

A Latent Class Analysis of Age Differences in Choosing Service Providers to Treat Mental and Substance Use Disorders

Amanda Toler Woodward, Ph.D.

Objective: This study investigated choice of service provider for treatment of a mental or substance use disorder and its association with consumers' age. **Methods:** Data were from the Collaborative Psychiatric Epidemiology Surveys. Service users born between 1946 and 1964 were compared with those born in 1945 or earlier (N=4,082). Latent class analysis was used to identify groups of service users according to nine dichotomous items reflecting lifetime visits with different types of professionals. Multinomial logistic regression was used to analyze factors predicting latent class membership, with particular focus on both the direct and moderating effects of age. Analyses controlled for socio-demographic characteristics and disorder-related variables. **Results:** Five classes of service user were identified. Class 1 (10.8%) included individuals who visited six of the nine types of providers (multiple providers visited). Class 2 (21.9%) had low probability of visiting most providers (limited providers visited). Class 3 (24.1%) visited a psychiatrist (primarily psychiatrist). Class 4 (28.1%) visited a family physician or other physician (primarily family physician). Class 5 (15.1%) visited a psychologist (primarily psychologist). A higher proportion of service users born before 1946 were in the primarily family physician class. Although 21% of service users born later also fell into this class, overall they were more evenly distributed across the five classes. **Conclusions:** Family physicians played a significant role in behavioral health treatment for both age groups. However, findings suggest that younger adults may rely on more complex combinations of service providers that will require greater coordination between the behavioral and general health care systems in the future. (*Psychiatric Services* 64:1087–1094, 2013; doi: 10.1176/appi.ps.201200401)

Older adults are more likely to visit a primary care physician for a behavioral health problem, and younger adults are more likely to seek help from a behavioral health specialist (1–5). Although service use may change with age, cohort differences have been found in both the prevalence of disorders and service use (6–8). These cohort differences are believed to persist even as changes occur with aging. Combined

with the expected growth in the number of older adults overall, this finding suggests an increased need for physical and behavioral health services appropriate for older adults (9–13).

However, beyond documenting the greater use of primary care physicians, few studies have examined the combinations of service providers visited for behavioral health issues and how those combinations may vary by service users' age. By developing

typologies of service providers visited and grouping individuals reporting similar patterns, latent class analysis is a useful tool for examining the complexity and multidimensionality of service use (14). Studies that have taken this approach have contributed to a more nuanced understanding of service use that moves beyond classifications of users versus nonusers and focuses on identifying and describing subgroups of individuals. Such approaches can inform efforts to tailor interventions, outreach, and policy and facilitate the timely and effective use of behavioral health care.

For example, Choi and colleagues (15) identified three clusters of service use among older adults with severe depression. These clusters shed light on subgroups of this sample who used combinations of home-based supportive services for functional needs and outpatient behavioral health services to maintain their life in the community. Carragher and colleagues (16) examined three classes of service use for major depression (highly active, partially active, and inactive). Adults 65 and older were more likely to fall in the partially active class, members of which consulted a professional and received prescriptions for medication but had not been hospitalized or visited an emergency department for depression.

This study adds to this body of work in two ways. First, latent class analysis was used with nationally representative survey data to examine patterns of service providers visited for a behavioral health problem. Second, it examined how those patterns differ by age of service user.

Dr. Woodward is with the School of Social Work, Michigan State University, 655 Auditorium Rd., Room 222, East Lansing, MI 48824 (e-mail: awoodwar@msu.edu).

Methods

Sample

This study used data from the Collaborative Psychiatric Epidemiology Surveys (CPES). Data were collected from 2001 to 2003 from three nationally representative surveys—the National Comorbidity Survey Replication (NCS-R), the National Survey of American Life (NSAL), and the National Latino and Asian American Survey (NLAAS). The NCS-R is representative of the U.S. population in general and included face-to-face interviews with 9,292 residents of English-speaking households who were 18 years or older. The NSAL is representative of blacks in the United States, and the survey was based on a national probability sample of 6,082 African Americans, blacks of Caribbean descent, and non-Hispanic whites. The NLAAS is a nationally representative sample of Latino and Asian populations in the United States, and the survey included 2,554 Latinos and 2,095 Asian Americans. The CPES surveys share a common set of objectives and instrumentation and are designed so that they can be combined as though they are a single, nationally representative study (17).

