

Telebehavioral Health (TBH) Use Among Rural Medicaid Beneficiaries: Relationships With Telehealth Policies

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This study examined associations between state Medicaid telehealth policies and telebehavioral health (TBH) use among rural fee-for-service (FFS) beneficiaries with behavioral health needs and assessed relationships between beneficiary characteristics and TBH use. Data sources included the 2011 Medicaid Analytic eXtract, the Area Health Resources File, and a 2011 survey on state-level Medicaid telehealth policies. Specific policies studied included telehealth-specific informed consent requirements and facility fee payments to sites hosting TBH users. Participants included 70,459 rural FFS Medicaid beneficiaries who used outpatient behavioral health services; lived within 36 states whose Medicaid programs provided telehealth reimbursement in 2011; and who were not dually eligible for Medicare and Medicaid. Generalized estimating equations were used to examine how odds of TBH use were related to informed consent, facility fees, and the interaction between these variables after adjusting for covariates. Contrast analyses were performed to further specify the nature of the interaction. Although the overall prevalence of TBH use in the study sample was low (2.1%), TBH use was highest among beneficiaries with severe mental illness (3.2%), and those living in rural nonadjacent counties (2.6%) or in mental health professional shortage areas (2.2%). Where informed consent rules were present, the odds of TBH use were 327% greater among users in states that also had facility fees than for those in states without such fees ($p < .0001$). In the FFS Medicaid environment, engaging patients through informed consent within provider settings that receive facility fees may facilitate access to TBH services.

Public Health Significance Statement

Using administrative claims data reflecting fee-for-service (FFS) Medicaid environments across multiple states, this study serves as an important reference for researchers and policymakers interested in understanding what policy levers support sustained use of telehealth services. Among rural Medicaid FFS beneficiaries with behavioral health needs, engaging patients through informed consent within provider settings that receive facility fees may facilitate improved access to telebehavioral health services.

Keywords: telebehavioral health, rural health, Medicaid, telehealth policy

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Rural residents experience behavioral health problems at rates similar to those observed in urban populations (Jameson & Blank, 2010; Kessler et al., 2005; Paxton, Valois, Watkins, Huebner, & Drane, 2007), with some estimates indicating higher rural prevalence for particular problems such as serious mental illness (SMI; Meit et al., 2014), suicide (Ivey-Stephenson, Crosby, Jack, Haileyesus, & Kresnow-Sedacca, 2017), and drug overdose deaths (Mack, Jones, & Ballesteros, 2017). Nevertheless, behavioral health services are less available in rural communities than in urban ones (Andrilla, Patterson, Garberson, Coulthard, & Larson, 2018), and some research suggests that rural residents use behavioral health treatment at lower rates (Hauenstein et al., 2007; Oser, Harp, O'Connell, Martin, & Leukefeld, 2012; Wang et al., 2006). Rural Medicaid beneficiaries, in particular, are at greater risk of facing access barriers than their urban counterparts, as counties with higher proportions of rural residents are less likely to have behavioral health treatment facilities that accept Medicaid (Cummings, Wen, Ko, & Druss, 2013).

Some stakeholders and policymakers have expressed interest in telebehavioral health (TBH) as a means of increasing behavioral health access and appropriate treatment use among underserved populations (Goodwin & Tobler, 2016; Totten et al., 2016), including rural Medicaid beneficiaries (Medicaid and CHIP Payment and Access Commission, 2018; U.S. Government Accountability Office, 2017). In this article, TBH is defined as the delivery of mental health or substance abuse treatment through live, interactive video communication. Medicaid programs in 49 states currently offer some coverage for TBH (American Telemedicine Association, 2017). However, TBH use rates in rural Medicaid appear low (Douglas et al., 2017; Talbot et al., 2019). A study using 2008–09 data indicated that in states where Medicaid reimbursed for telehealth, only 0.1% of the general Medicaid population were telemedicine users (Douglas et al., 2017). Another study found that 0.26% of rural nondual Medicaid beneficiaries used telehealth services, and still fewer accessed TBH (Talbot et al., 2019). Studies conducted in other sectors (private insurance and Medicare) note that the use of TH has grown over time, and that rates, although low, vary widely across types of insurance cov-

erage and across states (Mehrotra et al., 2017; Yu, Mink, Huckfeldt, Gildemeister, & Abraham, 2018).

These findings illustrate that reimbursement, though necessary, is not sufficient to ensure widespread use, and raises questions as to how state Medicaid programs might create a policy environment that would facilitate broader provision and uptake of TBH among rural Medicaid enrollees. Although there appears to be no previous research addressing this specific question, a 2018 study by Park and colleagues used patient survey data to assess linkages between state policies and the use of live-video telehealth for any purpose in the Medicaid population as a whole. This investigation considered how Medicaid beneficiaries' telehealth use was related to 11 indicators that reflected whether state Medicaid programs had permissive or restrictive telehealth policies on issues such as eligible provider types, patient settings and rural/urban residence, permitted technologies, scope of reimbursable services, and telehealth-specific informed consent. After controlling for population characteristics, Park and colleagues identified no associations between any of the Medicaid policy indicators and telehealth use (Park, Erikson, Han, & Iyer, 2018).

