments themselves were not effective; patients in this study failed to show any clinical improvements, regardless of ethnicity or treatment assignment. These findings are similar to other studies with older minorities that have found this population to have poor treatment response to antidepressant medication and psychotherapy (Arean et al., 2005b; Gildengers et al., 2005). The only exception to these data is one study that found older minority, primary care patients with depression greatly improved when depression management was provided in a team approach that involved on-going outcome monitoring according to guideline treatment algorithms (Arean et al., 2005a). In the present study, while the primary and specialty clinics all provided an array of mental health services, no specific algorithm was developed and adhered to. We decided not to enforce treatment algorithms in order to emulate how integrated care and enhanced referral would be delivered in typical community health and mental health settings. The data from this

Table 5. Mean across all time periods for the clinical variables for the integrated and referral groups within each ethnicity

Ethnicity	Treatment Assignment		Treatment Diff[a]	P-Value	Interaction Diff*	P-Value**
	Referral mean[a] (SE)	Integrated mean[a] (SE)				
Depression						
White	19.44 (0.5)	20.09 (0.5)	0.64 (0.61)	0.2893	0	
Black	19.89 (0.7)	19.23 (0.7)	−0.66 (0.81)	0.4134	−1.3 (−3.28, 0.68)	0.1968
Asian	23.13 (2.1)	23.9 (2.1)	0.76 (1.6)	0.6334	0.12 (−3.24, 3.48)	0.9434
Latino	20.49 (1.0)	20.13 (1.0)	−0.36 (0.98)	0.7115	−1 (−3.26, 1.25)	0.3831
Other	22.78 (1.8)	20.49 (1.6)	−2.29 (2.33)	0.3270	−2.93 (−7.66, 1.8)	0.2244
Physical Function						
White	39.48 (0.5)	40.23 (0.5)	0.75 (0.58)	0.1938	0	
Black	38.78 (0.7)	39.46 (0.7)	0.68 (0.83)	0.4152	−0.07 (−2.05, 1.92)	0.9463
Asian	43.45 (2.3)	42.66 (2.3)	−0.79 (1.76)	0.6511	−1.54 (−5.17, 2.08)	0.4041
Latino	39.05 (1.1)	39.52 (1.0)	0.47 (1.08)	0.6616	−0.28 (−2.67, 2.12)	0.8209
Other	38.36 (1.9)	38 (1.7)	−0.36 (2.45)	0.8830	−1.11 (−6.04, 3.83)	0.6596
Anxiety						
White	13.88 (0.8)	14.87 (0.7)	0.99 (0.87)	0.2520	0	
Black	14.71 (1.0)	14.57 (1.1)	−0.14 (1.22)	0.9057	−1.14 (−4.07, 1.79)	0.4453
Asian	13.85 (2.9)	16.34 (3.2)	2.5 (2.59)	0.3362	1.5 (−3.87, 6.87)	0.5832
Latino	13.82 (1.6)	15.48 (1.9)	1.65 (1.91)	0.3873	0.66 (−3.45, 4.77)	0.7526
Other	15.79 (2.3)	13.7 (2.3)	−2.1 (3.13)	0.5029	−3.09 (−9.47, 3.29)	0.3416
Alcohol poblem						
White	2.82 (0.2)	2.42 (0.2)	−0.4 (0.18)	0.0302	0	
Black	3.36 (0.3)	3.18 (0.3)	−0.18 (0.31)	0.5727	0.22 (−0.49, 0.93)	0.5427
Latino	2.8 (0.8)	1.67 (0.6)	−1.13 (0.83)	0.1751	−0.74 (−2.41, 0.94)	0.3888
Other	3.25 (0.8)	3.01 (0.7)	−0.24 (1.01)	0.8094	0.15 (−1.87, 2.17)	0.8828

[a]Mean values across all time periods were estimated using LSMEANS in SAS.
[b]Diff is difference in estimated mean depression/physical function/anxiety/alcohol level in integrated group versus referral group for a given ethnicity,
*Diff are differences of the difference in depression/physical function/anxiety/alcohol level in integrated group versus referral group for a given ethnicity compared to that in the White group.
**P-Value represents p-values associated with diff*.
Outcome analyses of alcohol problems for Asians are not reported due to inadequate sample size.

and other studies suggest that making access to treatment is not enough to improve treatment outcomes. Older adults often suffer from many medical and socioeconomic co-morbidities that make the treatment of mental illness in this population more complex. Appropriate treatment may not be geared solely towards alleviating mental distress, but should also concentrate on helping older adults more effectively meet their medical, social, and financial needs. Such treatment should have an on-going case management component program that monitors outcomes on a regular basis and facilitates access to additional services to better meet the complex needs of this population (Arean *et al.*, 2005b).

It also is important to note the small number of MH/SA visits in both integrated (mean = 3) and referral (mean = 2) arms. Although there are no clear standards for adequate care in this population, Wang *et al.* (2002) suggested that a minimal adequate number of visits would be at least four when in conjunction with psychotropic medications or eight or more visits over a 1-year period. In the present study, neither treatment arm met these criteria. While the integrated arm increased access to services, clearly more needs to be done for treatment to be effective in this population.

Limitations

Although our study attempted to emulate what integrated practice would look like in the typical community service and, thus, has a strong external validity, this decision resulted in considerable variation from site to site in the application of treatment. The lack of consistency in the treatments offered may have resulted in a dilution of the effects of treatment on clinical outcomes for the entire sample, as some treatments may be more effective for some minority groups than for others.

CONCLUSIONS

The results from this study suggest that while integration of MH/SA services results in far better access to those services among older minorities as well as among Whites, the treatment accessed by these populations does not appear to be sufficient to overcome MH/SA problems. Previous research has begun to indicate that because of medical and socioeconomic co-morbidities older minorities and those from low-income groups may need more than MH/SA treatment when addressing MH/SA problems, and that on-going case management geared towards assisting them with other life problems is needed (Arean *et al.*, 2005b). Future research should begin to explore ways to improve MH/SA treatment for this population; as our data show, access to care is necessary, but not sufficient.

CONFLICT OF INTEREST

None known.

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