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Association of Outpatient Behavioral Health Treatment With Medical and Pharmacy Costs in the First 27 Months Following a New Behavioral Health Diagnosis in the US

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Abstract

IMPORTANCE Outpatient behavioral health treatment (OPBHT) is an effective treatment for behavioral health conditions (BHCs) that may also be associated with improved medical health outcomes, but evidence regarding the cost-effectiveness of OPBHT across a large population has not been established.

OBJECTIVE To investigate whether individuals newly diagnosed with a BHC who used OPBHT incurred lower medical and pharmacy costs over 15 and 27 months of follow-up compared with those not using OPBHT.

DESIGN, SETTING, AND PARTICIPANTS This retrospective cohort study of commercially insured individuals in the US was conducted using administrative insurance claims data for individuals newly diagnosed with 1 or more BHCs between January 1, 2017, and December 31, 2018. Data were examined using a 12-month period before BHC diagnosis and 15- and 27-month follow-up periods. Participants included individuals aged 1 to 64 years who received any OPBHT with or without behavioral medication or who did not receive OPBHT or behavioral medication in the 15 months following diagnosis. Data were analyzed from May to October 2021.

EXPOSURES Receipt of OPBHT both as a dichotomous variable and categorized by number of OPBHT visits.

MAIN OUTCOMES AND MEASURES The main outcome was the association between OPBHT treatment and 15- and 27-month medical and pharmacy costs, assessed using a generalized linear regression model with γ distribution, controlling for potential confounders.

RESULTS The study population included 203 401 individuals, of whom most were male (52%), White, non-Hispanic (75%), and 18 to 64 years of age (67%); 22% had at least 1 chronic medical condition in addition to a BHC. Having 1 or more OPBHT visits was associated with lower adjusted mean per-member, per-month medical and pharmacy costs across follow-up over 15 months (no OPBHT: $686 [95% CI, $619-$760]; ≥1 OPBHT: $571 [95% CI, $515-$632]; $P < .001$) and 27 months (no OPBHT: $464 [95% CI, $393-$549]; ≥1 OPBHT: $391 [95% CI, $331-$462]; $P < .001$). Furthermore, almost all doses of OPBHT across the 15 months following diagnosis were associated with lower costs compared with no OPBHT.

CONCLUSIONS AND RELEVANCE In this cohort study, medical cost savings were associated with OPBHT among patients newly diagnosed with a BHC in a large, commercially insured population. The findings suggest that promoting and optimizing OPBHT may be associated with reduced overall medical spending among patients with BHCs.

Key Points

Question Do individuals newly diagnosed with a behavioral health condition (BHC) who use outpatient behavioral health treatment (OPBHT) incur lower medical and pharmacy costs over 15 or 27 months of follow-up compared with those not using OPBHT?

Findings In this cohort study of 203 401 US individuals aged 1 to 64 years with a newly diagnosed BHC, having 1 or more OPBHT visits was associated with lower adjusted medical and pharmacy costs across follow-up over 15 and 27 months.

Meaning These findings suggest that promoting and optimizing behavioral outpatient treatment may be associated with reduced overall medical spending among patients with BHCs.

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Introduction

As of 2018, 23% of adults older than 18 years in the US had a behavioral health condition (BHC).[1] Individuals with a BHC incur 2.8 to 6.2 times greater medical costs than those without a BHC, which could be explained in part by linkages between mental health conditions and highly prevalent chronic conditions.[2-7] While widescale cost-effectiveness of interventions developed to treat BHCs and also improve medical health outcomes has not been established,[8,9] several promising studies have indicated statistically significant medical cost savings associated with improved antidepressant adherence,[10] use of behavioral health homes,[11] and substance use interventions.[12]

Despite this evidence, diagnosis of BHCs is often delayed[13] and the majority of the population with a BHC receives little to no treatment in any given year. In this study, we sought to examine whether individuals newly diagnosed with a BHC who use any outpatient behavioral health treatment (OPBHT) following diagnosis incur lower medical and pharmacy costs over the following 15- or 27-month follow-up period compared with those not using OPBHT and to quantify the amount of OPBHT associated with optimized medical and pharmacy costs.

