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ORIGINAL ARTICLE

Policy Levers to Promote Access to and Utilization of Children's Mental Health Services: A Systematic Review

Marvin So[1,2] · Russell F. McCord[1,2] · Jennifer W. Kaminski[1]

Abstract

Policies have potential to help families obtain behavioral healthcare for their children, but little is known about evidence for specific policy approaches. We reviewed evaluations of select policy levers to promote accessibility, affordability, acceptability, availability, or utilization of children's mental and behavioral health services. Twenty articles met inclusion criteria. Location-based policy levers (school-based services and integrated care models) were associated with higher utilization and acceptability, with mixed evidence on accessibility. Studies of insurance-based levers (mental health parity and public insurance) provided some evidence for affordability outcomes. We found no eligible studies of workforce development or telehealth policy levers, or of availability outcomes.

Keywords Psychological services · Children's mental health · Policy · Mental healthcare access · Mental healthcare utilization

Background

Population-based surveys indicate that one in six U.S. children aged 2–8 years has a mental, behavioral, or developmental disorder (MBDD) (Cree et al. 2018). Despite the well-documented consequences of children's behavioral conditions on health, social, and economic outcomes across the life course (Black et al. 2017; National Academies of Sciences, Engineering, & Medicine [NASEM] 2016), a sizeable gap between demonstrated need and the uptake of evidence-based mental healthcare persists (Garland et al. 2013; Lu 2017; Roll et al. 2013). This gap is especially pronounced for vulnerable sub-populations including racial/ethnic minorities (Alegria et al. 2010; Lu 2017), rural communities (Howell and McFeeters 2008; U.S. Department of Health and Human Services 2001), and children with special healthcare needs (Stagman and Cooper 2010).

National data also show that, although the proportion of uninsured families has declined over time, access to healthcare - inclusive of mental healthcare - has largely not improved since 2000 (Agency for Healthcare Research and Quality 2017). Children in particular are more likely to have unmet need for mental health services (Roll et al. 2013) and face difficulty obtaining services (Becker and Kleinman 2013; Feinberg et al. 2002) compared to adults. Beyond challenges related to access and unmet need, children with behavioral health needs may be costlier to health systems. For example, Medicaid-enrolled children receiving behavioral healthcare bear greater service expenditures than average expenses for Medicaid children overall (Pires et al. 2013a). Evidence-based programs (i.e., interventions that have been evaluated to show positive effects on outcomes) are potentially more cost-effective than untested treatment options (Trupin and Kerns 2017). Effectively, extending the reach of evidence-based programs and evidence-informed approaches to treat children's MBDDs has been elevated as a significant priority both for research (Aarons et al. 2011; Kaminski and Claussen 2017) and policy (Barry and Huskamp 2011; Becker and Kleinman 2013; Williamson et al. 2015).

✉ Marvin So
mrmarvinso@gmail.com

Russell F. McCord
rmccord2@cdc.gov

Jennifer W. Kaminski
jkaminski@cdc.gov

[1] National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention, 4770 Buford Highway MS-E88, Atlanta 30341, GA, USA

[2] Oak Ridge Institute for Science and Education, Oak Ridge, TN, USA

The prevalence of MBDDs in young children has been shown to be associated with factors at multiple levels of a child's social ecology, including their family, community, and healthcare environments (Allen et al. 2014; Cree et al. 2018). Many of these factors—such as neighborhood conditions or family socioeconomic status—can be targeted by health and social service systems to potentially improve population-level childhood health [e.g., tax rebates for low-income families (Hamad and Rehkopf 2016)]. The law is one social determinant of health that can influence morbidity and mortality through addressing risk factors and the performance of health systems (Burris et al. 2016; Moulton et al. 2009).

With respect to mental health, policies administered by government agencies can encourage wanted behaviors (e.g., reimbursing for empirically supported interventions) and discourage unwanted ones (e.g., prohibiting lifetime limits on spending for mental illness). They can also dictate eligibility criteria for public and private insurance coverage and/or reimbursement; establish financing or reimbursement arrangements; set requirements for the delivery of services; and specify outcomes to be monitored, reported, and overseen (Friedman 2003). Broader economic security policies such as the Earned Income Tax Credit have been shown to be independently associated with measures of child development (Dahl and Lochner 2012; Hamad and Rehkopf 2016). Despite the relationship between such policies and developmental outcomes, and support for evidence-informed policy within children's mental health systems (Miles et al. 2010), empirical study of how laws influence access to mental health services has been infrequent (Martini et al. 2016).