While findings from this study suggest that telehealth policies in Medicaid have little bearing on provider adoption or beneficiary use of telehealth, it remains unclear whether this conclusion applies equally to all types of telehealth services or Medicaid subpopulations. Therefore, it may be useful to assess relationships between telehealth policies and TBH use in particular, given that TBH appears to be the primary driver of telehealth use in Medicaid (Douglas et al., 2017; Talbot et al., 2019). Moreover, in light of the fact that TBH is sometimes viewed as a solution to rural behavioral health access problems (Medicaid and CHIP Payment and Access Commission, 2018; U.S. Government Accountability Office, 2017), policymakers may wish to know whether any Medicaid telehealth policies are linked to higher rates of TBH use among rural beneficiaries with behavioral health needs. Finally, although Park and colleagues studied multiple telehealth regulations, they did not explore how TBH use varies as a function of interactions among policies. This issue may be important, as the implications of a potentially restrictive policy may

differ depending on whether other aspects of the policy climate are facilitative, and vice versa. To address these three issues, the current study focused on rural Medicaid beneficiaries who use outpatient behavioral health services (OP BHS), and examined how TBH use in this subpopulation related to two specific Medicaid telehealth policies in combination: facility fee payment and telehealth-specific informed consent.

A telehealth facility fee is a payment made by an insurer to an originating site, that is, a facility that hosts a patient receiving telehealth services. This fee is intended to help compensate the originating site for use of its space and telehealth equipment (Gilman & Stensland, 2013), and is seen as a strategy for increasing providers' adoption of telehealth technology. In 2001, the Medicare program was required to pay facility fees to rural originating sites under the Benefits Improvement and Protection Act (Medicare, Medicaid, and SCHIP Benefits Improvement and Protection Act of 2000, 2000), the aim of which was to stimulate broader delivery and utilization of telehealth in rural Medicare by reducing restrictive regulations, increasing reimbursement, and expanding the range of covered telehealth services (Gilman & Stensland, 2013). Policymakers and analysts have surmised that facilities may be reluctant to serve as originating sites unless they receive fees to defray their costs, and that the absence of a facility fee payment policy may inhibit rural telehealth use (Butler & Reck, 2018).

Telehealth-specific informed consent requirements are also believed to have potential for influencing TBH use (Center for Connected Health Policy, 2017). Opinions differ regarding the desirability and likely impacts of such consent policies. Some experts in the field express concern that clinicians may regard these rules as an undue administrative burden, which could discourage their participation in telehealth programs (Center for Connected Health Policy, 2017). The American Telemedicine Association (ATA) has implicitly shared this generally negative view of these policies: In evaluating states on the extent to which their policies promote telehealth adoption, the ATA gives states lower grades if their consent requirements for telehealth are more stringent than those for in-person services (Thomas & Capistrant, 2017).

Other stakeholders regard telehealth-specific informed consent more favorably. In its *Guide-*

lines for the Practice of Telepsychology, the American Psychological Association has specified that psychologists are ethically obligated to provide patients with a clear, complete description of the TBH services they offer, addressing any modality-specific considerations related to information security, confidentiality, and the comparability of TBH with face-to-face services (Joint Task Force for the Development of Telepsychology Guidelines for Psychologists, 2013). According to this perspective, clinicians who share this information in appropriate, sensitive ways can empower patients to take part in shared decision-making, enhance patient engagement, and build the therapeutic alliance (Murphy & Pomerantz, 2016). As a result, patients may be more likely to initiate TBH use, sustain participation in treatment, and achieve positive outcomes.

The primary objective of this study was to determine how the interaction of facility fee payments and telehealth-specific informed consent policies was associated with TBH use among rural OP BHS users in Medicaid, before and after controlling for covariates. As a secondary objective, the study examined how beneficiary characteristics, including indices of mental illness severity and residence in underserved or remote rural areas, were related to TBH use in the population of interest.

Available information on state Medicaid telehealth policies was obtained from a survey of Medicaid programs (Hall, LaMothe, & Reiser, 2011). The materials provided by these programs articulate policies established for fee-for-service (FFS) providers and patients, and they do not necessarily apply to managed care organizations (MCOs; Medicaid and CHIP Payment and Access Commission, 2018). Therefore, this study focused on TBH use among FFS beneficiaries.

Method

Data Sources

The primary data source for this study was the 2011 Medicaid Analytic eXtract (MAX). The MAX is constructed by the Centers for Medicare & Medicaid Services (CMS) from data submitted by state Medicaid programs. Data from the MAX person summary (PS) and other therapy (OT) files were analyzed. The PS

file contains beneficiary information such as demographics and county of residence, and the OT file comprises claims data on beneficiaries' use of outpatient hospital, physician, and clinic services (Borck, Ruttner, Byrd, & Wagnerman, 2014; Research Data Assistance Center, 2016). A 20% random sample was drawn from the PS and OT files of each state in the study. Data on state-level telehealth policies in Medicaid programs were obtained from the 50-State Medicaid Statute Survey (Hall et al., 2011), which was completed by the Center for Telehealth & e-Health Law (CTeL) in February 2011. In conducting this survey, CTeL identified state Medicaid programs that offered reimbursement for the delivery of telehealth services to their FFS beneficiaries and asked these programs for provider manuals or other documents describing their telehealth policies. Thirty-nine states contributed to the survey. Information on state-level, private-payer telehealth parity laws in 2011 was compiled from a resource created by the American Telemedicine Association (American Telemedicine Association, 2017). Data on beneficiaries' counties of residence were derived from the 2017–2018 Area Health Resources File (AHRF), produced by the federal Health Resources and Services Administration (HRSA; 2018).

