

Poor Self-rated Mental Health and Medicare Beneficiaries' Routine Care-Seeking

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Annual or more frequent routine medical exams are associated with recognition and treatment of chronic disease, control of health risk factors, uptake of preventive services, and better patient-reported outcomes.¹ Such exams may be especially valuable for Medicare beneficiaries, who generally have higher-than-average medical need.

Having a usual source of care,^{2,3} having a personal doctor,²⁻⁴ and living with a spouse⁵ facilitate getting routine care. Barriers include lack of time or transportation,⁶⁻⁹ low health literacy,¹⁰ and prior negative experiences with care.^{9,11} Poor mental health may also be a barrier. Two prior studies found psychological distress and clinical depression to be associated with less use of preventive care services.^{12,13}

Our study uses data from a nationally representative sample of Medicare beneficiaries to investigate (1) the association of mental health status with infrequent routine care (not making an appointment for routine care in the last 6 months) among Medicare beneficiaries with otherwise similar health status, (2) whether the association differs by Medicare coverage type, and (3) the possible role of having a personal doctor in this association.

Those with poor self-rated mental health (SRMH) less often have a personal doctor,⁴ perhaps due to difficulty navigating the health care system or stigma from mental illness that impedes establishing care with a personal doctor.¹⁴ Those enrolled in fee-for-service (FFS) Medicare (vs Medicare managed care) also less often have a personal doctor or receive routine care.^{4,15,16} Although it does not uniformly outperform FFS,^{15,16} Medicare Advantage (MA), the managed care version of Medicare, focuses more heavily on preventive care to reduce potentially serious and costly illness.^{17,18} Thus, we hypothesized that (1) poorer mental health would be positively associated with infrequent routine care, (2) the association would be diminished after accounting for whether a beneficiary has a personal doctor, and (3) the association would be more evident in FFS than in MA.

ABSTRACT

OBJECTIVES: To assess the relationship between self-rated mental health (SRMH) and infrequent routine care among Medicare beneficiaries and to investigate the roles of managed care and having a personal doctor.

STUDY DESIGN: Cross-sectional analysis of data from the 2018 Medicare Consumer Assessment of Healthcare Providers and Systems survey.

METHODS: Logistic regression was used to predict infrequent routine care (having not made an appointment for routine care in the last 6 months) from SRMH, Medicare coverage type [fee-for-service [FFS] vs Medicare Advantage [MA], the managed care version of Medicare], and the interaction of these variables. Models that did and did not include having a personal doctor were compared. All models controlled for demographics and physical health.

RESULTS: Overall, 14.9% of beneficiaries did not make a routine care appointment in the last 6 months, with rates adjusted for demographics and physical health ranging from 14.5% for those with "excellent" SRMH to 19.2% for those with "poor" SRMH. Beneficiaries with poor SRMH were less likely to make a routine care appointment in FFS than in MA (20.1% vs 16.4%, respectively, had not done so in the last 6 months; $P < .05$). Accounting for having a personal doctor reduced the association between SRMH and infrequent routine care by about a third.

CONCLUSIONS: Extra efforts are needed to ensure receipt of routine care by beneficiaries with poor mental health—particularly in FFS, where more should be done to ensure that beneficiaries have a personal doctor.

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TAKEAWAY POINTS

- ▶ Medicare beneficiaries with poor self-rated mental health (SRMH) are less likely to have made a routine care appointment in the last 6 months than beneficiaries with excellent SRMH, even controlling for demographic variables and physical health.
- ▶ The association between poor SRMH and infrequent routine care is stronger in fee-for-service (FFS) Medicare than in Medicare Advantage (MA), which may be because more beneficiaries with poor SRMH lack a personal doctor in FFS than in MA.
- ▶ Efforts are needed to ensure receipt of routine care by beneficiaries with poor SRMH—particularly in FFS, where more should be done to ensure that beneficiaries have a personal doctor.

METHODS

Data Source

The RAND Institutional Review Board approved this study. Data came from the 2018 Medicare Consumer Assessment of Healthcare Providers and Systems (CAHPS) Survey, to which 208,560 community-dwelling MA beneficiaries and 94,982 community-dwelling FFS beneficiaries responded. Details such as response rates and factors associated with nonresponse are in the [eAppendix](#) (available at [ajmc.com](#)). We excluded those who did not answer the question about whether they made a routine care appointment, leaving 201,886 MA and 93,463 FFS respondents.