Characteristics of both legislative institutions and available evidence can prevent decision makers from identifying and prioritizing policies known to be effective (Jewell and Bero 2008; Reck and Heider 2017). For example, legislators' involvement in a range of policy areas limits their capacity for in-depth knowledge about any one issue, and sparse information about how population-level policy approaches might impact subpopulations (e.g., children) may be available. Additionally, legislators and administrators may encounter a vast literature that can be difficult to distill for efficient decision-making (Carrey et al. 2014; Purtle et al. 2016). These factors underscore the need for credible research that synthesizes findings within the literature to guide evidence-based policymaking (Baicker and Chandra 2017; Jewell and Bero 2008; Moulton et al. 2009).

Previous reviews have examined the relationship between policies and health outcomes, although the focus of these efforts has been broader than mental health (Spencer and Komro 2017); examined policies non-systematically (Gassman-Pines and Hill 2013); looked primarily at adult outcomes (Osypuk et al. 2014); or focused only on specific settings of care (Forman-Hoffman et al. 2016). In the present study, we expand upon the existing evidence through a systematic review of empirical investigations on the use of policy levers to influence access to, and utilization of, mental health services for children and their families.

Methods

We performed the broad search in February 2017 using title, abstract, and keyword terms in three electronic databases: PubMed, PsycINFO, and Scopus. For PubMed, Medical Subject Headings (MeSH) terms were also included. Search terms were tailored to each database, informed by the literature (Miles et al. 2010; Sipe et al. 2015; Spencer and Komro 2017) and based on four dimensions of interest: (a) problem or condition (e.g., anxiety, conduct disorder); (b) treatment (e.g., group therapy); (c) categories or intended outcomes of policy levers of interest (e.g., availability); and (d) treatment target (e.g., caregiver, teacher) (Table 1).

Using previous literature, we identified four policy levers for children's behavioral healthcare to consider in targeted searches. Although each of these approaches could merit individual systematic reviews, a single assessment enabled comparative appraisal for consideration in policy packages (Britto et al. 2017; Hurt et al. 2018). Search terms for *integrated care models* were designed to capture provisions for delivery of psychological services within medical settings, such as co-location of mental or behavioral health providers in pediatric primary care (Tyler et al. 2017). Policies to provide *school-based services* were explicitly included using search terms related to mental health services and supports within schools or educational systems (American Academy of Pediatrics [AAP] Committee on School Health 2004). *Telehealth/telemedicine* search terms were selected to identify evaluations of policies allowing technology-assisted assessment and treatment of children with behavioral health conditions from a distance (Siemer et al. 2011). *Workforce development* policy levers were elicited by search terms related to training, incentivizing, or increasing children's mental or behavioral health providers (Boat et al. 2017). Each of these models has been cited as a recommended strategy for ensuring access to high-quality mental health services for children (e.g., AAP Committee on Pediatric Workforce 2015; Goldman et al. 2008; Kelleher and Gardner 2017; Myers and Cain 2008; Siceloff et al. 2017) (Table 1). To capture other potential policy evaluations related to psychological services, we also conducted a set of broad searches in each database. These broad searches revealed two additional policy levers with eligible studies: *mental health parity* (defined as any mandate to insurers dictating coverage and/or reimbursement for mental health and substance abuse services on par with that for physical health) (Sipe et al. 2015) and *public health insurance* (defined as

Table 1 Search strategies[a] used for systematic review on policy levers to promote access to and utilization of children's mental health services

Type of search	Search string
Base search string structure	(((((((((((("mental health" OR "mental disorder*" OR mental illness* OR adhd OR ADD OR "attention-deficit disorder" OR "attention-deficit hyperactivity disorder" OR ODD OR "oppositional defiant disorder" OR CD OR "conduct disorder" OR anxiety OR depress* OR trauma* OR psycholog* OR psychosocial OR psychotherap* OR behavior* OR behaviour*) all)) AND {search strings a – e below} AND ((parent* OR child* OR adolescen* OR mother* OR father* OR caregiver* OR teacher* OR famil*)))) AND (((counseling OR "group therapy" OR "one-on-one counseling" OR "psychological services"))))) AND ((north america[mesh:noexp] OR united states[mesh])) NOT (africa[mesh] OR asia[mesh] OR australia[mesh] OR canada[mesh] OR europe[mesh] OR south america[mesh])))))
a. Broad search	(((treat* OR therap* OR training OR service* OR care OR healthcare))))) AND ((polic* OR law OR statut* OR regulat* OR reform OR legislat* OR bill OR rule*)))) AND ((access* OR availab* OR afford* OR cost* OR coverage OR deliver* OR barrier* OR pay OR "pay for performance" utilization)))))
b. Targeted integrated models of care search	("Medical Home" OR "Behavioral Health Integration" OR "Collaborative Care" OR "Primary Care Integration" OR "Integrated Behavioral Health" OR "Patient-Centered")
c. Targeted school-based services search	(((treat* OR therap* OR training OR service* OR care OR healthcare))))) AND ((school* OR school-based OR "school-based mental health" OR "school-based behavioral health")))) AND ((access* OR availab* OR afford* OR cost* OR coverage OR deliver* OR barrier* OR pay OR "pay for performance" utilization)))))
d. Targeted telehealth/telemedicine models search	(Telepsych* OR Telemed* OR "Telemental Health" OR Videoconf* OR Videoteleconf* OR Telebehavior* OR Technology))
e. Targeted workforce development strategies search	(Workforce OR "Workforce Development" OR "Workforce Education" OR "Provider Shortage" OR "Workforce Shortage" OR "Provider Supply" OR "Medical Education" OR "Leadership Training" OR "Loan Repayment" OR "Educational Debt" OR "Interprofessional Practice")