The analytic sample for this study included adults born in 1964 or earlier who reported using some professional services for a behavioral health problem ($N=4,082$). Those born between 1946 and 1964 and born earlier than 1946 encompass the baby boomer and preboomer generations, respectively, which were the focus of this study. Baby boomers made up 66% of the sample and 59.8% were female. Eighty-five percent of the sample was white, 7.9% African American, 5.7% Latino, 1.1% Asian, and .4% black Caribbean. After complete description of the study to participants, informed consent was obtained. All three CPES studies were approved by the University of Michigan Institutional Review Board.

Measures

Respondents were given a list of professionals and asked to indicate which ones they had seen in their lifetime “for problems with your emotions, nerves, or your use of alcohol or drugs.” Dichotomous indicators were

created for visits with nine types of professional: psychiatrist; general practitioner, family physician, or other medical doctor; psychologist; social worker; counselor; any other mental health professional; a nurse, occupational therapist, or other health professional; a religious or spiritual advisor; or any other healer.

Other measures included age (born in 1945 or earlier or born between 1946 and 1964), gender, marital status (currently married, previously married, or never married), race-ethnicity (non-Hispanic white, African American, black Caribbean, Asian, or Latino), household income in quartiles (\$0 to \$16,699, \$17,000 to \$39,999, \$40,000 to \$73,498, or \$73,499 and higher), years of education (≤ 11 years, 12 years, 13–15 years, or ≥ 16 years), work status (employed, unemployed, or not in labor force), insurance coverage (private, public, or none) and self-report of the presence of heart disease, arthritis, or diabetes. Mental and substance use disorders were assessed with the World Mental Health Composite International Diagnostic Interview, a structured, lay-administered diagnostic interview based on the definitions and criteria of *ICD-10* and *DSM-IV* (18). On the basis of this assessment, dichotomous measures were created and indicated whether respondents met criteria for any lifetime mood disorder, anxiety disorder, or substance use disorder. Also included was a three-category measure of the number of disorders (none, one, and two or more).

Analyses

Latent class analysis was used to identify homogeneous groups of respondents on the basis of nine dichotomous items reflecting types of behavioral and health care professionals visited in their lifetime. Mplus (version 6) was used for the latent class analysis models, which included weights and complex survey design variables (19). In an effort to identify the smallest number of classes needed to account for patterns of service providers visited, the number of latent classes was determined iteratively, beginning with a one-class model and testing models of increasing numbers of classes

with robust maximum likelihood estimation. The optimal number of classes was determined on the basis of several goodness-of-fit statistics (such as the Bayesian information criterion, Akaike information criterion, Lo-Mendell-Rubin’s adjusted likelihood ratio test, and entropy measures). The analysis also examined the extent to which classes were distinct and substantively meaningful (20).

Respondents were assigned to the class for which they had the highest probability of membership. For each class, the prevalence of respondents and the probability of visiting a particular service provider are reported. Conditional probabilities of .70–1.00 were considered to indicate a high probability of visiting a specific type of provider; .40–.69, a moderate probability; and $<.40$, a low probability (21,22).

After model estimation, multinomial logistic regression was used to analyze factors predicting latent class membership. These analyses were performed with the survey commands in Stata 12.0 (23), which accounted for the complex multistage clustered design of the CPES samples. All percentages reported are weighted. For each variable with more than two categories, a design-corrected Wald chi square test was conducted to minimize the likelihood of type I error resulting from multiple comparisons. An alpha of .05 was used as the cutoff for significance. Interactions between age and other predictors were also included to examine the moderating role of age.

Results

Compared with the younger adults, a higher proportion of the older adults was female and previously married (Table 1). Older adults were slightly less diverse by race-ethnicity and had fewer years of education. In contrast to the younger group, a majority of older adults were not in the labor force and had public health insurance coverage, and a higher proportion was in the lower two income quartiles. Fewer older adults met criteria for behavioral health disorders, whereas a higher proportion reported having general physical disorders. Compared

Table 1Sociodemographic, disorder-related, and service use characteristics of the sample^a