Outcome Measure: Infrequent Routine Care

Survey respondents were asked, “In the last 6 months, did you make any appointments for a check-up or routine care at a doctor’s office or clinic?” We coded a “yes” response as 0 and a “no” response as 1, indicating infrequent routine care. Cognitive testing found this question to have a common, consistent interpretation across CAHPS survey participants. Visits that participants consider to be a check-up or routine care include annual exams, follow-up on a condition under current treatment, routine appointments related to a chronic condition, and treatment for something not severe enough to require urgent care.¹⁹

SRMH

Respondents rated their overall mental and emotional health by selecting 1 of 5 options: excellent, very good, good, fair, or poor. This variable was analyzed categorically. This single-item measure was developed to provide a broad assessment of a person’s emotional well-being independent of the presence of a diagnosed mental illness. Scores on this measure are associated with scores on multi-item measures of mental health (eg, the Kessler Psychological Distress Scale), self-rated health, health problems, mental health service utilization, and service satisfaction.²⁰

Not Having a Personal Doctor

The survey asked respondents whether they have a “personal doctor” (ie, the person you would see for a check-up, for advice about a health problem, or if you were sick or hurt).

Control Variables

In our multivariate statistical models, we controlled for demographic and health variables that could confound the association between SRMH and infrequent routine care (see eAppendix).

Statistical Analysis

First, we described characteristics of the study sample. Next, we used weighted logistic regression to test for bivariate associations between respondent characteristics and infrequent routine care and between SRMH and not having a personal doctor, stratified by

Medicare coverage type. Finally, we estimated 2 pairs of multivariate logistic regression models to investigate the demographic- and physical health–adjusted association between SRMH and infrequent routine care and to assess the potential role of not having a personal doctor in this association. These models included coverage type as an additional control variable. The 2 initial models differed only in whether they included or excluded not having a personal doctor from the set of predictors. A second pair of models was designed to investigate whether the association between SRMH and infrequent routine care differed by Medicare coverage type. This pair of models was like the first pair but also included interactions between coverage type and each level of SRMH. We used covariate-adjusted proportions (“recycled predictions”)²¹ derived from these regression models to obtain rates of infrequent routine care adjusted for all control variables.

As a sensitivity test, we reran the first of the 2 unstratified logistic regression models adding beneficiaries’ 0-to-10 ratings of all care received in the last 6 months to see whether the association between SRMH and infrequent routine care remained after accounting for differences in patient experience.²² These results need cautious interpretation because poor SRMH may be both a risk factor for poor patient experience and a mechanism through which poor SRMH results in less utilization of routine care.

All analyses employed person-level poststratification weights that account for sample design and nonresponse (see eAppendix).²³

Missing Data and Imputation

Missing data on control variables ranged from 1.2% to 7.1%. Missing values on all control variables except not having a personal doctor were imputed using mean values within contract for MA surveys and within state for FFS surveys, according to standard CAHPS procedures.²⁴

RESULTS

Descriptive and Bivariate Analyses

Overall, 14.9% of respondents did not make a routine care appointment in the prior 6 months. In bivariate models, those who did not make a routine care appointment were more often male ($P = .02$), less educated ($P < .001$), Medicaid or low-income subsidy eligible ($P < .001$), and residing in the Pacific, Mountain, or West North Central Census divisions (all $P < .001$) ([Table 1](#)). There was a linear

TABLE 1. Characteristics of the Study Sample (all percentages weighted)^a

	All beneficiaries, % (n = 295,349)	Beneficiaries who made a routine care appointment, % (n = 248,585)	Beneficiaries who did not make a routine care appointment, % (n = 46,764)	P value of test for difference ^b	Percentage of the row category who did not make a routine care appointment
Coverage type					
MA	31.2	30.9	33.0	<.001	15.7
FFS	68.8	69.1	67.0	<.001	14.5
Have personal physician					
Yes	94.3	96.7	80.1	<.001	12.6
No	5.7	3.3	19.9	<.001	51.2
Sex					
Female	54.1	54.2	53.2	.02	14.7
Male	45.9	45.8	46.8	.02	15.2
Age in years					
18-64	13.9	14.0	13.7	.50	14.7
65-69	21.1	20.7	23.5	<.001	16.5
70-74	24.2	24.3	24.2	.87	14.9
75-79	16.9	17.1	15.5	<.001	13.7
80-84	12.0	12.2	11.1	<.001	13.7
≥ 85	11.7	11.7	12.0	.33	15.2
Education					
Less than high school	12.7	12.3	15.1	<.001	17.3
High school graduate or GED	29.6	29.1	32.4	<.001	16.0
Some college	28.0	28.3	26.6	<.001	13.9
4-year college degree or more	29.6	30.3	25.9	<.001	12.8
Self-rated overall health					
Excellent	8.3	7.3	14.1	<.001	25.0
Very good	27.7	27.0	31.7	<.001	16.8
Good	36.3	37.1	32.2	<.001	13.0
Fair	21.7	22.5	16.9	<.001	11.5
Poor	6.1	6.2	5.2	<.001	12.6
Self-rated mental health					
Excellent	25.5	25.1	27.8	<.001	16.0
Very good	32.5	32.6	32.2	.35	14.6
Good	26.8	27.0	25.6	<.001	14.0
Fair	12.2	12.3	11.1	<.001	13.5
Poor	3.0	2.9	3.3	.03	16.3
Medicaid or LIS eligible	18.9	18.7	20.1	<.001	15.8
Census division					
New England	5.1	5.2	4.7	.001	13.5
Middle Atlantic	13.3	13.7	11.4	<.001	12.7
East North Central	15.2	15.1	15.5	.26	15.2
West North Central	6.9	6.7	8.0	<.001	17.4
South Atlantic	20.4	21.0	16.8	<.001	12.3
East South Central	6.5	6.5	6.3	.30	14.4
West South Central	10.3	10.2	10.4	.47	15.1
Mountain	6.8	6.6	8.1	<.001	17.8
Pacific	14.7	14.2	17.7	<.001	18.0
Puerto Rico or Virgin Islands resident	0.9	0.8	1.1	<.001	19.0