Methods

This retrospective cohort study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guideline. The principles outlined in the Declaration of Helsinki[14] and Health Insurance Portability and Accountability Act[15] were followed during the study, which was deemed exempt from institutional review and informed consent by Evernorth Health because it was conducted with deidentified insurance claims data from Cigna. The study population included US individuals newly diagnosed (having no BHC claims in the 12 months prior) with 1 or more BHCs in the study period between January 1, 2017, and December 31, 2018. The date of first BHC diagnosis was the index date, and preperiod costs were calculated for the 12 months prior to the index date. We measured OPBHT costs for 15 months after diagnosis to accurately capture the association of OPBHT with costs for a full year during which treatment occurred, as the first 3 months after a new BHC diagnosis can be a period during which OPBHT and medication use are more likely to fluctuate. In a subset of the population with extended coverage, we calculated costs across 27 months following the index date to assess persistence of effects after the first year during which treatment occurred.

An eligibility criterion for inclusion in the study was continuous medical, behavioral, and pharmacy eligibility for the 12-month preperiod and the 15-month postperiod (and, if available, 27 months). In the 12-month preperiod, individuals could not have preperiod BHC diagnoses, behavioral claims, or pharmacy spending. Eligible individuals were between 1 and 64 years of age (to exclude infants and older individuals eligible for Medicare) and had no pregnancies during the entire study period (to exclude high sex-specific costs unique to child-bearing individuals). Individuals in the treatment group must have had at least 1 OPBHT within the first 30 days of BHC diagnosis (irrespective of pharmacy spending for prescription behavioral medications). The rationale for requiring at least 1 visit within the first 30 days was to limit the temporal association between OPBHT and a new BHC diagnosis to the month immediately following the BHC diagnosis. In the no OPBHT control group, individuals could not have had any pharmacy spending for prescription behavioral medications or any OPBHT visits during the 15-month postperiod.

The primary aim of this study was to quantify the association of 1 or more OPBHTs with postperiod medical and pharmacy costs. The secondary aim was to assess whether different quantities of OPBHTs were associated with differences in postperiod costs. An OPBHT was defined by 116 *Current Procedural Terminology* (*CPT*) codes,[16] of which 95% of claims came from the predominant *CPT* codes associated with psychotherapy (90837, 90834, 90847, 99214, 99213, 90833, 90853, and 90836) or psychiatry (90791, 90792). The OPBHT claims came from licensed

behavioral clinicians, including counselors (35%), social workers (22%), psychologists (19%), psychiatrists (13%), and behavioral nurses (2%).

We controlled for confounding variables associated with exposure and outcome, including preperiod medical and pharmacy costs, age, sex, race and ethnicity, income, retrospective episode risk group (ERG) score (using Optum Insight's ERG method for underlying medical risk),[17] chronic medical conditions, postperiod behavioral medication use (treatment group), BHCs (**Table 1**), any behavioral higher-level-of-care utilization in the 15-month postperiod, and behavioral insurance product type. Age was treated both as a continuous variable and as a categorical variable using World Health Organization classifications (children, <18 years; young adults, 18-25 years; and adults, 26-64 years). Household income in the year prior to the index date was determined using commercially

Table 1. Baseline Demographic and Behavioral Health Treatment Characteristics Among Individuals With a Newly Diagnosed Behavioral Health Condition in the 15-Month Cohort by OPBHT