Characteristic	Born prior to 1946 (N=1,328)		Born 1946 to 1964 (N=2,754)		Total sample (N=4,082)		χ^2 ^b	df	p
	N	%	N	%	N	%			
Gender							8.75	1	.004
Male	435	35.8	1,019	42.4	1,454	40.2			
Female	893	64.2	1,735	57.6	2,628	59.8			
Marital status							35.78	2	<.001
Currently married	631	55.2	1,543	64.2	2,174	61.2			
Previously married	635	41.8	839	25.6	1,474	31.0			
Never married	62	3.0	372	10.2	434	7.8			
Race-ethnicity							6.96	4	<.001
White	806	87.9	1,391	83.6	2,197	85.0			
African American	271	6.6	691	8.6	962	7.9			
Black Caribbean	38	.3	132	.4	170	.4			
Asian	47	1.2	103	1.0	150	1.1			
Latino	137	4.1	374	6.5	511	5.7			
Education							25.09	3	<.001
≤11 years	346	22.4	417	10.8	763	14.7			
12 years	388	33.0	732	29.3	1,120	30.6			
13–15 years	286	21.6	832	29.0	1,118	26.5			
≥16 years	308	23.0	773	30.8	1,081	28.2			
Work status							242.83	2	<.001
Employed	452	34.5	1,961	76.4	2,413	62.3			
Unemployed	125	11.2	164	4.0	289	6.5			
Not in labor force	746	54.3	617	19.6	1,363	31.3			
Insurance coverage							283.84	2	<.001
Private	370	38.2	1,629	83.6	1,999	68.9			
Public	628	61.3	487	15.1	1,115	30.1			
None	22	.5	89	1.3	111	1.0			
Household income							12.09	3	<.001
\$0–\$16,999	331	19.0	471	11.6	802	14.1			
\$17,000–\$39,999	295	21.3	600	18.0	895	19.1			
\$40,000–\$73,498	230	19.7	655	24.9	885	23.2			
≥\$73,499	448	39.9	987	45.6	1,435	43.7			
Mood disorder	354	27.5	1,008	39.5	1,362	35.4	25.58	1	<.001
Anxiety disorder	408	30.3	1,131	39.8	1,539	36.6	20.36	1	<.001
Substance use disorder	152	11.2	631	23.7	783	19.5	75.54	1	<.001
Number of disorders							36.14	2	<.001
None	653	51.0	988	36.1	1,641	41.1			
1	371	26.1	683	25.1	1,054	25.4			
≥2	304	22.9	1,083	38.8	1,387	33.5			
Heart disease	207	17.8	173	5.4	380	9.2	94.65	1	<.001
Arthritis	679	63.6	793	32.7	1,472	42.3	173.64	1	<.001
Diabetes	204	15.2	236	7.5	440	9.8	42.98	1	<.001
Service provider visited									
Psychiatrist	450	32.1	989	33.8	1,439	33.2	.83	1	.364
Social worker	82	5.4	356	12.8	438	10.3	39.96	1	<.001
Counselor	196	15.8	774	31.4	970	26.1	97.89	1	<.001
Nurse or other health	24	1.8	148	5.1	172	4.0	13.78	1	<.001
Other mental health	54	4.3	177	6.4	231	5.7	2.81	1	.096
Religious or spiritual advisor	186	13.5	542	19.8	728	17.7	22.08	1	<.001
Healer	22	1.5	112	4.2	134	3.3	19.78	1	<.001
Psychologist	282	21.4	817	32.5	1,099	28.8	23.40	1	<.001
Family or other physician	802	62.6	1,244	46.7	2,046	52.1	50.20	1	<.001

^a The Ns are unweighted, and the percentages are weighted.^b Rao-Scott design-adjusted chi square

with younger adults, a higher proportion of older adults visited a family or other physician for a behavioral health disorder. A higher proportion of the younger age group visited most other types of professionals.