[a] Searches were conducted in PubMed, Scopus, and PsycINFO. Only PubMed results are displayed; Scopus and PsycINFO search strings were adapted from these and are available upon reasonable request from the authors

any form of healthcare designed to meet healthcare needs drawing from a publicly managed fund). We underscore that studies within the mental health parity policy lever category could include both evaluations of mental health parity laws as well as single-condition (e.g., autism spectrum disorder) mandates.

We reviewed the reference lists of retrieved systematic reviews and meta-analyses (which were excluded as they did not report on primary data) to identify additional studies missed in the original search. We also manually searched eight relevant journal tables of contents [1] published since 2014. Finally, we replicated the entire search strategy in October 2017 to account for papers published in the interim.

Study Inclusion and Exclusion

Two authors (MS, RFM) conducted the study selection process. First, MS and RFM both reviewed a sub-sample of articles (5%) gathered from the search in order to finalize the set of inclusion criteria. We then divided the entire set of articles randomly in half between MS and RFM. These reviewers screened titles and abstracts using inclusion criteria, and discussed instances of uncertainty to reach agreement. To be included, studies had to have been published in English in a peer-reviewed journal. We limited inclusion to studies of populations in the United States, to ensure that findings would be applicable to the U.S. health and political systems. No restrictions pertaining to publication year were applied; the earliest article we identified in the search was published in 1960. Included studies also reported an outcome related to psychological services *access* or *utilization* (see Table 2). To more clearly assess the focus of research to date, we defined access according to Penchansky and Thomas' (1981) framework, which posits that affordability, accessibility, availability, and acceptability all affect the ability of a child's family to enter into the health system, and obtain services. Additionally, studies had

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[1] Journal Table of Contents searched included *Administration and Policy in Mental Health and Mental Health Services Research; Children and Youth Services Review; The Journal of Behavioral Health Services & Research; Journal of Law, Medicine, and Health; Journal of Health Politics, Policy, and Law; American Journal of Law and Medicine; Journal of the American Academy of Child and Adolescent Psychiatry;* and *Health Affairs.*

Table 2 Outcomes assessed in systematic review on policy levers to promote access to and utilization of children's mental health services

Outcome	Conceptual definition	Example operational definitions
Utilization	Target population's use of psychological services	Receipt of services or healthcare Outpatient visits Inpatient visits Attendance rates Treatment initiation
Access[a]		
Affordability	Relationship of prices of services and providers' insurance or deposit requirements to the clients' income, ability to pay, and existing health insurance	Out-of-pocket spending Spending on services Perceptions of cost or hardship Financial problems Premiums
Accessibility	Relationship between location of supply and location of clients, taking into account transportation, travel time, distance, and cost	Distance to healthcare facility Hours of healthcare facility operation Methods of accessing healthcare Perceived effort needed to obtain services Timeliness of services received Distribution of providers Geographic barriers to care Referrals Unmet or delayed care Unmet need for care Referral to provider
Availability	Relationship of the volume and type of existing services to the clients' volume and types of needs	Number and distribution of providers Qualifications of providers Number of healthcare facilities Specialized programs and services
Acceptability	Relationship of clients' attitudes about personal and practice characteristics of providers to actual characteristics of providers	Patient satisfaction Acceptability of services Cultural consonance with services

[a] Conceptual definition adapted from Penchansky and Thomas (1981)

to have empirically examined at least one psychological service and at least one policy lever. We defined a *psychological service* as a non-pharmacological assessment, evaluation, or treatment provided to identify or address a child's mental, behavioral, or developmental health need. These services could be targeted to either the child or an adult as part of the child's treatment (e.g., teaching behavioral therapy techniques to parents or teachers), and could be administered in a variety of formats (e.g., one-on-one counseling, group therapy). *Policy lever* was defined as any instrument that could be applied by an organization (company, non-profit, school, etc.) or government (municipal, county, state, or federal) to influence use of psychological services (Raghavan et al. 2008). We used the classification scheme advanced by Roberts et al. (2008) and the World Bank Institute, which articulates five policy levers that can impact service delivery in the health sector: financing, payment, organization, regulation, and community education. The choice to define policy lever generically was intentional, given a lack of consensus definitions in the mental health literature (Grace et al. 2015), and in this review included both actual policies (e.g., state laws mandating mental health parity) and service delivery models that could be made possible through adjusting policy levers (e.g., telemedicine). We also excluded studies comparing different administration modes of a specific therapeutic intervention (e.g., telemedicine versus face-to-face administration of a particular program). Studies that presented data for adults and for individuals less than 18 years old were only included if results specific to children and/or adolescents were reported separately. For studies in which multiple types of services were reported, only outcomes related to psychological services were examined. Studies with only clinical outcomes (e.g., measures of child behavior) or non-quantitative outcomes were excluded. To