	Individuals, No. (%)				
	Total population (N = 203 401)	Any OPBHT (n = 90 093)	No OPBHT (n = 113 308)	Relative risk	*P* value[a]
Demographic characteristics					
Sex					
Female	98 155 (48)	46 541 (52)	51 614 (46)	1.1 (1.1-1.2)	<.001
Male	105 246 (52)	43 552 (48)	61 694 (54)	1 [Reference]	NA
Age group, y					
1-17	66 388 (33)	30 929 (34)	35 459 (31)	1.1 (1.1-1.2)	<.001
18-25	26 774 (13)	14 261 (16)	12 513 (11)	1.3 (1.3-1.3)	<.001
26-64	110 239 (54)	44 903 (50)	65 336 (58)	1 [Reference]	NA
Race and ethnicity					
Asian	8679 (4)	3035 (3)	5643 (5)	0.8 (0.7-0.8)	<.001
Black, non-Hispanic	14 085 (7)	5639 (6)	8446 (7)	0.9 (0.8-0.9)	<.001
Hispanic	24 951 (12)	9551 (11)	15 400 (14)	0.8 (0.8-0.8)	<.001
White, non-Hispanic	153 080 (75)	70 757 (79)	82 323 (73)	1 [Reference]	NA
Missing	2606 (1)	1110 (1)	1496 (1)	0.9 (0.9-1.0)	<.001
Annual household income, $, thousands					
<50	57 101 (28)	22 971 (25)	34 130 (30)	0.8 (0.8-0.8)	<.001
50-100	75 646 (37)	33 215 (37)	42 431 (37)	0.9 (0.9-0.9)	<.001
≥100	68 940 (34)	33 211 (37)	35 729 (32)	1 [Reference]	NA
Missing	1714 (1)	696 (1)	1018 (1)	0.8 (0.8-0.9)	<.001
≥1 Chronic medical condition in preperiod	43 836 (22)	17 464 (19)	26 372 (23)	0.9 (0.9-0.9)	<.001
Cigna behavioral health product					
4[b]	1359 (1)	455 (1)	904 (1)	0.7 (0.7-0.8)	<.001
3[c]	9782 (5)	3824 (4)	5958 (5)	0.9 (0.8-0.9)	<.001
2[d]	64 083 (31)	27 665 (31)	36 418 (32)	1.0 (0.9-1.0)	<.001
1[e]	127 939 (63)	57 931 (64)	70 008 (62)	1 [Reference]	NA
Missing	238 (<1)	218 (<1)	20 (<1)	2.0 (1.9-2.1)	<.001
Behavioral health diagnoses and OPBHT utilization from first diagnosis to follow-up					
Postperiod pharmacy cost for concurrent treatment with behavioral health drugs	30 503 (100)	30 503 (100)	0	NA	NA
Utilization of a higher level of care during diagnosis, treatment, and follow-up period	5021 (2)	4262 (5)	759 (1)	2.0 (1.9-2.0)	<.001
Higher-acuity diagnosis[f]	12 847 (6)	8815 (10)	4032 (4)	1.6 (1.6-1.6)	<.001
Depression or anxiety	104 451 (51)	52 269 (58)	52 182 (46)	1.3 (1.3-1.3)	<.001
Substance use disorder, including alcohol use	22 545 (11)	5896 (7)	16 649 (15)	0.6 (0.5-0.6)	<.001
Other diagnosis[g]	109 682 (54)	59 396 (66)	50 286 (44)	1.7 (1.6-1.7)	<.001

Abbreviations: NA, not applicable; OPBHT, outpatient behavioral health treatment.

[a] *P* values are for comparisons of relative risk between groups receiving any OPBHT or no OPBHT vs the reference category.

[b] With access to a behavioral network focused on providing employee assistance programs.

[c] With access to a behavioral network and inpatient utilization management.

[d] Employer self-insured, with access to a behavioral network, inpatient and outpatient utilization management, and integration of coaching and other supplemental programs.

[e] Insured, with access to a behavioral network, inpatient and outpatient utilization management, and integration of coaching and other supplemental programs.

[f] Bipolar disorder, severe depression, psychotic disorder, eating disorder, or autism spectrum disorder.