Study Population

To define the study population, inclusion/exclusion criteria were established for states and for Medicaid beneficiaries within these states.

Inclusion/exclusion criteria for states. States were included in the sample if (1) information was available on their FFS telehealth policies for the study year of 2011, (2) their state Medicaid programs reimbursed for TBH services delivered to FFS Medicaid beneficiaries in the study year, and (3) they contributed data on behavioral health claims to the 2011 MAX OT files. Based on these criteria, 36 states were retained.

Inclusion/exclusion criteria for beneficiaries. Because this study focused on nonelderly adults, and because state Medicaid programs are required to define beneficiaries up to age 19 as children eligible for age-based coverage (Borck et al., 2014; Schwartz & Damico, 2010), individuals under 19 were omitted from the sample. Beneficiaries dually eligible for Medicare and

Medicaid were also excluded, as MAX data were more likely to be missing or incomplete for this subpopulation (Borck et al., 2014). In addition, the study excluded those receiving any behavioral health services through managed care or behavioral health carve-outs. As noted in the preceding text, MCOs may not be required to adhere to the Medicaid telehealth policies established for FFS providers (Medicaid and CHIP Payment and Access Commission, 2018), and thus, these organizations may create different telehealth policy contexts for the providers and beneficiaries with whom they work.

Once these criteria were applied, beneficiaries were selected for inclusion if they (1) were residents of rural areas and (2) were users of FFS OP BHS. To create a measure for rurality of beneficiary residence, Social Security Administration county codes in the MAX PS File were linked to 2013 Rural–Urban Continuum Codes (RUCCs; U.S. Department of Agriculture Economic Research Service, 2013) obtained from the AHRF (HRSA, 2018). RUCCs situate counties on a nine-level continuum of rurality/urbanicity, classifying metropolitan counties by their population size and nonmetropolitan counties by their levels of urbanization and adjacency to metropolitan areas (U.S. Department of Agriculture Economic Research Service, 2013). Beneficiaries in nonmetropolitan RUCCs 4 through 9 were considered rural residents.

Beneficiaries were designated OP BHS users if they had at least two claims for such services. A claim was classified as an OP BHS claim if (1) the first or second diagnosis on the claim was a behavioral health condition and (2) the procedure listed was an OP BHS. To identify behavioral health conditions, the study used diagnosis codes from the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM; Centers for Disease Control and Prevention, 2015). Codes from 291 to 316 designate mental illness and substance use disorders. All codes in this range were included except for 310 (mental disorders due to brain damage) and 305.1 (tobacco dependence).

OP BHS procedures were defined as psychiatric diagnostic interviews, nonphysician mental health assessments; psychotherapy or counseling; psychopharmacological medication management; psychological testing; crisis intervention; support services, including case man-

agement; and laboratory services related to behavioral health care. In addition, because primary care providers are an important source of behavioral health treatment in rural areas (Geller, 1999; Himelhoch & Ehrenreich, 2007), behavioral health services delivered in primary care settings were included (Mauch, Kautz, & Smith, 2008). Relevant current procedure terminology (CPT; American Medical Association, 2010) and Healthcare Common Procedure Coding System (HCPCS; HCPro, 2010) Level II codes on MAX OT records were used to identify OP BHS services. The final sample meeting all selection criteria consisted of 70,459 nondually eligible, adult FFS Medicaid beneficiaries who were OP BHS users and who resided in rural areas of the 36 study states.

Variables

Outcome: TBH use. OP BHS claims were flagged as claims for TBH if they contained either the standard CPT modifier (GT) for interactive video communication (American Medical Association, 2010). South Carolina required the use of a state-specific modifier (TM) for TBH billing. Therefore, the TM code was used to identify TBH claims in that state (Hall et al., 2011). Beneficiaries with any TBH claims were designated TBH users, and those without such claims were categorized as TBH nonusers.

Explanatory variables: Telehealth policies in state Medicaid programs. Using state-level policy information from the CTel survey, this study classified beneficiaries based on whether or not they were enrolled in state Medicaid programs that (1) explicitly granted payment of a facility fee to the originating site and (2) explicitly required a telehealth-specific informed consent process. A four-level variable was also created to categorize beneficiaries as enrolled in programs with neither policy, an informed consent requirement without a facility fee policy, a facility fee policy without an informed consent requirement, and both policies.