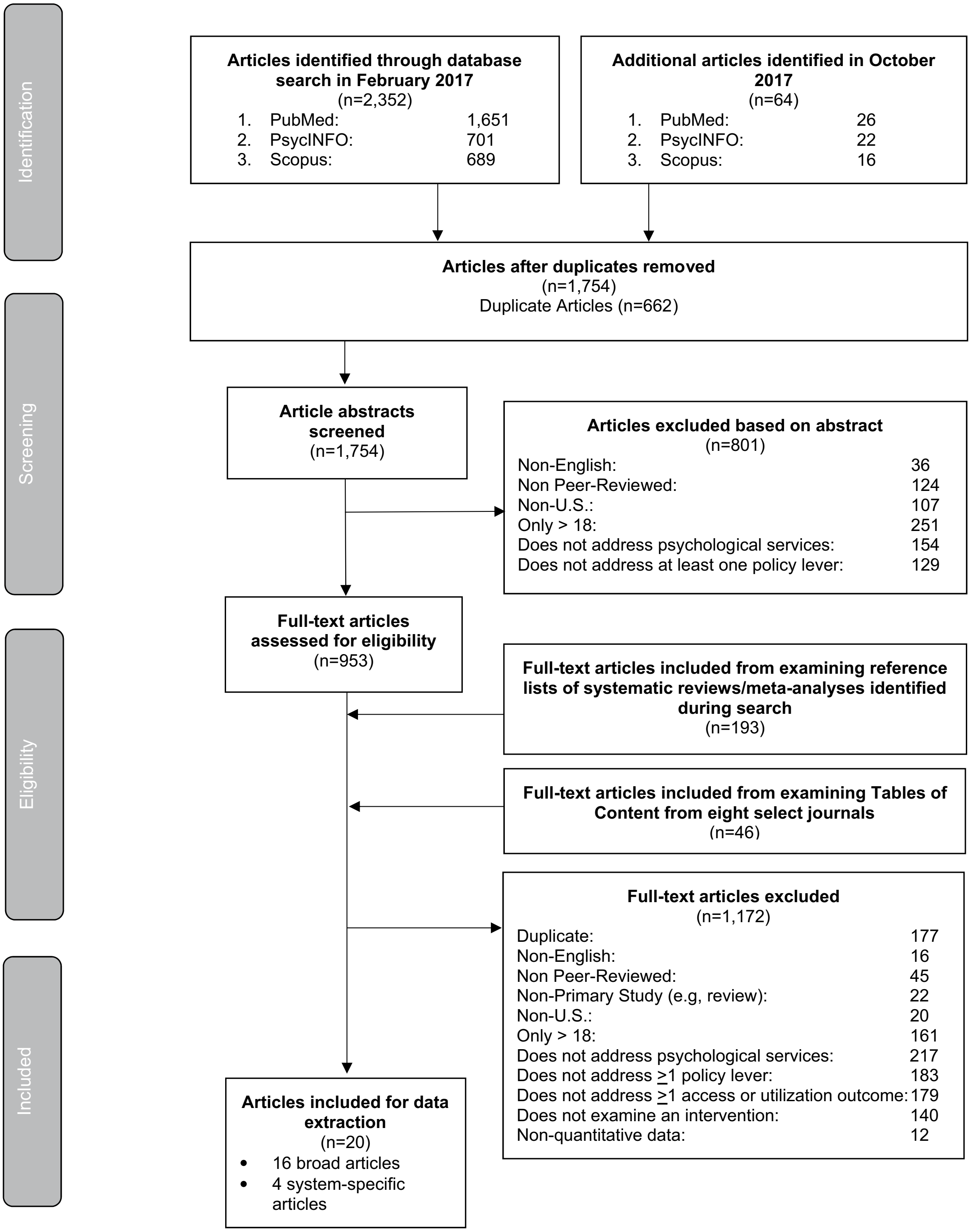

Fig. 1 Preferred reporting items for systematic reviews and meta-analyses (PRISMA) flow diagram for systematic review on policy levers to promote access to and utilization of children's mental health services (Moher et al. 2009)

focus on policy levers that could be broadly applicable, we excluded studies whose primary focus was not assessment, evaluation, or treatment of MBDDs (e.g., policies directed towards obesity/weight management, reproductive health, smoking cessation, or genetic counseling). Relatedly, we opted to analyze studies implemented within specific service systems (e.g., juvenile justice, child welfare, substance use) as a separate set, given that such policy levers may only be germane to such sectors (e.g., residential placement type in child welfare systems) (Fig. 1).