[g] Intellectual disorder, attention-deficit/hyperactivity disorder, conduct disorder, dementia, impulse disorder, personality disorder, reactive stress disorder, sleep disorder, or other.

purchased information from a third-party vendor and categorized as less than $50 000, $50 000 to $100 000, and more than $100 000 per year. Race and ethnicity were determined from self-reported membership data or secondarily from commercially purchased information from a third-party vendor. Chronic medical diagnoses were assessed from preperiod *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision* (*ICD-10*) codes on claims data and included diagnoses for asthma, coronary artery disease, congestive heart failure, chronic obstructive pulmonary disease, diabetes, lower back pain, a recent oncology diagnosis, peripheral artery disease, or osteoarthritis.[18] Behavioral health conditions were categorized as high acuity (F20.xx-F29.xx, F30.xx, F31.xx, F33.2x, F33.3x, F50.xx, and F84.xx), substance use and alcohol use disorder (F1x.xx, excluding F17.xx), depression or anxiety (F32.xx, F33.xx [excluding F33.2 × and F33.3x], F34.xx, F39.xx-F42, F44, F45, and F48), or other (Fx.xx, excluding the previously listed categories). Behavioral medication use was depicted by any pharmacy spending for prescription behavioral medications vs no such spending. Higher-level-of-care utilization included any psychiatric inpatient, residential treatment, partial hospitalization, or intensive outpatient utilization. Behavioral insurance product type was a categorical variable and included 4 product types encompassing all participants in the current analysis. Missing categorical data were coded as missing, and individuals were included in the adjusted analysis with the exception of individuals (n = 216) missing continuous ERG data, who were excluded. Costs were calculated as the total of all medical and pharmacy claims for the period, capped at the 99th percentile. Behavioral health conditions were defined as any *ICD-10* code starting with Fxx.xx within the first 10 diagnosis code fields on a claim with the exception of F17 (nicotine dependence only, without any other F codes). OPBHT visits across the 15-month postperiod were categorized both continuously and as a binary variable (0 or ≥1) or were evenly binned in 2-visit groups until 20 visits, after which they were binned by 10 visits until 40 to account for decreasing sample size with increasingly higher utilization.

Statistical Analysis

Data were analyzed from May to October 2021. Group differences in baseline variables between the treatment and control groups were assessed using logistic regression, Mann-Whitney U tests, and relative risk ratios. A generalized linear regression model with a γ distribution and log link was used to estimate postperiod costs associated with varying levels of OPBHT.[19] Covariates independently associated with costs in univariate analyses were included, and tests to ensure that no multicollinearity existed between variables were conducted; we used a Bonferroni correction to control for multiple comparisons. For age-specific analyses, we modeled age categorically and included an age × OPBHT interaction term in the model. Significance was set at 2-sided $P < .05$; all analyses were conducted using SAS, version 7.15 (SAS Institute Inc).

Results

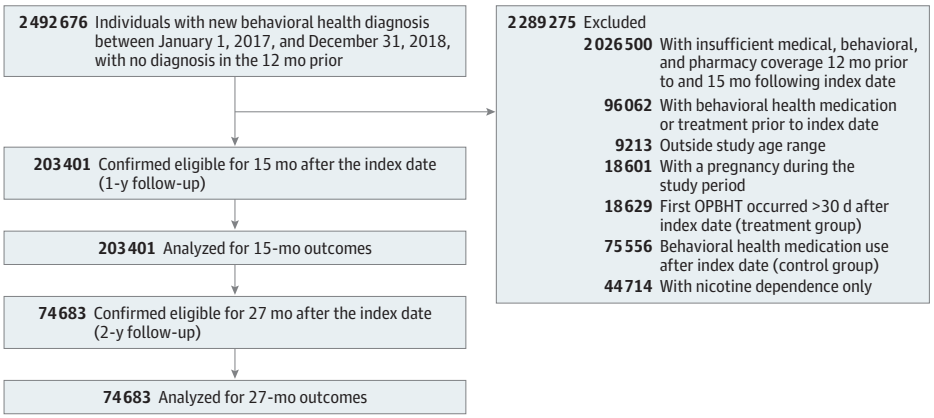
After applying eligibility criteria, the analysis included 203 401 individuals in the 15-month study group and 74 683 individuals in the 27-month subset analysis (**Figure 1**). In the 15-month study population, 48% of participants were female; 52% were male; 4% were Asian; 7% were Black, non-Hispanic; 12% were Hispanic; 75% were White, non-Hispanic; 1% had missing data for race and ethnicity; and 67% were aged 18 to 64 years. Fifty-one percent of participants were diagnosed with depression and/or anxiety, 11% with substance use or alcohol use disorder, and 6% with a higher-acuity diagnosis such as bipolar disorder, severe depression, psychotic disorder, eating disorder, or autism spectrum disorder. Twenty-two percent had at least 1 chronic medical condition in addition to a BHC. Individuals who used OPBHT were more likely to be female (52% vs 46%; $P < .001$), White, non-Hispanic (79% vs 73%; $P < .001$), and younger than 26 years (50% vs 42%; $P < .001$) and to have an income higher than $100 000 per year (37% vs 32%; $P < .001$) compared with individuals in the control group with no OPBHT (Table 1).