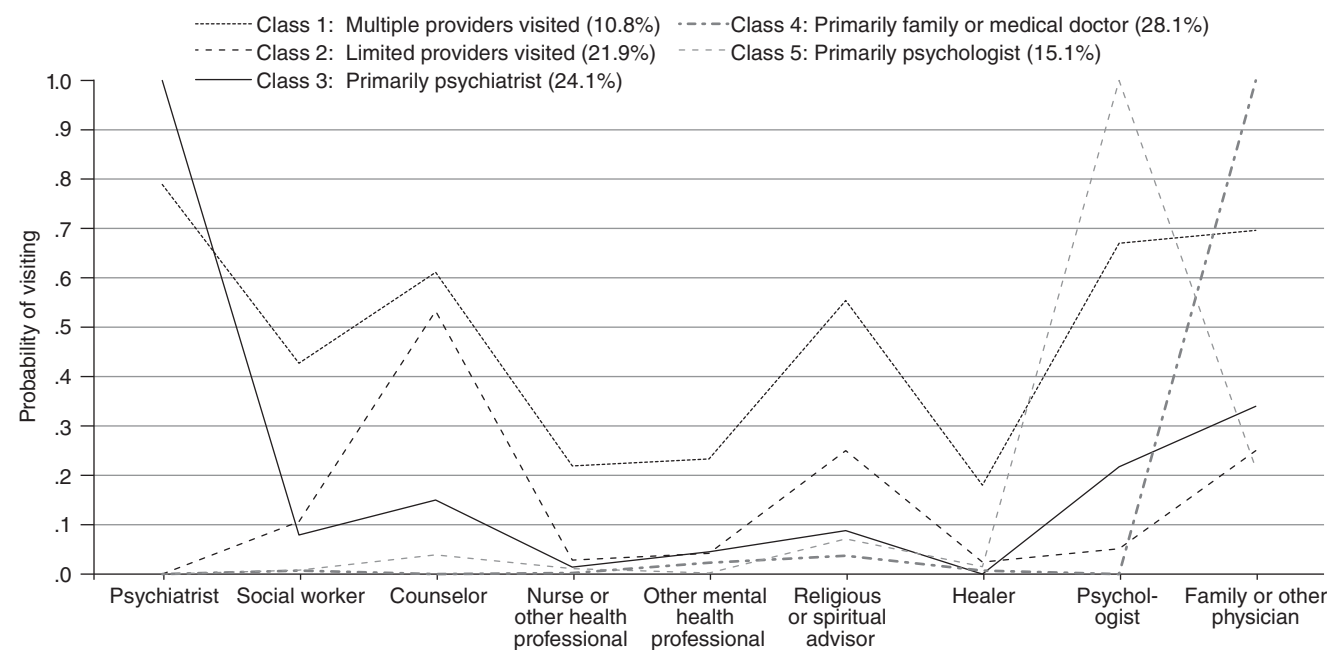
Results of fitting latent class models

A five-class solution was chosen according to measures of model fit and because it was most conceptually meaningful. Figure 1 depicts the prevalence of each class and the predicted

probability that service users assigned to a class would visit those specific service providers. Class 1, labeled “multiple providers visited,” contained 10.8% (N=419) of the respondents. Members of class 1 had a high probability

Figure 1

Latent class profile of service providers visited by consumers born in 1964 or earlier



of visiting a psychiatrist (.789) and a moderate probability of visiting a social worker (.427), a counselor (.611), a religious or spiritual advisor (.554), a psychologist (.670), or a family physician or other physician (.696). Members of this class had a low probability of visiting a nurse or other health professional (.219), another mental health professional (.233), or a healer (.180). Overall, members of class 1 had a moderate to high probability of visiting six out of nine types of providers.

Class 2, labeled “limited providers visited,” contained 21.9% (N=878) of the respondents. Members of this group did not have a high probability of visiting any of the providers and had a moderate probability of visiting a counselor (.533). There was a low probability of visiting all other providers ($\leq .25$) and no probability of visiting a psychiatrist. The defining characteristic of this group was low probability of visiting most providers.

Class 3, labeled “primarily psychiatrist,” contained 24.1% (N=1,093) of respondents. Members of this class had 100% probability of visiting a psychiatrist but low probability ($\leq .34$) of visiting all other types of providers.

Class 4, labeled “primarily family physician,” contained 28.1% (N=1,128) of respondents. Members of this class had 100% probability of visiting a family physician or other physician and very low probability ($\leq .037$) of visiting other professionals, including no probability of visiting a psychiatrist, counselor, or psychologist.

Finally, class 5, labeled “primarily psychologist,” contained 15.1% (N=564) of respondents. Members of this class had 100% probability of visiting a psychologist and low probability ($\leq .214$) of visiting other types of providers, including no probability of visiting a psychiatrist.

Demographic and psychiatric predictors of class membership

The largest proportion of older adults (41.9%) was in the primarily family physician class, followed by primarily psychiatrist (25.8%), limited providers visited (13.5%), primarily psychologist (11.8%), and multiple providers visited (7.0%). Those in the younger age group were more evenly distributed, with roughly a quarter in the limited providers visited (26.1%), primarily psychiatrist (23.2%), and primarily family physician (21.2%) classes. Seventeen percent fell into the primarily

psychologist class, and 12.8% fell into the multiple providers visited class (Rao-Scott $\chi^2=38.07$, $df=4$, $p<.001$).