Data Abstraction

For included studies, MS and RFM divided the list evenly for independent data extraction of full-length papers. Authors first jointly abstracted a sub-sample of included studies (20% selected at random) to discuss discrepancies in exclusion and to identify parameters for abstraction. Subsequently, we developed a data abstraction form (available by request from the authors), which we piloted with 10% of included studies, before applying to the full set of included studies. Information abstracted from each paper included aspects of the study design, the specific policy lever being evaluated, and outcomes. Specifically, we abstracted publication year of the study, geographic location of data collection, ages of child study participants, type of policy lever implemented, intended target of the policy lever (provider, payer, parent, other), level of policy lever implementation (federal, state, local, other), methods of the evaluation, and results of the study. MS reviewed all data extractions for completeness and accuracy, and JWK reviewed coding of all extracted data from included studies.

Results

We retrieved 1531 articles in our initial broad search, and 821 from our targeted searches. An additional 303 distinct articles were identified through supplemental searches in journal tables of contents, reference lists of reviews and meta-analyses, and a replicated search conducted in October 2017. Of these 1754 unduplicated papers, 20 (1.1%) met inclusion criteria. 16 papers examined broadly-applicable policy levers whereas 4 examined policy levers delivered within specific service sectors (Fig. 1).

Studies of Broad Policy Levers

Study Characteristics

Characteristics of the 16 studies describing broad policy levers systems are depicted in Table 3. These studies were published from 1984 to 2017, with 56.3% of studies having been published since 2007. Four of 16 papers (25.0%) examined policy levers at the national level; seven (43.8%) examined state-specific policy levers, and five (31.3%) pertained to policy levers instituted at the local level. Studies on organizational policy levers (i.e., strategies that influence the mix, structure, roles, and functions of providers in the health system) (eight studies; 50.0%) and regulatory policy levers governing behavior (seven studies; 43.8%) constituted the bulk of included papers. Only one study (6.2%) examined a mechanism to pay for certain activities within the health system (i.e., financing). Payment (e.g., fees, capitation) and educational (e.g., social marketing) policy levers were absent from our final sample.

Table 3 Overall characteristics of 16 empirical studies on policy levers to promote access to and utilization of children's mental health services

	# of studies	% of total studies
Policy lever type[a]		
Organization	8	50.0
Regulation	7	43.8
Finance	1	6.2
Education	0	0.0
Payment	0	0.0
Policy target		
Payers	9	56.3
Providers	4	25.0
Parents[b]	3	18.8
Specific lever categories		
Integrated care models	3	18.8
School-based services	3	18.8
Public health insurance	4	25.0
Mental health parity	6	37.5
Telehealth/telemedicine[c]	0	0.0
Workforce strategies[c]	0	0.0

[a] Categories drawn from Roberts et al. (2008) study outlining policy levers that can be used to bring about change within health systems

[b] Includes one study that targeted both parents and teachers

[c] Search protocol contained search strings specifically for these categories a priori, but no studies were ultimately included

More than half of studies (nine studies; 56.3%) reported on policy levers directed at influencing payers (e.g., insurance carriers). Four studies (25.0%) targeted service providers and three (18.8%) were aimed at parents and families themselves. Mental health parity was the most frequently studied policy lever (six studies; 37.5%). No included study evaluated policy levers supporting telehealth or workforce development.

Only one study (6.3%) had an experimental design in which individuals were randomly assigned to different study conditions (Stein and Jessop 1984) (Table 4). In one study, the investigators randomly assigned classrooms to different study conditions (Atkins et al. 2003). Findings from four studies (25.0%) included results of analyses of healthcare claims data (Azrin et al. 2007; Barry et al. 2013; Hacker et al. 2017; Zuvekas et al. 2002). Six studies (37.5%) involved analysis of nationally representative survey data: the National Survey of Children with Special Healthcare Needs (NS-CSHCN; four studies) (Barry and Busch 2007;

Table 4 Target child population assessed, study design, and outcome description of 16 empirical studies on policy levers to promote access to and utilization children's mental health services, organized by policy lever category