The primary analysis of any OPBHT utilization (**Table 2**) indicated that having 1 or more OPBHT visits was associated with lower adjusted medical and pharmacy costs across follow-up over 15 months (adjusted mean per-member, per-month [PMPM] costs: no OPBHT, $686 [95% CI, $619-$760]; ≥1 OPBHT, $571 [95% CI, $515-$632]; *P* < .001) and 27 months (no OPBHT, $464 [95% CI, $393-$549]; ≥1 OPBHT, $391 [95% CI, $331-$462]; *P* < .001). The secondary analysis assessing the dose-response relationship between OPBHT volume and adjusted costs (Table 2) supported that all doses of OPBHT utilization were associated with lower costs: 15-month costs varied from $618 (95% CI, $557-$685) to $620 (95% CI, $557-$691) PMPM across the lowest number of visits (1-2) to the highest (≥41), respectively, compared with the no OPBHT group ($681; 95% CI, $615-$755) (all *P* < .001). Similarly, the 27-month costs were significantly lower for those receiving OPBHT for all visit categories except 41 or more visits, ranging from $424 (95% CI, $358-$501) to $397 (95% CI, $332-$474) PMPM across 1 to 2 and 31 to 40 visits, respectively, compared with the no OPBHT group ($466; 95% CI, $395-$551) (all *P* < .001). Including an age category by OPBHT interaction in the model (**Figure 2**) did not markedly change results at 15 months (primary and secondary analyses) or at 27 months (primary analysis). When examining OPBHT across all utilization levels and by age categories at 27 months (Figure 2D), results were not statistically significant at some OPBHT levels in all age groups or in an age-dependent manner; significantly lower costs were found at 10 treatment levels in adults receiving OPBHT (1-2, 3-4, 5-6, 7-8, 9-10, 11-12, 17-18, 19-20, 21-30, and 31-40 visits) but only at 5 levels in young adults (1-2, 3-4, 5-6, 11-12, and 17-18 visits) and children (1-2, 3-4, 5-6, 11-12, and ≥41 visits); however, this was likely influenced by the smaller sample size in the 27-month cohort, particularly among children and young adults, combined with increasing variance in costs across a longer follow-up period.

Discussion

This study sought to address whether OPBHT is associated with lower medical and pharmacy costs in the first 27 months following initial BHC diagnosis and treatment among previously undiagnosed individuals and showed associations between OPBHT utilization and reduced medical and pharmacy costs. We found that any amount of OPBHT (vs none) was associated with reduced medical costs over the 15 and 27 months following the initial diagnosis. Moreover, our study found a dose-response relationship between OPBHT and medical and pharmacy costs, such that estimated cost savings were significantly lower in the treated vs untreated groups at almost every level of treatment. These findings support the cost-effectiveness of practitioner- and insurance-based interventions to increase OPBHT utilization, which is a critical resource as new BHC diagnoses continue to increase.

Figure 1. Study Flow Diagram of Inclusions and Exclusions



OPBHT indicates outpatient behavioral health treatment.