FFS, fee-for-service; GED, General Educational Development; LIS, low-income subsidy; MA, Medicare Advantage.

^aCounts and percentages in this table are based on unimputed data.

^bP value of bivariate test for difference in proportion of beneficiaries that have the designated characteristic between the 2 groups (those who made a routine care appointment vs those who did not make a routine care appointment); P values < .05 appear in bold.

TRENDS FROM THE FIELD

TABLE 2. Adjusted Percentage of Beneficiaries Who Did Not Make a Routine Care Appointment by Self-rated Mental Health Status, Overall and by Medicare Coverage Type^a

Self-rated mental health	Adjusted for all but not having a personal physician				Fully adjusted			
	Overall % (P ^b)	MA %	FFS %	MA – FFS % (P ^c)	Overall % (P ^b)	MA %	FFS %	MA – FFS % (P ^c)
Excellent	14.5 (reference)	14.7	14.2	0.5 (.28)	14.9 (reference)	15.3	14.0	1.3 (.002)
Very good	15.2 (.01)	15.3	15.0	0.3 (.82)	15.4 (.06)	15.8	14.6	1.2 (.80)
Good	16.6 (<.001)	16.9	16.2	0.7 (.85)	16.4 (<.001)	17.0	15.5	1.5 (.94)
Fair	16.9 (<.001)	16.6	16.8	-0.2 (.40)	16.6 (.001)	16.7	15.9	0.8 (.48)
Poor	19.2 (<.001)	16.4	20.1	-3.7 (.01)	18.2 (<.001)	16.2	18.2	-2.0 (.04)

FFS, fee-for-service; MA, Medicare Advantage.

^aAdjusted percentages shown in the Overall columns are recycled predictions derived from logistic regression models that included as predictors mental health status, Medicare coverage type, sex, age, education, Census division of residence, whether the beneficiary resided in Puerto Rico or the Virgin Islands, eligibility for Medicaid and the low-income subsidy, whether the beneficiary received assistance in completing the survey or had a proxy respondent, self-rating of overall health, indicators of whether the beneficiary had ever been diagnosed with each of 6 chronic conditions, and, in the fully adjusted model only, having a personal physician. Adjusted percentages shown in the MA and FFS columns are recycled predictions derived from logistic regression models that included as predictors mental health status, Medicare coverage type, mental health status*coverage type interactions, sex, age, education, Census division of residence, whether the beneficiary resided in Puerto Rico or the Virgin Islands, eligibility for Medicaid and the low-income subsidy, whether the beneficiary received assistance in completing the survey or had a proxy respondent, self-rating of overall health, indicators of whether the beneficiary had ever been diagnosed with each of 6 chronic conditions, and, in the fully adjusted model only, having a personal physician.

^bTest of the difference between each mental health group and the reference group of "excellent." *P* values < .05 appear in bold.

^cTest of the coverage type by mental health status interaction at each level of mental health. *P* values < .05 appear in bold.

association between self-rated overall health status and infrequent routine care ($P < .001$), with the rate of infrequent routine care among those in excellent health being approximately twice that among those in poor health. The bivariate association between infrequent routine care and SRMH was curvilinear ($P < .001$): Those with fair, good, and very good SRMH were more likely to make a routine care appointment, whereas those with excellent and poor SRMH were less likely to do so.

Bivariate associations between SRMH and demographic and other health characteristics appear in [eAppendix Table 1](#) stratified by Medicare coverage type.

Only 5.7% of respondents lacked a personal doctor, but fewer than half of these made a routine care appointment vs nearly 90% of those with a personal doctor (Table 1). Not having a personal doctor was also associated with SRMH. Those with poor SRMH were more likely to lack a personal doctor than were those with excellent SRMH (9.5% vs 5.3%; $P < .001$) ([eAppendix Table 2](#)). Not having a personal doctor was more common overall in FFS than in MA (6.4% vs 4.1%; $P < .001$), including for those with poor SRMH (10.8% vs 6.1%; $P < .001$) ([eAppendix Table 2](#)).