Multinomial logistic regression was used to assess sociodemographic and disorder-related predictors of class membership, with the primarily family physician class as the reference category (Table 2). Older adults and women were less likely than the younger age group and men to be in every class compared with the primarily family physician class. Those who were previously married were more likely than those who were currently married to be in the limited providers class, whereas those who were previously or never married were more likely to primarily visit psychiatrists. More years of education was associated with a greater likelihood of being in every class compared with the primarily family physician class. Those who were unemployed were significantly more likely to be in the class that primarily visited psychiatrists, whereas those not in the labor force were more likely to visit multiple providers. Respondents with an anxiety disorder were less likely to be in the class that visited a limited number of providers, whereas those with a substance use disorder were more likely to have visited multiple

Table 2

Relative risk ratios (RRR) from multinomial logistic regression predicting classification of service use, by provider type, among users born in 1964 or earlier^a

Variable	Multiple providers visited		Limited providers visited		Primarily psychiatrist		Primarily psychologist	
	RRR	95% CI	RRR	95% CI	RRR	95% CI	RRR	95% CI
Born before 1946 ^b	.35***	.23–.52	.38***	.28–.51	.62**	.45–.86	.50**	.33–.75
Female ^b	.71*	.52–.97	.72*	.53–.98	.62**	.48–.82	.61**	.40–.92
Marital status (reference: currently married) ^b								
Previously married	1.45	.97–2.18	1.62**	1.15–2.28	1.66***	1.25–2.20	1.10	.77–1.57
Never married	1.21	.71–2.04	.94	.58–1.52	1.66*	1.04–2.65	.76	.37–1.57
Race-ethnicity (reference: white) ^c								
Asian	1.97	.62–6.27	1.16	.49–2.75	2.00	.78–5.13	1.64	.44–6.10
Latino	.72	.32–1.60	1.09	.61–1.93	.96	.62–1.50	.88	.45–1.74
Black Caribbean	.23	.05–1.03	.86	.23–3.18	.42	.15–1.18	.67	.21–2.14
African American	.85	.57–1.29	1.38*	1.00–1.91	1.20	.91–1.59	.65*	.44–.97
Education (reference: ≤11 years) ^b								
12 years	1.44	.74–2.80	1.22	.75–1.99	1.02	.74–1.40	1.48	.76–2.86
13–15 years	3.03**	1.63–5.64	1.63*	1.01–2.64	1.49	.99–2.26	2.46**	1.26–4.81
≥16 years	6.55***	3.31–12.94	2.96***	1.75–5.00	2.01**	1.33–3.02	5.31***	2.66–10.59
Work status (reference: employed) ^b								
Unemployed	1.53	.59–3.99	.61	.34–1.10	1.73*	1.10–2.72	1.34	.58–3.10
Not in labor force	2.08*	1.48–2.93	1.14	.79–1.64	1.41	.97–2.05	1.18	.72–1.95
Insurance coverage (reference: private) ^c								
Public	1.16	.68–1.96	.77	.48–1.22	.91	.69–1.19	.73	.38–1.40
None	.35	.10–1.24	1.04	.46–2.33	.93	.49–1.76	.81	.23–2.83
Household income (reference: 0 to \$16,999) ^b								
\$17,000 to \$39,999	1.14	.68–1.90	.79	.53–1.19	.89	.61–1.30	1.29	.57–2.91
\$40,000 to \$73,498	1.00	.55–1.84	1.54	.91–2.61	1.00	.67–1.51	2.01	.96–4.22
\$73,499 and higher	.87	.48–1.60	1.19	.76–1.84	1.24	.83–1.85	1.56	.69–3.52
Mood disorder ^c	1.63	.96–2.80	.93	.59–1.46	1.38	.78–2.46	1.21	.79–1.85
Anxiety disorder ^b	1.01	.59–1.72	.52*	.31–.89	.85	.52–1.39	1.05	.59–1.85
Substance use disorder ^b	1.77**	1.26–2.48	1.42	.98–2.05	1.60*	1.07–2.40	1.40	.83–2.36
Number of disorders (reference: none) ^b								
1	1.71	.82–3.55	1.71*	1.05–2.80	1.24	.74–2.07	1.00	.55–1.82
≥2	4.00**	1.76–9.12	2.46*	1.18–5.15	1.61	.74–3.50	.76	.31–1.86
Heart disease ^c	.80	.43–1.49	.65	.37–1.14	1.01	.68–1.50	.76	.43–1.35
Arthritis ^c	1.01	.66–1.54	.90	.61–1.34	1.03	.78–1.35	.76	.53–1.09
Diabetes ^c	.72	.41–1.26	.86	.48–1.53	1.12	.66–1.92	1.00	.56–1.79

^a Reference: primarily family physician

^b Design-corrected Wald significant at $p < .05$

^c Design-corrected Wald not significant at $p < .05$

* $p < .05$, ** $p < .01$, *** $p < .001$

providers or primarily psychiatrists. Compared with respondents who did not meet criteria for a behavioral health disorder, those with one disorder were more likely to be in the class with limited providers visited, whereas those with two or more disorders were more likely to have visited multiple providers or a limited number of providers.