The association of OPBHT with costs appeared to be robust enough that even 1 OPBHT visit in the 15 months following diagnosis was associated with significant cost savings over a 15- or 27-month period compared with no treatment. We accounted for initial fluctuations in care and medication use by extending our follow-up to 15 months after diagnosis to allow sufficient time for cost savings to be observed. This longer-term impact may explain why previous, smaller studies did not show significant

Table 2. Unadjusted and Adjusted Medical and Pharmacy Costs Among 15-Month and 27-Month Cohorts by OPBHT Utilization

	Unadjusted[a]			Adjusted[b]		
	Individuals, No.	Cost estimate, $ (95% CI)[c]	*P* value	Individuals, No.	Cost estimate, $ (95% CI)[c]	*P* value[d]
15-mo Cohort						
OPBHT visits (binary), No.						
0	113 308	642 (634-650)	NA	113 049	686 (619-760)	NA
≥1	90 093	475 (466-483)	<.001	86 712	571 (515-632)	<.001
OPBHT visits (categories), No.						
0	113 308	642 (632-653)	NA	113 049	681 (615-755)	NA
1-2	25 362	578 (556-600)	<.001	24 405	618 (557-685)	<.001
3-4	13 565	416 (386-446)	<.001	12 999	517 (465-573)	<.001
5-6	9792	421 (386-456)	<.001	9413	521 (469-578)	<.001
7-8	7305	428 (387-469)	<.001	7049	522 (469-580)	<.001
9-10	5261	432 (384-480)	<.001	5062	549 (493-611)	<.001
11-12	4110	427 (372-481)	<.001	3967	534 (479-595)	<.001
13-14	3370	410 (350-470)	<.001	3245	510 (457-569)	<.001
15-16	2819	444 (378-509)	<.001	2729	556 (498-621)	<.001
17-18	2316	433 (361-506)	<.001	2222	535 (478-598)	<.001
19-20	2009	436 (358-514)	<.001	1941	553 (493-619)	<.001
21-30	6699	440 (397-483)	<.001	6446	564 (507-627)	<.001
31-40	3437	460 (400-519)	<.001	3295	551 (494-615)	<.001
≥41	4048	526 (472-581)	<.001	3939	620 (557-691)	<.001
27-mo Cohort						
OPBHT visits (binary), No.						
0	41 991	474 (469-479)	NA	41 911	464 (393-549)	NA
≥1	32 692	366 (360-371)	<.001	31 843	391 (331-462)	<.001
OPBHT visits (categories), No.						
0	41 991	474 (465-483)	NA	41 911	466 (395-551)	NA
1-2	9071	426 (407-445)	<.001	8847	424 (358-501)	<.001
3-4	4911	318 (292-343)	<.001	4773	364 (307-431)	<.001
5-6	3537	329 (299-360)	<.001	3454	358 (302-424)	<.001
7-8	2619	335 (300-370)	<.001	2557	369 (310-438)	<.001
9-10	1948	333 (292-374)	<.001	1903	374 (315-445)	<.001
11-12	1484	335 (288-382)	<.001	1444	360 (302-429)	<.001
13-14	1203	353 (301-405)	<.001	1174	390 (327-466)	<.001
15-16	1046	375 (319-431)	.02	1022	412 (344-493)	<.001
17-18	844	294 (232-356)	<.001	814	343 (286-411)	<.001
19-20	737	341 (275-408)	.003	719	402 (334-483)	<.001
21-30	2490	354 (318-391)	<.001	2415	395 (333-469)	<.001
31-40	1262	362 (311-412)	<.001	1216	397 (332-474)	<.001
≥41	1540	449 (403-495)	>.99	1505	476 (400-568)	>.99

Abbreviations: NA, not applicable (reference category); OPBHT, outpatient behavioral health treatment.

[a] Unadjusted estimates of the mean include raw data from all members with coverage in the cohort.

[b] Adjusted estimates of the mean include members with postperiod costs and were adjusted for age, sex, household income, race and ethnicity, episode risk group score, medical and pharmacy costs in the 12 months prior to the first behavioral health diagnosis (preperiod), categorized behavioral health diagnoses, presence of chronic medical conditions, behavioral health insurance, and treatment characteristics (use of behavioral health drugs concurrent with OPBHT [treatment group only] and utilization of a higher level of care) during diagnosis and treatment and the 1-year follow-up period.