Multivariate Logistic Regression Analyses Predicting Infrequent Routine Care

The left side of [Table 2](#) shows that when demographic- and physical health-related differences were accounted for, there was a nearly linear association between SRMH and infrequent routine care (in

contrast to the bivariate association discussed previously). In this model, adjusted rates of infrequent routine care ranged from 14.5% for those with excellent SRMH to 19.2% for those with poor SRMH (full results in [eAppendix Table 3](#)).

The association between SRMH and infrequent routine care was also evident in a model that controlled for beneficiaries' ratings of all care received in the past 6 months. This sensitivity test appears in [eAppendix Table 4](#); adjusted rates of infrequent routine care by SRMH based on this model are in [eAppendix Table 5](#).

In the model that added interactions between each level of SRMH and Medicare coverage type to the predictors in the initial multivariate model, there was a significant interaction ($P = .01$) between Medicare coverage type and poor SRMH in predicting infrequent routine care (all *P* values for interactions involving other levels of SRMH $> .40$) ([eAppendix Table 6](#)). The left side of [Table 2](#) shows that whereas respondents with fair to excellent SRMH were about as likely to make a routine care appointment in FFS as in MA (all $P \geq .28$), those with poor SRMH were significantly less likely to make a routine care appointment in FFS (20.1%) than in MA (16.4%; $P < .05$).

The right side of [Table 2](#) shows that when not having a personal doctor was accounted for, the overall difference between those with excellent and poor SRMH in infrequent routine care decreased by about one-third, and the MA-FFS difference between the percentages of those with poor SRMH who did not make a routine care appointment was reduced by approximately half.

DISCUSSION

We found that Medicare beneficiaries with poor SRMH are approximately 30% less likely to have made a routine care appointment in the last 6 months than are those with excellent SRMH, even after controlling for demographic and physical health differences. Infrequent routine care may be especially problematic for those with poor SRMH given their likelihood of comorbid physical conditions.²⁵ At minimum, the need for regular routine care for individuals with poor SRMH should be no less than for otherwise similar individuals with better SRMH. Thus, less frequent routine care among those with poor SRMH suggests that barriers exist for these beneficiaries.

We also found that beneficiaries with poor SRMH were 22% more likely to go without a routine care appointment in FFS Medicare than in MA. About half of this difference was associated with differences in not having a personal doctor.

Consistent with prior research,⁴ FFS beneficiaries were less likely than their MA counterparts to report not having a personal doctor, especially among those with poor SRMH. We found that a beneficiary with poor SRMH is about half as likely to report not having a personal physician in MA than in FFS (6.1% vs 10.8%).

Coverage type and not having a personal doctor did not account for all of the association between poor SRMH and infrequent routine care. Possibilities worth exploring are that those with poor SRMH are less motivated to adhere to medical recommendations,²⁶ more isolated and withdrawn from individuals who could remind them about routine care,⁵ less tolerant of long wait times,²⁷ or reluctant to seek care because they have internalized stigma related to poor mental health.¹⁴

Limitations

Our study has limitations. First, results are based on self-reports of receiving a check-up or routine care in the last 6 months. Actual and self-reported receipt of routine care may differ. Second, the sample consisted of Medicare beneficiaries; results may not generalize to other segments of the US population, particularly uninsured individuals. Third, results could have been affected by nonresponse bias. However, response rate is a weak proxy for nonresponse bias,²⁸ and the modest differences between responders and nonresponders on observed characteristics were accounted for by nonresponse weighting.²⁹ Fourth, our cross-sectional study cannot establish causal directionality of the association between SRMH and routine care or attribute differences in routine care to mental health or differences between MA and FFS to the practices of MA plans.

CONCLUSIONS

Primary care is a first point of contact and a point of continuing care for individuals with mental health problems, many of whom have comorbid conditions that substantially increase their risk of mortality.²⁵ Yet, our results suggest the need to facilitate access to

routine care for adults with poor SRMH. They may need support to overcome psychological barriers that may prevent them from making and keeping appointments and prioritizing their health care.^{27,30} When individuals identified as having mental health problems do attend a visit, providers may want to discuss with them the importance of regular contact and routine check-ups. Our results also suggest that the need to further assist beneficiaries with poor SRMH may be greater in FFS Medicare than in MA and that more should be done to help FFS beneficiaries obtain and retain a personal doctor.