Covariates. Selection of covariates for multivariate analyses was informed by the behavioral model for vulnerable populations, which identifies potential influences on health service use among underserved groups such as rural residents (Gelberg, Andersen, & Leake,

2000). Individual-, county-, and state-level variables were included as covariates. The study measured beneficiary characteristics including age; gender; race/ethnicity (White, Black, Hispanic, other, or unknown); and presence of SMI. Consistent with definitions of SMI commonly used in the research literature (Crowther, Marshall, Bond, & Huxley, 2001; Mehrotra et al., 2017; Reilly et al., 2013; Salzer, Brusilovskiy, & Townley, 2018), beneficiaries were identified as having SMI if they had at least one claim with a diagnosis of schizophrenia, bipolar disorder or other episodic mood disorder with symptoms of mania or hypomania, other psychotic disorder, or severe major depressive disorder with or without psychotic features.¹

In addition, beneficiaries were classified as living in rural counties that were either adjacent or nonadjacent to metropolitan areas: RUCCs 4, 6, and 8 designated rural adjacent counties, and RUCCs 5, 7, and 9 identified rural nonadjacent counties (U.S. Department of Agriculture Economic Research Service, 2013). Further, a three-level variable from the AHRF (HRSA, 2018) was used to indicate whether beneficiaries lived in counties that were classified as Mental Health Professional Shortage Areas (MHPSAs) by HRSA (U.S. Department of Health and Human Services, Health Resources, & Services Administration, 2018).² Each beneficiary was assigned to a category reflecting whether all, part, or none of their home county was a MHPSA.

Finally, private-payer telehealth parity requirements were conceptualized as a covariate. Parity rules, which mandate the coverage of telehealth by private insurers, are assumed to strengthen telehealth infrastructure by broadening the payer mix and creating additional reve-

¹ The ICD-9-CM (<https://www.cdc.gov/nchs/icd/icd9cm.htm>) codes corresponding to these diagnoses included 295.xx, 297.xx, 296.23, 296.24, 296.33, 296.34, 301.12, 309.1, 296.0x-296.9x, 301.11, and 301.13.

² HRSA designates MHPSAs based primarily on population to provider ratios. MHPSA designations can be based on (1) a population-to- psychiatrist ratio, (2) a population-to-core mental health provider (psychiatrists, clinical psychologists, clinical social workers, psychiatric nurse specialists, and marriage and family therapists) ratio, or (3) ratios of population to both psychiatrist and core mental health providers. Thresholds for qualifying ratios vary depending on provider type and population need (<https://bhwhrsa.gov/shortage-designation/hpsas>).

nue streams for telehealth (Mehrotra et al., 2017; Mehrotra et al., 2016; Neufeld, Doarn, & Aly, 2016). In the present study, beneficiaries were categorized as living in states with or without private-payer telehealth parity laws as of 2011.

Analysis

At the bivariate level, chi-square tests were conducted to determine whether TBH use was related to the two Medicaid telehealth policies of interest and the selected covariates. At the multivariate level, generalized estimating equations were used to examine how odds of TBH use were related to telehealth-specific informed consent, facility fee payment, and the interaction between these variables after adjusting for covariates. Contrast analyses

were performed to further specify the nature of the interaction.

All analyses were conducted using SAS (Version 9.2). Multicollinearity diagnostics were at acceptable levels, with tolerance values greater than 0.40 for all explanatory variables (Allison, 2012). This study was approved by the University of Southern Maine's Institutional Review Board.

Results

Bivariate Analyses

TBH use: Unadjusted associations with beneficiary characteristics. Rural TBH users and nonusers differed significantly on multiple characteristics (see Table 1). Compared with nonusers, TBH users were more

Table 1
Characteristics of Rural, Non-Elderly Adult Outpatient Behavioral Health Service Users by Telebehavioral Health Use

Characteristic	TBH users (n = 1,459)		TBH nonusers (n = 69,000)		OP BHS users (N = 70,459)	
	%	SE	%	SE	%	SE
Gender ($p < .05$)						
Female	63.3	1.3	64.2	0.2	64.2	0.2
Male	36.7	1.3	35.8	0.2	35.8	0.2
Race/Ethnicity ($p < .0001$)						
White	70.2	1.2	77.7	0.2	77.5	0.2
Black or African American	14.2	0.9	10.6	0.1	10.6	0.2
Other	4.9	0.6	4.0	0.1	4.0	0.1
Hispanic	5.0	0.6	2.2	0.1	2.2	0.1
Unknown	5.7	0.6	5.6	0.1	5.6	0.1
Age ($p < .0001$)						
19 to 29	21.5	1.1	26.1	0.2	26.1	0.2
30 to 39	22.9	1.1	24.4	0.2	24.3	0.2
40 to 49	27.4	1.2	23.0	0.2	23.1	0.2
50 to 64	28.3	1.2	26.6	0.2	26.6	0.2
In state with telehealth parity law ($p < .0001$)						
Law absent	58.5	1.3	64.4	0.2	64.3	0.2
Law present	41.5	1.3	35.6	0.2	35.7	0.2
SMI diagnosis ($p < .0001$)						
Diagnosis absent	29.6	1.2	54.6	0.2	54.1	0.2
Diagnosis present	70.4	1.2	45.4	0.2	45.9	0.2
Rurality ($p < .0001$)						
Rural adjacent	54.0	1.3	63.1	0.2	63.0	0.2
Rural nonadjacent	46.0	1.3	36.9	0.2	37.1	0.2
MHPSA ($p < .001$)						
Not a MHPSA	8.6	0.7	9.5	0.1	9.5	0.1
Partial county MHPSA	12.0	0.8	15.4	0.1	15.3	0.1
Whole county MHPSA	79.4	1.1	75.1	0.2	75.2	0.2