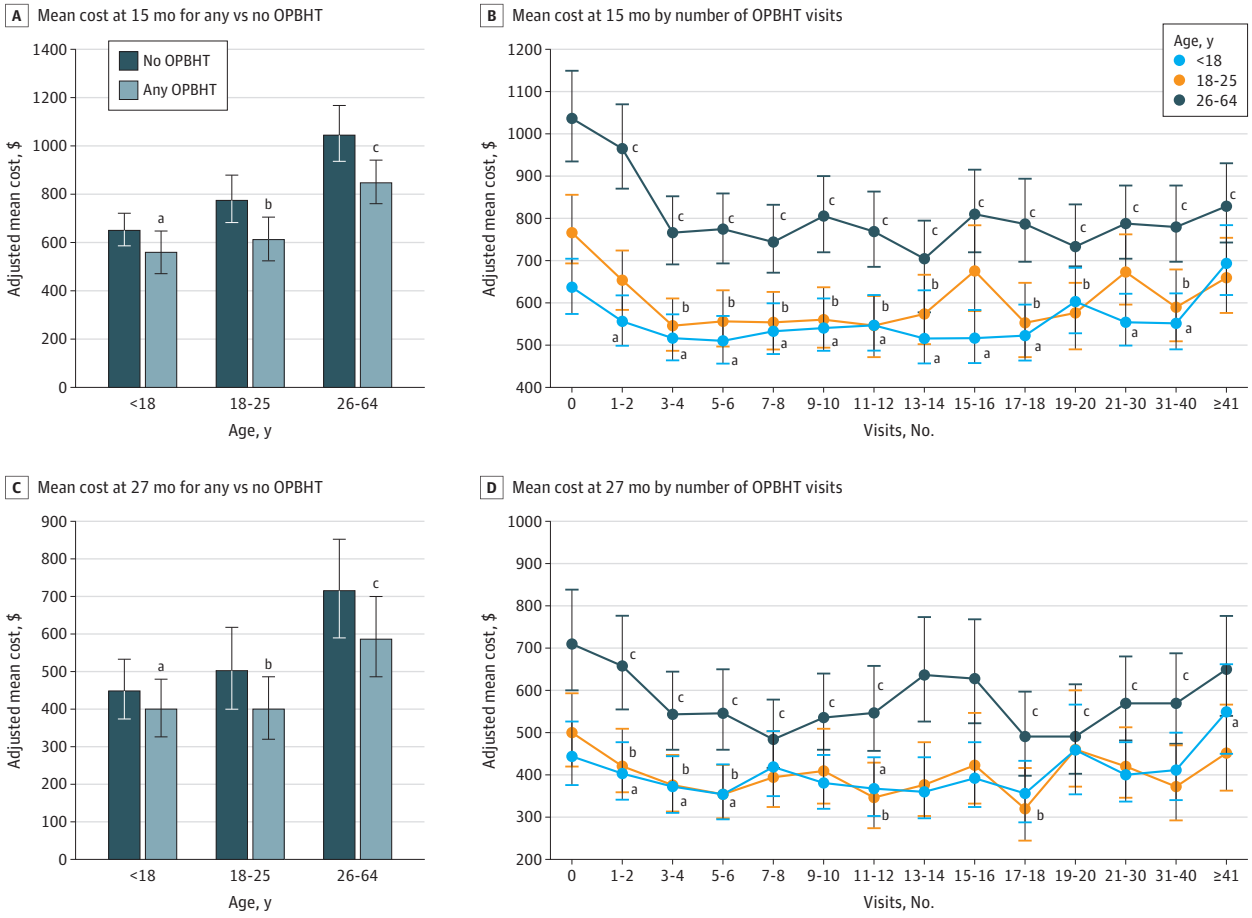
[c] Group mean in medical and pharmacy costs per member per month.