If the associations reported here were established to be causal, it would warrant efforts to identify the means through which MA facilitates having a doctor and scheduling routine care appointments among those with poor SRMH. Strategies that could work in either coverage context include sending targeted mailings and electronic reminders to schedule routine care appointments, covering the cost of routine physical exams, and offering members with poor SRMH additional assistance for finding a personal doctor and encouragement to get routine care. ■

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Supplemental eAppendix

Detail on the Medicare CAHPS Survey

The Medicare CAHPS Survey is the primary means of assessing care experiences of the nation's 60 million Medicare beneficiaries.¹ Surveys were administered in English, Spanish, and Chinese by mail, with telephone follow-up of non-respondents. The overall response rate for the 2018 Medicare CAHPS survey was 39 percent (35% among FFS beneficiaries; 41% among MA enrollees). Response rate patterns followed what is typical for other health surveys,²⁻³ including higher rates for non-Hispanic White than for other beneficiaries, higher rates with older age through age 79, and lower rates for low-income beneficiaries.

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Control Variables

All of our multivariable logistic regression models predicting infrequent routine care-seeking from SRMH included the following control variables: sex, age, education, eligibility for Medicaid or a Low-Income Subsidy (LIS), proxy assistance with or completion of the survey, self-rating of overall health (poor, fair, good, very good, and excellent), Census division of residence (to control for regional differences in the availability of doctors), and an indicator for

residence in Puerto Rico or the Virgin Islands. We also controlled for whether a respondent had ever been diagnosed with each of the following six chronic conditions: heart attack, coronary artery disease, high blood pressure, cancer, diabetes, and chronic obstructive pulmonary disease.

eAppendix Table 1. Distribution of Demographic and Other Characteristics Across Categories of Self-Rated Mental Health, By Medicare Coverage Type (All Percentages Weighted)

Self-rated mental health:	Medicare Fee-for-Service					Medicare Advantage				
	Excellent	Very Good	Good	Fair	Poor	Excellent	Very Good	Good	Fair	Poor
Have personal physician										
Yes	94.0	94.2	93.5	92.4	89.2	96.3	96.3	95.5	95.1	93.9
No	6.0	5.8	6.5	7.6	10.8	3.7	3.7	4.5	4.9	6.1
Sex										
Female	50.2	53.1	54.8	54.2	53.9	52.7	56.2	57.9	59.8	59.4
Male	49.8	46.9	45.2	45.8	46.1	47.3	43.8	42.1	40.2	40.6
Age (y)										
18-64	6.6	8.5	17.2	36.5	48.6	5.5	5.8	13.0	29.0	37.9
65-69	26.0	24.2	20.1	15.4	13.2	21.5	20.6	18.2	15.3	11.9
70-74	29.5	26.0	21.1	15.1	9.9	30.6	27.5	23.7	18.9	11.6
75-79	18.3	17.6	15.1	11.0	7.1	21.3	20.6	18.4	13.5	10.5
80-84	11.0	12.5	12.6	8.9	8.4	12.5	13.7	13.0	10.9	12.3
85+	8.6	11.2	13.9	13.0	12.8	8.5	11.7	13.7	12.3	15.8
Education										
Less than high school	5.4	7.8	14.8	22.5	24.7	8.9	10.7	19.8	31.2	30.0
High school graduate or	22.4	27.8	33.9	34.2	36.3	25.2	30.7	35.3	32.1	35.6
Some college	28.4	30.3	27.4	26.7	24.4	28.7	28.8	26.3	23.4	22.3
4-year college degree or	43.9	34.2	23.9	16.7	14.6	37.2	29.8	18.5	13.3	12.1
Self-rated overall health										
Excellent	26.1	3.3	1.2	0.8	0.9	26.4	3.8	1.3	1.1	0.9
Very good	39.9	44.7	9.3	4.1	2.9	39.5	44.8	8.6	3.3	2.6
Good	24.3	36.4	56.6	20.6	11.3	24.8	37.9	58.4	18.9	10.9

Fair	8.2	13.2	27.1	56.9	33.2	8.2	11.9	27.7	61.7	34.1
Poor	1.6	2.3	5.8	17.8	51.7	1.1	1.6	4.0	14.9	51.5
Medicaid or LIS eligible	8.7	11.0	21.8	39.6	49.3	11.8	13.5	24.4	40.3	46.8
Census division										
New England	6.2	5.7	5.6	5.5	5.2	4.2	4.0	3.7	3.5	3.7
Middle Atlantic	13.1	12.9	12.7	12.2	12.7	14.6	14.8	14.9	16.3	15.8
East North Central	14.9	15.5	15.5	15.4	16.2	15.8	16.3	15.0	13.3	11.3
West North Central	6.4	7.5	7.5	6.7	5.9	6.8	8.1	5.8	4.9	5.0
South Atlantic	23.1	21.3	20.7	20.2	18.9	19.8	17.5	18.7	19.5	20.1
East South Central	5.4	6.3	7.6	8.8	8.2	4.9	5.3	6.8	7.2	8.2
West South Central	10.3	10.7	11.0	11.6	13.1	8.3	7.8	10.4	10.7	11.4
Mountain	7.3	7.0	6.6	6.0	5.9	7.3	7.3	6.5	6.7	7.2
Pacific	13.2	13.2	12.9	13.6	13.8	18.3	18.9	18.3	17.9	17.4
Puerto Rico or Virgin Islands	--	--	--	--	--	1.9	1.3	2.9	7.2	5.4