Authors (year)	Lever description	Child sample	Study design	Outcomes				
				Access: availability	Access: affordability	Access: accessibility	Access: acceptability	Utilization
Integrated care models (N = 3)								
Bunik et al. (2013)	Pediatric continuity clinics with integrated mental health services	6–18	Cross-sectional survey of clinic directors	–	–	Higher satisfaction with patient access to counseling among directors of integrated clinics	–	–
Hacker et al. (2017)	State mandate for primary care providers to provide screening and follow-up to Medicaid-eligible children	4–18	Interrupted time-series analysis of claims data in 2 states	–	–	–	–	Screenings and outpatient visits increased after mandate in integrated care state
Stein and Jessop (1984)	Pediatric medical home model providing comprehensive, integrated services for children with chronic illness	Not reported[a]	Survey of parents of children randomly assigned to conditions	–	–	–	Higher satisfaction with care among parents of children receiving integrated services	–
School-based services (N = 3)								
Atkins, et al. (2003)	School-based family and classroom services	5–18	Telephone interview with parents of students randomly assigned by classrooms to conditions	–	–	–	–	More families offered school-based services enrolled
Kaplan et al. (1999)	School-based health center (SBHC) in an elementary school	3–12	Cross-sectional survey of parents	–	–	No difference in conditions in difficulty accessing emotional health services	Parents of students whose primary health care source was SBHC reported higher satisfaction scores	Parents in SBHC schools were more likely to report their child visited a counselor social worker (for uninsured families only)
Slade (2002)	On-site counseling services offered in schools	7–12	Cross-sectional analysis of National Longitudinal Study on Adolescent Health	–	–	–	–	Higher probability of students reporting receiving school-based psychological or emotional counseling among schools with services

Table 4 (continued)

Authors (year)	Lever description	Child sample	Study design	Outcomes				
				Access: availability	Access: affordability	Access: accessibility	Access: acceptability	Utilization
Mental health parity (N = 6)								
Azrin et al. (2007)	Mental health/substance use parity in the Federal Employee Health Benefits (FEHB) Program	0–18	Comparison of 7 affected health plans to matched MarketScan data before to after parity	–	Decreased out-of-pocket spending for families in affected health plans	–	–	Increased use of services in 1 of 7 plans (no change in 6 of 7 plans)
Barry and Busch (2007)	State parity laws requiring equivalent coverage for mental health and general medical care	Mean: 10.5	Compared NS-CSHCN data from states with and without parity	–	Lower financial burden on families of CSHCN in parity states	–	–	No difference in receipt of needed care
Barry and Busch (2008)	State parity laws requiring equivalent coverage for mental health and general medical care	6–18	Compared NSAF data from states with and without parity	–	–	–	–	No difference in mental health service use
Barry et al. (2013)	Mental health/substance use parity in the Federal Employee Health Benefits (FEHB) Program	0–21[b]	National FEHB health plan with parity compared to non-parity MarketScan plans	–	Out-of-pocket spending decreased after parity for affected FEHB plan families	–	–	–
Chatterji et al. (2015)	State health insurance mandates requiring private insurance policies to cover services for Autism Spectrum Disorder (ASD)	2–17	Compared NS-CSHCN data on privately insured children with ASD before and after parity	–	No change in out-of-pocket costs or financial burden due to child health among CSHCN for other psychological or chronic conditions	No change in difficulty/delay accessing services due to cost	–	–
Zuvekas et al. (2002)	Mental health/substance use parity for one large, national employer group	0–18	Analysis of claims data before and after parity implementation	–	–	–	–	Increased treatment prevalence, decreased in inpatient length of stay, and increased outpatient after parity

Table 4 (continued)

Authors (year)	Lever description	Child sample	Study design	Outcomes				
				Access: availability	Access: affordability	Access: accessibility	Access: acceptability	Utilization
Public insurance (N = 4)								
Busch and Barry (2007)	Public health insurance (General)	0–17	Comparison of propensity-score-matched children with mental health versus other need in NS-CSHCN	–	Heavier financial burden for child mental health care versus other special health care if privately insured	–	–	–
DeRigne (2010)	Public health insurance (Medicaid, CHIP, Title V, Medicare, military, Indian Health Service)	0–17	Analysis of NS-CSHCN data on children whose parents reported an unmet mental health need in the past 12 months	–	Being covered by any public insurance (public only or public and private) decreased likelihood of "cost too much" as reason for unmet mental healthcare need	–	–	–
DeVoe et al. (2011)	Public health insurance (State health insurance program for low-income children)	1–18	Cross-sectional analysis of Oregon's Children's Access to Healthcare Study population	–	–	Lower odds for unmet mental health counseling need among children with public insurance coverage	–	–
Feinberg et al. (2002)	Public health insurance (CHIP)	0–18	Retrospective survey of enrollment in public insurance	–	–	No change in difficulty obtaining services after enrollment in publicly funded health insurance	–	–

CSHCN children with special health care needs, *NS-CSHCN* National Survey of Children with Special Health Care Needs, *NSAF* National Survey of America's Families, *CHIP* Children's Health Insurance Program