[d] *P* values given for comparison of the crude or adjusted mean difference with the reference group.

shorter-term benefits.[8,9] Results of our secondary analysis categorizing OPBHT into discrete visits also support continued investment across the health care system in behavioral health treatment, as we found that 1 to 40 visits were associated with significantly lower costs after both 15 and 27 months compared with no treatment. Our findings were also largely age independent, especially over 15 months, suggesting that OPBHT has favorable effects among children, young adults, and adults. This is promising given that disease etiology and progression, treatment paradigms, presence of comorbid medical conditions, and overall medical and pharmacy costs differ among the 3 groups.

Notably, our data set largely encompassed in-person OPBHT since the study period preceded the systemic transition into virtual care that occurred in 2020, and consequently, we observed similar trends in utilization as in previous studies. OPBHT utilization in the overall study population was low, with older adults, adults with lower income, individuals with comorbid medical conditions, and racial and ethnic minority individuals being less likely to receive OPBHT.[1,20] The promising advances in widespread access to virtual behavioral health care services and therapist-matching algorithms are reducing barriers to initiating and continuing care that underlie these established patterns.[21,22] Consequently, data from 2020 and beyond can assess the effects of these advances on OPBHT adherence.

Figure 2. Posttreatment Adjusted Mean Medical and Pharmacy Costs at 15 Months and 27 Months Following Initial Diagnosis by Outpatient Behavioral Health Treatment (OPBHT) Levels and Age



Adjusted mean differences are expressed per member per month for individuals using OPBHT vs the reference category (no OPBHT visits). Data were adjusted for sex, household income, race and ethnicity, episode risk group score, medical and pharmacy costs in the 12 months prior to the first behavioral health diagnosis (preperiod), categorical behavioral health diagnoses, presence of chronic medical conditions, behavioral health insurance, and treatment characteristics (use of behavioral health drugs concurrent with OPBHT [treatment group only] and utilization of a higher level of care) during the 15-month diagnosis and treatment and follow-up periods. Whiskers indicate 95% CIs for the adjusted means.

[a] Significant difference vs no OPBHT for participants younger than 18 years.

[b] Significant difference vs no OPBHT for participants aged 18 to 25 years.

[c] Significant difference vs no OPBHT for participants aged 26 to 64 years.

To our knowledge, this is the first study to quantify medical cost savings associated with OPBHT across BHCs and chronic conditions in a large, commercially insured population using claims data. Previous studies have been specific to individual conditions within controlled research settings.[10-12,23,24] Our findings suggest that promoting OPBHT as part of a population health strategy is associated with improved overall medical spending, particularly among adults. Future research should validate these findings in other populations, including government-insured individuals, and explore data by chronic disease category, over longer time horizons, by type and quality of OPBHT, by type of medical spending, within subpopulations with BHCs, and including virtual and digital behavioral health services.[25,26]

Limitations

As in other studies of insurance claims data, this study has limitations. First, underdiagnosis of BHCs could mean that the study population was missing individuals in the control group. Second, the observational nature of this study using administrative claims data also means that we were unable to control for clinical data and individual behaviors to fully account for all characteristics that may differ between individuals seeking vs not seeking OPBHT. Third, our outcomes could also significantly vary by condition (behavioral or medical) and treatment type. As noted, further research should explore this variation explicitly as our results are applicable only to the study population, which focused on individuals newly diagnosed with a BHC. Fourth, the study population required continuous eligibility across commercial medical, pharmacy, and behavioral insurance, which may have introduced selection bias around health and employment status and excluded individuals older than 65 years. We also did not attempt to separate the independent and synergistic associations of medication use with our outcomes. Finally, we sought to examine the immediate impact of OPBHT utilization in the first 15 months following diagnosis, not continued use beyond the first 15 months.

Conclusions

This study showed that utilization of OPBHT was associated with reduced medical and pharmacy spending for individuals newly diagnosed with a BHC in the US. Investing in OPBHT treatment pathways may be a cost-effective way to better manage both medical and behavioral conditions.

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Acquisition, analysis, or interpretation of data: Bellon, Quinlan, Taylor.

Drafting of the manuscript: Bellon, Quinlan, Taylor.

Critical revision of the manuscript for important intellectual content: All authors.

Statistical analysis: Quinlan, Taylor.

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Supervision: Bellon, Nemecek, Borden, Needs.

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