Note: Counts and percentages in this table are based on unimputed data.

eAppendix Table 2. Percent of Beneficiaries Who Did Not Have a Personal Physician by Self-Rated Mental Health Status and Coverage Type

Self-Rated Mental Health Status	Coverage Type		Overall
	Fee-for-Service	Medicare Advantage	
Excellent	6.0	3.7	5.3
Very good	5.8	3.7	5.1
Good	6.5	4.5	5.8
Fair	7.6	4.9	6.8
Poor	10.8	6.1	9.5
Overall	6.4	4.1	5.7

eAppendix Table 3. Full Results of Logistic Regression Models Predicting Infrequent Routine Care-Seeking

Predictor:	Includes All Predictors Except Not Having a Personal Physician			Adds Not Having a Personal Physician		
	Log odds	SE	p	Log odds	SE	p
Self-rated mental health*						
Very good	0.06	0.02	0.01	0.05	0.03	0.07
Good	0.17	0.03	<0.001	0.13	0.03	<0.001
Fair	0.19	0.04	<0.001	0.14	0.04	<0.001
Poor	0.36	0.07	<0.001	0.27	0.07	<0.001
Coverage type [†]						
Medicare Advantage	0.02	0.02	0.23	0.10	0.02	<0.001
Sex [‡]						
Female	-0.14	0.02	<0.001	-0.07	0.02	<0.001
Age (years) [§]						
18-64	-0.12	0.04	<0.001	-0.16	0.04	<0.001
65-69	0.08	0.03	0.002	0.04	0.03	0.09
75-79	-0.07	0.03	0.01	-0.06	0.03	0.03
80-84	-0.06	0.03	0.05	-0.05	0.03	0.10
85 or older	0.05	0.03	0.09	0.06	0.03	0.07
Education						
Eighth grade or less	0.24	0.04	<0.001	0.19	0.05	<0.001
Some high school	0.13	0.04	<0.001	0.06	0.04	0.11
Some college or 2-year degree	-0.23	0.02	<0.001	-0.22	0.02	<0.001
4-year college graduate	-0.39	0.03	<0.001	-0.36	0.03	<0.001
> 4-year college degree	-0.56	0.03	<0.001	-0.51	0.03	<0.001
Medicaid status						
Dually eligible	0.08	0.03	0.011	0.01	0.03	0.86
Eligible for a low-income subsidy	0.23	0.05	<0.001	0.20	0.06	<0.001
Census division [#]						
Middle Atlantic	-0.06	0.05	0.19	-0.11	0.05	0.02
East North Central	0.17	0.04	<0.001	0.14	0.05	0.003
West North Central	0.31	0.05	<0.001	0.25	0.05	<0.001
South Atlantic	-0.08	0.04	0.08	-0.12	0.04	0.008
East South Central	0.14	0.05	0.009	0.08	0.05	0.14
West South Central	0.19	0.05	<0.001	0.11	0.05	0.02
Mountain	0.32	0.05	<0.001	0.22	0.05	<0.001
Pacific	0.35	0.04	<0.001	0.30	0.04	<0.001
Puerto Rico/Virgin Islands	0.46	0.08	<0.001	0.38	0.09	<0.001
Self-rated overall health**						
Excellent	0.66	0.03	<0.001	0.63	0.04	<0.001

Very good	0.25	0.02	<0.001	0.25	0.03	<0.001
Fair	-0.11	0.03	<0.001	-0.11	0.03	<0.001
Poor	0.01	0.05	0.79	-0.01	0.05	0.86
Chronic conditions ^{††}						
Heart attack	-0.05	0.04	0.14	-0.06	0.04	0.100
High blood pressure	-0.54	0.02	<0.001	-0.46	0.02	<0.001
Coronary heart disease	-0.41	0.03	<0.001	-0.37	0.04	<0.001
Cancer	-0.37	0.03	<0.001	-0.33	0.03	<0.001
Diabetes	-0.49	0.02	<0.001	-0.46	0.02	<0.001
COPD	-0.26	0.03	<0.001	-0.21	0.03	<0.001
Proxy respondent status ^{‡‡}						
Proxy assistance with survey	-0.33	0.04	<0.001	-0.30	0.04	<0.001
Proxy completion of survey	0.35	0.06	<0.001	0.37	0.06	<0.001
Have a personal physician ^{§§}						
No	--	--	--	1.85	0.03	<0.001
Missing	--	--	--	0.91	0.07	<0.001

COPD = chronic obstructive pulmonary disease.