Note. Chi-square tests assess differences by telebehavioral health (TBH) user status. OP BHS = outpatient behavioral health service; SMI = serious mental illness; MHPSA = Mental Health Professional Shortage Area.

likely to be of Black (14.2% of users vs. 10.6% of nonusers), Hispanic (5.0% vs. 2.2%), or other race/ethnicity (4.9% vs. 4.0%; $p < .0001$) and to be in the oldest two age categories of 40 to 49 (27.4% of users vs. 23.0% of nonusers) or 50 to 64 (28.3% vs. 26.6%; $p < .0001$). TBH users were also more likely than nonusers to live in states with a private-payer telehealth parity law (41.5% of users vs. 35.6% of nonusers, $p < .0001$). In addition, TBH users were more likely to belong to groups presumed to have more complex needs and lower access to BH services. Individuals with SMI diagnoses were overrepresented among TBH users (70.4% of users vs. 45.4% of nonusers, $p < .0001$), as were those living in rural nonadjacent areas (46.0% vs. 36.9%, $p < .0001$) and those in whole-county MHPsAs (79.4% vs. 75.1%, $p < .0001$).

Although TBH use varied by beneficiary characteristics, overall use was low, at 2.1% ($SE = 0.1$; not shown) and was limited even among those subgroups who were overrepresented among users (see Table 2). For example, only 3.2% of individuals with SMI, 2.6% of those in rural nonadjacent counties, and 2.2% of those in whole-county MHPsAs were TBH users.

TBH use: Unadjusted associations with state Medicaid telehealth policies. TBH use differed significantly across the four groups of OP BHS users defined by all possible combinations of informed consent and facility fee policies ($p < .0001$; see Figure 1). Among OP BHS users in states with no facility fee and no informed consent rule, 2.0% used TBH services. Where facility fees were absent but informed consent rules were present, the proportion of TBH users was 0.9%—the lowest use rate

Table 2
Telebehavioral Health (TBH) Use Among Rural Non-Elderly Adult Outpatient Behavioral Health Service (OP BHS) Users by Characteristics

Characteristic	% of OP BHS users with any TBH use	SE
Gender		
Female	2.0	0.1
Male	2.1	0.1
Race/Ethnicity ($p < .0001$)		
White	1.9	0.1
Black or African American	2.8	0.2
Hispanic	4.7	0.5
Other	2.5	0.3
Unknown	2.1	0.2
Age ($p < .0001$)		
19 to 29	1.7	0.1
30 to 39	1.9	0.1
40 to 49	2.5	0.1
50 to 64	2.2	0.1
In state with telehealth parity law ($p < .0001$)		
Law absent	1.9	0.1
Law present	2.4	0.1
SMI diagnosis ($p < .0001$)		
Diagnosis absent	1.1	0.1
Diagnosis present	3.2	0.1
Rurality ($p < .0001$)		
Rural adjacent	1.8	0.1
Rural nonadjacent	3.2	0.1
MHPSA ($p < .001$)		
Not a MHPSA	1.9	0.2
Partial county MHPSA	1.6	0.1
Whole county MHPSA	2.2	0.1

Note. $N = 70,459$. Odds ratios are adjusted for all other variables in the model. SMI = serious mental illness; MHPSA = Mental Health Professional Shortage Area.

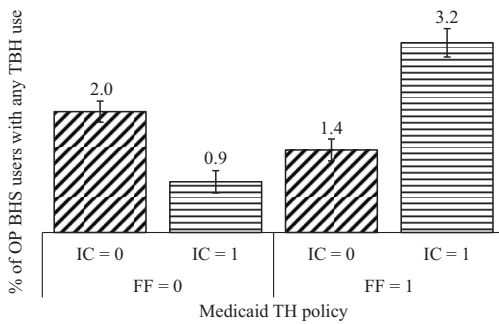


Figure 1. Percent of rural, non-elderly adult outpatient behavioral health services users with any telebehavioral health use, by state Medicaid telehealth policies. TBH = Telebehavioral Health; OP BHS = Outpatient Behavioral Health Service Users; TH = telehealth; IC = telehealth-specific informed consent.

among all four groups. Among those living in states where fees were present but informed consent rules were not in effect, 1.4% were TBH users. Finally, where both facility fee payments and informed consent rules were in place, TBH use was highest, at 3.2%.

Multivariate Analysis

Adjusted associations between TBH use and beneficiary characteristics. Table 3 shows the multivariate model of TBH use with facility fee payments, informed consent, the interaction of the two policies, and covariates entered as explanatory variables. All covariates except gender were significantly related to TBH use in the adjusted model. Compared with their White counterparts, Black OP BHS users had 45% higher odds of TBH use ($p < .0001$), and Hispanic OP BHS users had 133% higher odds ($p < .0001$). In comparison to individuals aged 19 to 29, those in the 40-to-49 and 50-to-64 age ranges had 32% ($p < .001$) and 18% ($p < .05$) higher odds, respectively. Residents of states with private-payer TH parity laws had 31% higher odds of TBH use than their peers in states without such laws ($p < .0001$).