– Study did not examine or did not report the given policy's relationship with this outcome

[a] Although the study did not report child age, they explicitly make mention of examining "children"

[b] Study did not report findings for those 0–18 years separate from those 18–21 years

Busch and Barry 2007; Chatterji et al. 2015; DeRigne 2010), the National Longitudinal Study of Adolescent Health (Add Health, one study) (Slade 2002), and the National Survey of America's Families (NSAF, one study) (Barry and Busch 2008). The remaining four (25.0%) studies employed non-randomized designs based on survey samples not designed to represent the U.S. child population (e.g., convenience samples), administered for the particular study (Bunik et al. 2013; DeVoe et al. 2011; Feinberg et al. 2002; Kaplan et al. 1999).

Study Outcomes

Outcomes of the 16 included studies on broad policy levers are depicted in Table 4. Each of these studies examined one or more of our outcomes of interest. Among these studies, utilization was the most commonly assessed outcome, examined in 8 of 16 (50.0%) studies. Accessibility (7 of 16; 43.8%) and affordability (6 of 16; 37.5%) were also frequently studied outcomes. Acceptability outcomes were reported in 2 (12.5%) studies, while no included studies reported on availability outcomes.

Integrated Care Models Three papers evaluated integrated care models: one examined acceptability, one examined accessibility, and one examined utilization. All three reported evidence suggestive of positive effects. Stein and Jessop (1984) randomly assigned children with a chronic physical illness to a pediatric medical home model involving comprehensive physical and behavioral care coordination by an interdisciplinary team, or to community care as usual. Parents whose children received care at the integrated clinics reported higher satisfaction with the care their children received (i.e., higher acceptability) as compared to standard care. Bunik et al. (2013) surveyed directors of pediatric continuity clinics to compare integrated pediatric continuity clinics (i.e., clinics that included co-location of, or consultation with, developmental, behavioral, or mental health providers) with non-integrated clinics on access to mental health services. Integrated clinics were more likely than non-integrated sites to have an on-site psychologist or psychiatrist, but the two types of clinics were equally likely to have a social worker or developmental pediatrician—which may suggest that the positive impacts on accessibility may be limited to patient access to particular types of mental or behavioral health providers. Integrated program directors also reported higher satisfaction with their patients' access to counseling and therapy services for children than were directors of non-integrated clinics. Differences were not found for clinic directors' satisfaction with their patients' access to child psychiatry services. Hacker and colleagues (2017) used an interrupted time series design based on Medicaid claims data, comparing changes in service utilization through 18 months after implementation of a pediatric behavioral health screening mandate. Behavioral health screenings and behavioral health-related outpatient visits significantly increased over the study period in the affected state (Massachusetts), compared to a referent state with no similar mandate (California). Thus, available evidence from these three studies suggests that integrated care could have positive effects on acceptability and utilization.

School-Based Services Three papers on school-based services met criteria for inclusion; utilization was assessed in all three, with one also examining access and acceptability. All three studies concerning utilization reported higher use of mental health services associated with school-based services. Atkins and colleagues (2003) randomly assigned elementary classrooms to compare school-based versus university clinic-based services for families of children with disruptive behaviors. Significantly more families randomized to classes for whom classroom-based and family services were made available enrolled in any services, as compared to families in classrooms to whom university clinic-based services were made available. Using data from the National Longitudinal Study on Adolescent Health, Slade (2002) found that schools whose administrator reported that the school offered on-site emotional counseling services (versus schools without on-site services) had significantly higher probability of students reporting that they had received school-based psychological or emotional counseling. The authors reported no significant difference between schools with and without services in the probability of students using community-based counseling, suggesting that school-based services did not appear to take the place of community services. Kaplan et al. (1999) surveyed parents of students who attended an elementary school with a school-based health center (SBHC) and parents of children at a comparison school without a SBHC. Parents in SBHC schools were more likely to report that their children visited a counselor or social worker than parents of students without SBHC access. In subsequent analyses, this difference held true only for children who were uninsured. In addition to utilization, Kaplan et al. (1999) also examined measures of access and acceptability. Parents in the SBHC and comparison school reported similar levels of difficulty accessing emotional health services for their children. However, parents who indicated that the SBHC was their primary health care source had higher scores on satisfaction with services than parents who indicated that their primary source of health care was at other locations (i.e., private, hospital, or community clinic).

Mental Health Parity We found six studies that focused on parity. These studies investigated affordability (four studies), utilization (four studies), and accessibility (one study).