* Reference category is excellent.

† Reference category is Medicare Fee-for-Service

‡ Reference category is male.

§ Reference category is 65-69 years.

‡ Reference category is high school diploma or General Education Diploma.

¶ Reference category is not dually eligible or eligible for a Low-Income Subsidy

Reference category is New England.

** Reference category is good.

†† Never been diagnosed

‡‡ Reference category is no assistance.

§§ Reference category is yes.

eAppendix Table 4. Full Results of Sensitivity Test of Adding Beneficiaries' Rating of Care Received as a Predictor to the Logistic Regression Model Predicting Infrequent Routine Care-Seeking

Predictor:	Log odds	SE	p
Self-rated mental health*			
Very good	0.04	0.03	0.15
Good	0.09	0.03	0.004
Fair	0.10	0.04	0.02
Poor	0.24	0.07	0.001
Coverage type [†]			
Medicare Advantage	0.07	0.02	0.001
Sex [‡]			
Female	-0.15	0.02	<0.001
Age (years) [§]			
18-64	-0.11	0.04	0.006
65-69	0.06	0.03	0.02
75-79	-0.06	0.03	0.01
80-84	-0.06	0.03	0.03
85 or older	0.01	0.03	0.69
Education			
Eighth grade or less	0.21	0.05	<0.001
Some high school	0.11	0.04	0.004
Some college or 2-year degree	-0.23	0.03	<0.001
4-year college graduate	-0.39	0.03	<0.001
> 4-year college degree	-0.55	0.03	<0.001
Medicaid status			
Dually eligible	0.05	0.03	0.11
Eligible for a low-income subsidy	0.20	0.06	0.001
Census division [#]			
Middle Atlantic	-0.10	0.05	0.04
East North Central	0.14	0.05	0.004
West North Central	0.30	0.05	<0.001
South Atlantic	-0.10	0.05	0.03
East South Central	0.11	0.06	0.06
West South Central	0.17	0.05	0.001
Mountain	0.27	0.05	<0.001
Pacific	0.31	0.05	<0.001
Puerto Rico/Virgin Islands	0.40	0.09	<0.001
Self-rated overall health**			
Excellent	0.66	0.04	<0.001
Very good	0.26	0.03	<0.001

Fair	-0.13	0.03	<0.001
Poor	-0.07	0.05	0.22
Chronic conditions ^{††}			
Heart attack	-0.04	0.04	0.31
High blood pressure	-0.49	0.02	<0.001
Coronary heart disease	-0.39	0.04	<0.001
Cancer	-0.32	0.03	<0.001
Diabetes	-0.48	0.03	<0.001
COPD	-0.24	0.03	<0.001
Proxy respondent status ^{‡‡}			
Proxy assistance with survey	-0.31	0.04	<0.001
Proxy completion of survey	0.39	0.06	<0.001
Rating of care received ^{§§}	-0.12	0.01	<0.001
Missing rating of care received	2.53	0.05	<0.001

COPD = chronic obstructive pulmonary disease.

* Reference category is excellent.

† Reference category is Medicare Fee-for-Service

‡ Reference category is male.

§ Reference category is 65-69 years.

¶ Reference category is high school diploma or General Education Diploma.

¶¶ Reference category is not dually eligible or eligible for a Low-Income Subsidy

Reference category is New England.

** Reference category is good.

†† Never been diagnosed

‡‡ Reference category is no assistance.

§§ Respondents used a 0-10 response scale to rate all of their health care in the last 6 months (0 = worst health care possible, 10 = best health care possible)

eAppendix Table 5. Adjusted Percentage of Beneficiaries Who Did Not Make a Routine Care Appointment by Self-Rated Mental Health Status

Self-Rated Mental Health	Adjusted Percentage (<i>SE</i>)	P value*
Excellent	15.1 (0.2)	--
Very good	15.5 (0.2)	0.15
Good	16.2 (0.2)	0.004
Fair	16.3 (0.4)	0.02
Poor	18.1 (0.9)	0.001

Note: Adjusted percentages are recycled predictions derived from a logistic regression model that included as predictors mental health status, Medicare coverage type, sex, age, education, Census division of residence, whether the beneficiary resided in Puerto Rico and Virgin Islands, eligibility for Medicaid and the Low-Income Subsidy, whether the beneficiary received assistance in completing the survey or had a proxy respondent, self-rating of overall health, indicators of whether the beneficiary had ever been diagnosed with each of 6 chronic conditions, and beneficiaries' ratings of all care received in the last 6 months.