Analyses of interactions of age with other demographic variables indicated

that older black Caribbeans were more likely than persons of other racial or ethnic groups to have visited a limited number of providers and to have visited primarily a psychiatrist (Table 3). Older adults who were not in the labor force, had public insurance coverage, or had no insurance coverage were less likely than younger adults to have visited multiple providers. Older adults with public insurance were also less likely to be in the classes with

limited providers visited or visits primarily to psychiatrists. Older adults in the middle household income categories were more likely to be in the class that primarily visited psychologists, whereas those with incomes between \$40,000 and \$73,498 were also more likely to visit multiple providers.

Discussion

Consistent with previous research, this study indicated that when faced

Table 3

Significant interactions of characteristics with age, among service users born before 1946, by provider type visited

Characteristic	Multiple providers visited		Limited providers visited		Primarily psychiatrist		Primarily psychologist	
	RRR	95% CI	RRR	95% CI	RRR	95% CI	RRR	95% CI
Black Caribbean	.62	.06–6.64	7.91**	1.74–36.04	3.45*	1.05–11.38	.52	.07–3.98
Not in labor force	.24**	.10–.59	1.02	.60–1.72	.70	.39–1.26	.85	.37–1.93
Insurance coverage								
Public insurance	.26***	.14–.50	.53*	.28–.98	.42***	.26–.67	.33	.09–1.15
No insurance	.04*	.00–.54	.25	.04–1.48	.28	.07–1.09	.57	.04–7.40
Household income								
\$17,000–\$39,999	2.03	.98–4.19	2.01	.71–5.71	1.50	.58–3.87	4.45*	1.04–19.0
\$40,000–\$73,498	3.71**	1.64–8.41	2.28	.59–8.85	1.64	.80–3.34	4.51*	1.14–17.75

* $p < .05$, ** $p < .01$, *** $p < .001$

with a behavioral health problem, older adults relied heavily on a family physician or other physician within the general medical sector (1–5). Furthermore, older adults were more likely than the younger age group to rely primarily on a family physician compared with every other class of provider, suggesting that baby boomers visited a broader range of providers. Although it is not possible to disentangle aging from cohort effects with these cross-sectional data, previous research with longitudinal data has found age cohort differences in service use that have remained significant over time, suggesting the possibility that differences found in this study may continue with age (6). It is reasonable to expect that the use of the general medical sector will increase as baby boomers encounter more general health problems with age. However, cohort-specific cultural and social differences, such as a greater acceptability of reporting and seeking treatment for behavioral health problems, may continue to influence service use patterns (7,24).

Efforts have been made to integrate behavioral health treatment into primary care with the explicit objective of improving treatment for older adults (25,26). Findings from this study support the continued importance of these efforts. Almost half of the younger age group (46.7%) reported visiting a family physician or other physician for a behavioral health problem, and 21.0% were in the primarily family physician class. Primary care physicians clearly play an important role in behavioral health

care. Additional research is needed to clarify whether visits to different providers occur simultaneously or concurrently and the gateways through which individuals enter services, as well as patterns of referral and the extent to which treatment is coordinated across service providers. However, this study reaffirmed the importance of ongoing efforts to better connect behavioral and general medical care.

Several other differences by age are worthy of note. Although insurance coverage did not have a main effect on class membership, older adults with public insurance coverage were less likely than the younger group to fall into three of the five classes. One possible reason for this is that Medicare, the public insurance by which most older adults are covered, does not cover services from many of the other providers considered in this study. Second, those in the younger group were more likely to be covered by Medicaid, which is need based, whereas Medicare is universal for those ages 65 and over. Unfortunately, the data did not allow differentiation of insurance coverage at this level, limiting the ability to separate age differences from differences in coverage or to examine some of the complexities of coverage, such as dual eligibility for both Medicare and Medicaid.

Although there were few racial-ethnic differences overall, older black Caribbeans were more likely to be in the class that visited a limited number of providers. Previous studies have found that persons from racial-ethnic

minority groups are more likely than non-Hispanic whites to use the general medical sector rather than specialty care for a behavioral health problem (1–3,27,28). Overall, this study suggests that, among service users, when a range of service providers is considered, the relationship between race-ethnicity and where people go for help is more nuanced. It also highlights the importance of considering within- as well as between-group differences. Black Americans are often treated as a homogeneous group, although blacks of Caribbean descent and African Americans differ in terms of ethnicity, national heritage, socioeconomic, and immigration status (29). In combination with other recent studies, these findings highlight the importance of looking further at within-group heterogeneity (2,30,31). Such complexities may influence treatment outcomes and pathways into and out of care.