Explanatory variables indicating high need and low access were positively associated with TBH use in the adjusted analysis. Odds of use were 160% higher for OP BHS users with SMI diagnoses than for those without ($p < 0.0001$). In addition, those who lived in rural, nonadjacent counties had 66% greater odds of TBH use

than those in rural adjacent counties ($p < .0001$). Relative to those who lived in non-MHPSA counties, OP BHS users in whole-county MHPSAs had 26% higher odds of use ($p < .05$).

Adjusted associations between TBH use and state Medicaid TH policies. As shown in Table 3, the interaction between the two Medicaid telehealth policy variables was statistically significant after controlling for covariates ($p < .0001$). Contrast analyses indicated that the relationship between informed consent and TBH use differed depending on whether OP BHS users lived in states where facility fees were paid. For those in states without facility fee payments, odds of TBH use were 57% lower in the presence of informed consent rules than in their absence ($p < .0001$). For those in states with facility fees, the odds of TBH use were 92% higher where informed consent rules were in place than where they were lacking ($p < .0001$).

Similarly, the association between TBH use and facility fee payment varied depending on whether informed consent rules were in force. Where informed consent rules were absent, facility fee payments were unrelated to TBH use ($OR = 0.95$, $p > .05$). However, where informed consent rules were present, odds of TBH use were 327% greater among OP BHS users in states that also had facility fees than for those in states without such fees ($p < .0001$).

Discussion

In the past decade, state Medicaid programs have actively sought out policy solutions that ensure appropriate access to services while containing costs. States have either been amending their Medicaid plans or seeking waivers to facilitate transitioning from a FFS environment to that of MCOs (Probst, Martin, & Kirksey, 2018), or they have been experimenting with FFS policy levers that move their TH programs in a sustainable direction (Center for Connected Health Policy, 2020). In states with a high percentage of beneficiaries living in rural areas, comprehensive MCO programs may not always comprise viable options, that is, sparsely populated rural areas may not be as attractive to MCOs as densely populated urban areas (Silberman, Poley, James, & Slifkin, 2002). Thus, for those states with a high percentage of rural

Table 3
Adjusted Odds of Telebehavioral Health Use Among Rural Non-Elderly Adult Outpatient Behavioral Health Service Users

Characteristic	OR	95% CI
Gender (referent: female)		
Male	0.98	[0.88, 1.09]
Race/Ethnicity (referent: White)		
Black or African American	1.45 ^{****}	[1.24, 1.69]
Hispanic	2.33 ^{****}	[1.82, 2.99]
Other	1.20	[0.94, 1.53]
Unknown	1.14	[0.91, 1.44]
Age (referent: 19 to 29)		
30 to 39	1.11	[0.95, 1.30]
40 to 49	1.32 ^{****}	[1.14, 1.54]
50 to 64	1.17 [*]	[1.01, 1.37]
In state with telehealth parity law (referent: law absent)		
Law present	1.30 ^{****}	[1.16, 1.47]
SMI diagnosis (referent: diagnosis absent)		
Present	2.60 ^{****}	[2.32, 2.92]
Rurality (referent: rural adjacent)		
Rural nonadjacent	1.66 ^{****}	[1.49, 1.85]
MHPSA (referent: not a MHPSA)		
Partial county MHPSA	0.97	[0.77, 1.22]
Whole county MHPSA	1.26 [*]	[1.04, 1.53]
Interaction of FF × IC ^{****}		
Effect of IC where FF absent (referent: IC absent)		
IC present	0.43 ^{****}	[0.34, 0.54]
Effect of IC where FF present (referent: IC absent)		
IC present	1.92 ^{****}	[1.63, 2.25]
Effect of FF where IC absent (referent: FF absent)		
FF present	0.95	[0.79, 1.14]
Effect FF where IC present (referent: FF absent)		
FF present	4.27 ^{****}	[3.36, 5.43]

Note. $N = 70,459$. Odds ratios (OR) are adjusted for all other variables in the model. FF = facility fee; IC = telehealth-specific informed consent; SMI = serious mental illness; MHPSA = Mental Health Professional Shortage Area. ^{*} $p < .05$. ^{****} $p < .0001$.

Medicaid enrollees, the effectiveness of policy levers that the FFS environment has employed to support TBH are particularly salient. Yet, little empirical evidence is available to help state Medicaid programs discern which policy approaches might be conducive to TBH use within underserved rural subpopulations. Given that the majority of states ($n = 36$ or 72%) were operating within the FFS environment in 2011, the present study capitalizes on this environment and provides important baseline information and insights into the association between state Medicaid telehealth policies and TBH use among rural OP BHS users enrolled in Medicaid.

In contrast to previous research that showed no linkages between Medicaid telehealth policies and telehealth use in a sample of rural and

urban enrollees (Park et al., 2018), we determined that for our subpopulation of rural beneficiaries with behavioral health needs, two policies—payment of facility fees to originating sites and informed consent rules for telehealth—were associated with TBH use. However, the observed relationships were more complex than those hypothesized by some telehealth experts and stakeholders.