* P-value of test for difference of each mental health group from the reference group of "excellent"

eAppendix Table 6. Full Results of Logistic Regression Models Predicting Infrequent Routine Care-Seeking, Adding Interactions Between Self-Rated Mental Health Status and Coverage Type

Predictor:	Includes All Predictors Except Not Having a Personal Physician			Adds Not Having a Personal Physician		
	Log odds	SE	p	Log odds	SE	p
Self-rated mental health*						
Very good	0.07	0.03	0.02	0.05	0.03	0.08
Good	0.16	0.03	<0.001	0.13	0.03	<0.001
Fair	0.21	0.05	<0.001	0.16	0.05	<0.001
Poor	0.44	0.08	<0.001	0.34	0.08	<0.001
Coverage type [†]						
Medicare Advantage (MA)	0.04	0.04	0.28	0.12	0.04	0.002
Self-rated mental health x MA						
Very good x MA	-0.01	0.05	0.82	-0.01	0.05	0.81
Good x MA	0.01	0.05	0.85	0.00	0.05	0.94
Fair x MA	-0.06	0.07	0.40	-0.05	0.07	0.48
Poor x MA	-0.30	0.12	0.01	-0.27	0.13	0.04
Sex [‡]						
Female	-0.14	0.02	<0.001	-0.07	0.02	<0.001
Age (years) [§]						
18-64	-0.12	0.04	<0.001	-0.16	0.04	<0.001
65-69	0.08	0.03	0.002	0.04	0.03	0.09
75-79	-0.07	0.03	0.009	-0.06	0.03	0.03
80-84	-0.06	0.03	0.05	-0.05	0.03	0.10
85 or older	0.05	0.03	0.09	0.06	0.03	0.07
Education						
Eighth grade or less	0.24	0.04	<0.001	0.19	0.05	<0.001
Some high school	0.13	0.04	<0.001	0.06	0.04	0.12
Some college or 2-year degree	-0.23	0.02	<0.001	-0.22	0.02	<0.001
4-year college graduate	-0.39	0.03	<0.001	-0.36	0.03	<0.001
> 4-year college degree	-0.56	0.03	<0.001	-0.51	0.03	<0.001
Medicaid status						
Dually eligible	0.08	0.03	0.01	0.01	0.03	0.86
Eligible for a low-income subsidy	0.25	0.05	<0.001	0.20	0.06	<0.001
Census division [#]						
Middle Atlantic	-0.06	0.05	0.19	-0.11	0.05	0.02
East North Central	0.17	0.04	<0.001	0.13	0.05	0.003
West North Central	0.31	0.05	<0.001	0.25	0.05	<0.001
South Atlantic	-0.08	0.04	0.09	-0.12	0.04	0.008
East South Central	0.14	0.05	0.009	0.08	0.05	0.14
West South Central	0.19	0.05	<0.001	0.11	0.05	0.02

Mountain	0.32	0.05	<0.001	0.22	0.05	<0.001
Pacific	0.35	0.04	<0.001	0.30	0.04	<0.001
Unknown	0.47	0.08	<0.001	0.39	0.09	<0.001
Self-rated overall health**						
Excellent	0.67	0.03	<0.001	0.63	0.04	<0.001
Very good	0.25	0.02	<0.001	0.25	0.03	<0.001
Fair	-0.11	0.03	<0.001	-0.11	0.03	<0.001
Poor	0.00	0.05	0.78	-0.01	0.05	0.86
Chronic conditions††						
Heart attack	-0.05	0.04	0.14	-0.06	0.04	0.10
High blood pressure	-0.54	0.02	<0.001	-0.46	0.02	<0.001
Coronary heart disease	-0.41	0.03	<0.001	-0.37	0.04	<0.001
Cancer	-0.36	0.03	<0.001	-0.33	0.03	<0.001
Diabetes	-0.49	0.02	<0.001	-0.46	0.02	<0.001
COPD	-0.26	0.03	<0.001	-0.21	0.03	<0.001
Proxy respondent status‡‡						
Proxy assistance with survey	-0.34	0.04	<0.001	-0.30	0.04	<0.001
Proxy completion of survey	0.35	0.06	<0.001	0.37	0.06	<0.001
Have a personal physician§§						
No	--	--	--	1.85	0.03	<0.001
Missing	--	--	--	0.91	0.07	<0.001

COPD = chronic obstructive pulmonary disease.

* Reference category is excellent.

† Reference category is Medicare Fee-for-Service

‡ Reference category is male.

§ Reference category is 65-69 years.

¶ Reference category is high school diploma or General Education Diploma.

¶¶ Reference category is not dually eligible or eligible for a Low-Income Subsidy

Reference category is New England.

** Reference category is good.

†† Never been diagnosed

‡‡ Reference category is no assistance.

§§ Reference category is yes.