The effect of employment status on class membership was also moderated by age. For the sample as a whole, not being in the labor force was associated with visiting multiple providers. However, older adults who were not in the labor force were significantly less likely to fall into this class. This may in part be due to individuals' reasons for not being in the labor force. Among the younger age group, for example, those not in the labor force were more likely to have multiple disorders compared with those who were employed or unemployed, suggesting an association between severity of disorders and work status. Older adults, over half of whom were

not in the labor force, may be in retirement.

One major limitation of this study is the cross-sectional nature of the data. For this reason, it was not possible to determine the extent to which respondents visited service providers simultaneously or serially nor how the combinations of service providers visited may have changed over time. Cross-sectional data also limit the ability to differentiate cohort versus aging effects as described above. Furthermore, these data were collected between 2001 and 2003. Over the past decade, significant changes have occurred in the financing and delivery of behavioral health services, including the increased use of managed care and behavioral health parity legislation (32,33). Previous studies suggest that parity in behavioral health care coverage can increase the use of appropriate services (33); however, research has not examined the influence of systemic changes on the types of providers visited. With time, we will learn whether perceived cohort differences suggested by this and other research remain in the face of such structural changes.

Conclusions

Despite these limitations, this study begins to shed more light on the combinations of service providers most often visited. The findings provide further evidence of the underutilization of behavioral health specialty services by older adults. Although younger adults, compared with older adults, relied on a broader array of professionals for treatment of behavioral health care problems, primary care physicians played a significant role in their care. As this younger cohort ages and requires additional medical treatment, the need to coordinate general medical and behavioral health services will grow. Increasing our understanding of the current complexities of service provider usage can inform ongoing and future efforts in this area.

Acknowledgments and disclosures

This study was funded by a grant from the Hartford Geriatric Social Work Initiative Faculty Scholars Program.

The author reports no competing interests.

References

- Wang PS, Lane M, Olfson M, et al: Twelve-month use of mental health services in the United States: results from the National Comorbidity Survey Replication. *Archives of General Psychiatry* 62:629–640, 2005
- Neighbors HW, Caldwell C, Williams DR, et al: Race, ethnicity, and the use of services for mental disorders: results from the National Survey of American Life. *Archives of General Psychiatry* 64:485–494, 2007
- Neighbors HW, Woodward AT, Bullard KM, et al: Mental health service use among older African Americans: the National Survey of American Life. *American Journal of Geriatric Psychiatry* 16:948–956, 2008
- Garrido MM, Kane RL, Kaas M, et al: Use of mental health care by community-dwelling older adults. *Journal of the American Geriatrics Society* 59:50–56, 2011
- Han B, Gfroerer JC, Colpe LJ, et al: Serious psychological distress and mental health service use among community-dwelling older US adults. *Psychiatric Services* 62:291–298, 2011
- Bogner HR, de Vries HF, Maulik PK, et al: Mental health services use: Baltimore Epidemiologic Catchment Area follow-up. *American Journal of Geriatric Psychiatry* 17:706–715, 2009
- Rice NE, Lang IA, Henley W, et al: Baby boomers nearing retirement: the healthiest generation? *Rejuvenation Research* 13:105–114, 2010
- Colliver JD, Compton WM, Gfroerer JC, et al: Projecting drug use among aging baby boomers in 2020. *Annals of Epidemiology* 16:257–265, 2006
- Knickman JR, Snell EK: The 2030 problem: caring for aging baby boomers. *Health Services Research* 37:849–884, 2002
- Hebert LE, Beckett LA, Scherr PA, et al: Annual incidence of Alzheimer disease in the United States projected to the years 2000 through 2050. *Alzheimer Disease and Associated Disorders* 15:169–173, 2001
- Gfroerer J, Penne M, Pemberton M, et al: Substance abuse treatment need among older adults in 2020: the impact of the aging baby-boom cohort. *Drug and Alcohol Dependence* 69:127–135, 2003
- Rosen D, Smith ML, Reynolds CF, III: The prevalence of mental and physical health disorders among older methadone patients. *American Journal of Geriatric Psychiatry* 16:488–497, 2008
- Phillipson C, Leach R, Money A, et al: Social and cultural constructions of ageing: the case of the baby boomers. *Sociological Research Online* 13(3):5, 2008
- Muthén BO: Latent variable modeling in epidemiology. *Alcohol Health and Research World* 16:286–292, 1992
- Choi S, Morrow-Howell N, Proctor E: Configuration of services used by depressed older adults. *Aging and Mental Health* 10:240–249, 2006
- Carragher N, Adamson G, Bunting B, et al: Treatment-seeking behaviours for depression in the general population: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Affective Disorders* 121:59–67, 2010
- Heeringa SG, Berglund P: Collaborative Psychiatric Epidemiology Survey Program (CPES) Data Set: Integrated Weights and Sampling Error Codes for Design-Based Analysis. Rockville, Md, National Institute of Mental Health, 2007. Available at www.icpsr.umich.edu/icpsrweb/CPES/about_cpes/weighting/index.jsp
- Kessler RC, Üstün TB: The World Mental Health (WMH) Survey Initiative Version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI). *International Journal of Methods in Psychiatric Research* 13:93–121, 2004
- Muthén LK, Muthén BO: *Mplus: Statistical Analysis With Latent Variables User's Guide*. Los Angeles, Muthén & Muthén, 2001
- Nylund KL, Asparouhov T, Muthén BO: Deciding on the number of classes in latent class analysis and growth mixture modeling: a Monte Carlo simulation study. *Structural Equation Modeling* 14:535–569, 2007
- Thorpe JM, Thorpe CT, Kennelty KA, et al: Patterns of perceived barriers to medical care in older adults: a latent class analysis. *BMC Health Services Research* 11:181, 2011
- Collins LM, Lanza ST: *Latent Class and Latent Transition Analysis: With Applications in the Social, Behavioral, and Health Sciences*. Hoboken, NJ, Wiley, 2010
- Stata Statistical Software: Release 12. College Station, Tex, StataCorp, 2011
- Johnson PB, Sung H-E: Substance abuse among aging baby boomers: health and treatment implications. *Journal of Addictions Nursing* 20:124–126, 2009
- Unützer J, Katon W, Callahan CM, et al: Collaborative care management of late-life depression in the primary care setting: a randomized controlled trial. *JAMA* 288:2836–2845, 2002
- Unützer J, Tang L, Oishi S, et al: Reducing suicidal ideation in depressed older primary care patients. *Journal of the American Geriatrics Society* 54:1550–1556, 2006
- Kessler RC, Berglund P, Demler O, et al: The epidemiology of major depressive disorder: results from the National Comorbidity Survey Replication (NCS-R). *JAMA* 289:3095–3105, 2003
- Williams DR, Neighbors HW, Jackson JS: Racial/ethnic discrimination and health: findings from community studies. *American Journal of Public Health* 93:200–208, 2003
- Logan JR, Deane G: *Black Diversity in Metropolitan America*. Albany, State University of New York, Mumford Center for Comparative Urban and Regional Research,