As noted in the preceding text, some telehealth advocates believe that telehealth-specific informed consent policies may suppress TBH adoption and use (Thomas & Capistrant, 2017), because providers may see the consent process as a task that disrupts workflow and decreases productivity (Center for Connected Health Policy, 2017). In the present study, informed consent rules were indeed related to lower TBH

use, but only for beneficiaries in states where facility fee payments were lacking. Unexpectedly, for those in states that paid facility fees, TBH use was higher when informed consent was required than when it was not.

Results also indicated that the implications of facility fee payments for TBH varied across policy contexts. Facility fees are thought to be ‘telehealth-friendly’ (Butler & Reck, 2018; Gilman & Stensland, 2013), and limited research suggests that payment of financial incentives may be associated with increased provision of TBH (Lin et al., 2018). In the present study, facility fee payments were associated with higher odds of TBH use for beneficiaries in states where telehealth-specific informed consent requirements were in effect. Otherwise, facility fees had no correlation with TBH use.

Taken together, these observations suggest that use of informed consent and facility fee payments at the same time signals a distinctive orientation toward telehealth on the part of state Medicaid programs. Compared with counterparts that implement only one of the policies, programs that implement both may be more interested in promoting TBH—perhaps in a range of ways not captured by this study—as a viable tool for reaching underserved populations. Where this higher level of support for TBH exists, providers may be more willing to accept and use the informed consent process as a vehicle for strengthening patient engagement, rather than viewing it merely as an administrative burden. In addition, where Medicaid programs had tried to create a more positive, patient-centered climate for TBH, they may find that even a relatively small financial incentive such as a facility fee payment could be sufficient to persuade rural providers to offer access to TBH services at their sites. On the other hand, where Medicaid programs fail to promote TBH to providers as a means of recruiting hard-to-reach patients into treatment, rural facilities may not have the same favorable view of TBH. They may therefore be less responsive to facility fees.

To appraise the validity of this interpretation, it would first be necessary to gather additional information on the intended purposes and policy correlates of telehealth-specific informed consent rules and facility fees, in Medicaid programs that use both policies and in those that do not. It would also be important to conduct a

more direct assessment of the linkages between the policies under study and provider participation in TBH. Ideally, this assessment would include quantitative measurement of TBH supply, as well as qualitative data on how distant and originating sites make decisions in response to telehealth-specific informed consent rules, facility fees, and other Medicaid telehealth policies.

Findings further demonstrated that after controlling for the two Medicaid policies of interest and other covariates, private-payer telehealth parity regulations were associated with higher rates of TBH use among OP BHS users in Medicaid. This finding aligns with prior research identifying parity as a correlate of telebehavioral health use among rural Medicare populations (Mehrotra et al., 2017), and is consistent with the view that private-payer support for telehealth may contribute to the viability of telebehavioral health programs, thus enhancing their ability to serve all patients, including Medicare and Medicaid beneficiaries (Neufeld et al., 2016). Alternatively, the observed relationship between parity and TBH use may reflect parity’s status as a proxy for state-level conditions favorable to telehealth.

Finally, this study showed that among rural OP BHS users in Medicaid, the allocation of TBH appeared rational, to the extent that those with the highest need and greatest access barriers were most likely to be users of the service: Individuals had greater odds of receiving TBH if they had more serious psychiatric conditions, lived in more remote counties, or were residents of MHPAs. Nevertheless, TBH reached only a small proportion of rural OP BHS users in each of these groups, suggesting that in our study year, there was room for improvement in deploying the technology to address unmet need. A recent study based on online survey data indicated that although use of telehealth videoconferencing increased across the nation from 2013 to 2016, rates in Medicaid remained low—at 8.6%, as compared with 17.6% across all insurance types (Park et al., 2018). If TBH use among rural Medicaid beneficiaries has followed these larger trends, then the modality may remain underutilized as a means of mitigating access barriers in this population. Given that the field is rapidly evolving, studies addressing persistent barriers to implementing and accessing TBH services, including low reim-

bursement rates for Medicaid participants and failed TBH billing practices warrant further investigation.

Stakeholders have identified other state-level, multistate, and federal policy approaches as possible drivers of telehealth provision and use (Center for Connected Health Policy, 2018; Medicare Payment Advisory Commission, 2016; Thomas & Capistrant, 2017). Given the scarcity of behavioral health professionals in rural areas (Andrilla et al., 2018), policies geared toward increasing the supply of distant-site providers might be especially relevant to explore as levers affecting TBH use rates in rural Medicaid. For example, incentives for individuals to enter the field of BH, including student loan forgiveness programs (HRSA, 2020); and training providers on routine BH care through programs such as Project ECHO (University of New Mexico, 2020). Interstate efforts to expand professional licensure reciprocity could ease the provision of TBH across state lines and create opportunities for rural Medicaid beneficiaries to receive services from out-of-state providers (Center for Connected Health Policy, 2018; Medicare Payment Advisory Commission, 2016). It could also be beneficial to reduce restrictions on the types of distant providers who can receive reimbursement for TBH (Thomas & Capistrant, 2017). Provisions allowing Federally Qualified Health Centers and Rural Health Centers to serve as distant sites might be especially pertinent to addressing rural access barriers and encouraging investment in telehealth (Uscher-Pines, Bouskill, Sousa, Shen, & Fischer, 2019). These facilities are important sources of care in rural areas (Radford, Freeman, Kirk, Howard, & Holmes, 2014), and as of 2018, only 13 states explicitly permitted them to bill as distant-site providers (Center for Connected Health Policy, 2018).

Study Limitations

This study was subject to several limitations. First, the mix of Medicaid programs operating within the FFS and MCO environments, and the TH policies implemented within these environments have been evolving since 2011—the year that our data represent. The number of state Medicaid programs operating in the FFS environment has decreased from 36 (72%) in 2011

to 10 (20%) in 2019 (Kaiser Family Foundation, 2019). In addition to the traditional Medicaid program, five (i.e., 15%) of the 34 states implementing Medicaid expansion have done so in a FFS environment. Yet, even in states with Medicaid MCO contracts, approximately 10–35% of Medicaid populations were receiving care within the FFS environment in 2018 and 2019 (Gifford et al., 2019). Thus, in spite of the trend toward contracting with MCOs, over 20% of states are needing to make informed decisions regarding what TH policies to implement in a FFS environment serving well over 14 million beneficiaries, many of whom live in rural areas (Foutz, Artiga, & Garfield, 2017; Rudowitz, Hinton, Diaz, Guth, & Tian, 2019).

States continue to take a variety of approaches to implementing the policy levers identified within this study (namely, parity, informed consent, and facility fees). For example, of the 10 FFS state programs in 2019, two states had implemented informed consent only, two had implemented facility fees only, two had implemented both informed consent and parity laws, two had implemented facility fees and parity laws, and two had implemented all three TH policies (Center for Connected Health Policy, 2020). Although state Medicaid programs operating in the FFS environment have continued to work with the set of policy levers identified in this paper, the policies as well as the mix of policies adopted by states have likely evolved over time. As providers continue to operate within these policy environments, they have likely adapted their infrastructure and workflow to support telehealth. However, given the lack of consensus regarding the effectiveness of these policy levers in promoting TBH services, we believe that the findings reported within this study provide important baseline information that will be of great interest to state Medicaid policymakers, including those contemplating transitioning to and from the FFS and MCO sectors.

Finally, the COVID-19 pandemic has further incentivized states to consider how they can support and sustain the current efforts to expand the use of telehealth services for our most vulnerable at-risk populations, particularly in rural areas (Lepkowsky, 2020; Zhou et al., 2020). Exploring these policy levers using data that reflects the robust FFS environment that existed across multiple states in 2011 serves as an im-

portant reference for researchers and policy-makers.

In terms of other limitations, because those with dual eligibility and Medicaid managed care enrollees were excluded from the sample because of concerns about the quality of their MAX data, our findings are not generalizable to rural OP BHS users in these subpopulations. Third, results may reflect an undercounting of TBH claims for beneficiaries who met our inclusion criteria, as some providers may have failed to bill for TBH or to include required telehealth codes. Fourth, we studied only two Medicaid telehealth policies: our choice was based on the hypothesized relevance of the policies and the availability of clearly interpretable information on their use in states during the study year. Finally, because our study design was cross-sectional, our findings do not support definitive conclusions about causal relationships between explanatory variables and TBH use.

Conclusions

This study suggests that it may be important for Medicaid programs to consider how all their telehealth policies operate in combination, and whether they moderate one another's relationships with TBH use among rural Medicaid OP BHS users. More specifically, findings call into question the assumption that informed consent rules necessarily inhibit participation in telehealth services (Center for Connected Health Policy, 2017; Thomas & Capistrant, 2017). Results further imply that the impact of financial incentives on provider adoption and patient use of TBH in Medicaid may vary as a function of the larger telehealth policy environment in which such incentives are offered. Although high-need, underserved subgroups were more likely to access TBH, absolute rates of use were low, both within these subgroups and among the overall sample of rural OP BHS users. Therefore, state Medicaid programs hoping to expand TBH may need to consider a range of measures to achieve these ends, beyond reimbursement and the policies targeted in this investigation.

Initiatives to build and strengthen telehealth networks could be a critical component of efforts to increase the availability of TBH services for rural beneficiaries. Federal agencies including the HRSA and the Substance Abuse and

Mental Health Services Administration have made substantial telehealth infrastructure investments, some of which are designed specifically to benefit rural residents (Office of Health Policy, 2016; U.S. Department of Health & Human Services, 2018). For example, the Federal Office of Rural Health Policy has allocated \$4.9 million to the Evidence-Based Telehealth Network Grant Program, which will support telehealth providers in extending TBH services to rural communities and include assessment of project outcomes. Infrastructure projects with evaluation components addressing barriers and facilitators to implementing TBH and accessing TBH services may be especially useful in guiding state Medicaid programs in their decision on how best to deploy TBH as a means of reaching underserved rural beneficiaries.

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