2003. Available at mumford1.dyndns.org/cen2000/BlackWhite/BlackDiversityReport/black-diversity01.htm
30. Williams DR, González HM, Neighbors HW, et al: Prevalence and distribution of major depressive disorder in African Americans, Caribbean blacks and non-Hispanic whites: results from the National Survey of American Life. *Archives of General Psychiatry* 64:305–315, 2007
 31. Woodward AT, Chatters LM, Taylor RJ, et al: Differences in professional and informal help-seeking among older African Americans, black Caribbeans, and non-Hispanic whites. *Journal of the Society for Social Work and Research* 1:124–139, 2010
 32. Robinson KM: Policy issues in mental health among the elderly. *Nursing Clinics of North America* 45:627–634, vii, 2010
 33. Trivedi AN, Swaminathan S, Mor V: Insurance parity and the use of outpatient mental health care following a psychiatric hospitalization. *JAMA* 300:2879–2885, 2008

Submissions Invited for Datapoints Column

Datapoints encourages the rapid dissemination of relevant and timely findings related to clinical and policy issues in psychiatry. National or international data, especially from large representative databases, are preferred. The editors are particularly interested in data that can be accessed by other researchers. Topics may include differences or trends in diagnosis and practice patterns or in treatment modalities, especially across different care settings or in the context of new policies or payment sources. The analyses should be straightforward, so that the data displayed tell a clear story. The text should follow the standard research format and include a brief introduction, description of the methods and data set, description of the results, and comments on the implications or meanings of the findings.

Datapoints columns must include one figure or table, and because the column is limited to one printed page, it is therefore limited to 350–400 words. Submissions with multiple authors are discouraged because of space constraints; submissions with more than four authors should include justification for additional authors.

Inquiries or submissions should be directed to column editors Amy M. Kilbourne, Ph.D., M.P.H. (amykilbo@umich.edu), or Tami L. Mark, Ph.D. (tami.mark@truvenhealth.com).