Three of the four studies that assessed affordability documented a positive relationship between parity policies and the affordability of children's mental health services. Two studies compared claims data on the Federal Employee Health Benefits (FEHB) program. Azrin et al. (2007) reported that out-of-pocket spending decreased significantly in three of seven parity-affected FEHB health plans as compared to plans with no change in parity of mental health and substance abuse benefits. Similarly, Barry et al., (2013) found that out-of-pocket spending for children's mental health and substance use among dependents in the FEHB program decreased after parity, compared to plans in the MarketScan database not affected by parity, both in terms of average annual out-of-pocket spending on mental health and substance use and percent share of total mental health and substance use spending paid out of pocket. Barry and Busch (2007) compared family financial burden between parity and non-parity states using the National Survey of Children with Special Healthcare Needs (NS-CSHCN). Living in a parity state was associated with significantly lower financial burden for children with special mental healthcare needs on all four affordability indicators reported by parents: annual healthcare out-of-pocket spending greater than $1000, child's health care has caused financial problems, family needed additional income for children's medical expenses, and family ratio of out-of-pocket spending as reasonable. The sole study reporting no difference in affordability was specific to a mandate for health insurance to cover autism services. Chatterji et al. (2015) found that families' out-of-pocket costs and perceived financial burden remained unchanged in relation to implementation of a mandate for health insurance to cover autism services.

Four of the six parity studies reported on utilization outcomes, the evidence for which was limited. In an analysis of data from NS-CSHCN, Barry and Busch (2007) observed no difference in the receipt of needed mental health care among children with special healthcare needs in parity versus non-parity states. The same authors analyzed data from the National Survey of America's Families and found that differences between parity and non-parity states on mental health services use was largely explained by state and year differences (Barry and Busch 2008). Zuvekas et al. (2002) examined claims data from a large employer group that enacted mental health and substance use parity, reporting three findings relevant to utilization. Overall treatment prevalence for children and adolescents increased significantly after parity was implemented, suggesting an increase in utilization. Although average length of inpatient stay for children and adolescents significantly decreased after parity was implemented, the percent of the sample with any outpatient visit increased, suggesting that increased outpatient use might have reduced the need for more intensive and costly inpatient stays. Collectively, the findings show an increase of utilization among children and adolescents in the plan after parity implementation. The authors caution, however, that a behavioral health carve-out was also implemented during the study (i.e., mental and behavioral health were managed separately from other healthcare). Thus, the degree to which changes could be attributed to parity versus the carve-out is unclear. Azrin et al. (2007) reported that although service utilization was reported to increase for children of parents in the FEHB affected by parity implementation, this was predominantly explained by secular trends in difference-in-difference models. Ultimately, only one in seven parity-affected plans demonstrated a significant increase in service uptake.

Chatterji et al. (2015) was the single parity study that assessed accessibility outcomes. Analyzing data from the NS-CSHCN, the authors found no significant relationship between mandates for autism service coverage and difficulty or delay in access to services due to cost, among families of children with autism spectrum disorder.

Public Health Insurance Four public insurance studies were included, with only two outcomes analyzed in total: affordability and accessibility. Results were mixed, but some studies reported measurable increases in these outcomes. Both articles that focused on the cost of services concluded that public insurance was associated with improvements in affordability. DeRigne (2010) analyzed data on children with unmet mental healthcare need in the past 12 months using the NS-CSHCN. Results indicated that being covered by public health insurance, or a combination of private and public health insurance (versus private health insurance only), decreased parents' likelihood of reporting "cost too much" as the reason for having unmet mental health needs. Busch and Barry (2007) used propensity score matching with the NS-CSHCN in order to control for differences in observed characteristics between special needs children with mental health needs versus other special healthcare needs, and determined that heavier financial burden was associated with caring for a child with a mental health condition among privately insured, but not publicly insured, families.

Two studies of public insurance investigated accessibility of psychological services. Feinberg et al. (2002) conducted a retrospective pre-post survey of parents whose children were enrolled in a state-sponsored health insurance program. Among parents of children with a reported need for mental health services, the proportion who had difficulty obtaining these services appeared to decrease after enrollment in publicly funded health insurance, but the decrease was not significant (i.e., accessibility did not change). DeVoe et al. (2011) reported on a statewide survey administered to a representative sample of Oregon's population of families enrolled in food stamps. Children in households that were publicly insured on the survey date had lower odds of reporting difficulty obtaining mental health counseling, although the finding did not reach statistical significance. However, subsequent replicated analyses considering each child's entire year of insurance coverage, revealed that full-year public coverage was associated with lower odds for difficulty in obtaining counseling, compared to private insurance coverage.

Studies of System-Specific Policy Levers

Study Characteristics

The four system-specific studies examined policy levers delivered within child welfare or foster care (Burns et al. 2004; Wells et al. 2009) and juvenile justice (Chuang and Wells 2010; Pumariega et al. 1999) settings. All of these studies described organizational policy levers affecting the setting in which children and youth received services (e.g., placement type); all focused on families as the target population. These papers examined policy levers at the national level, except for one study at the local scale. With regard to study design, three papers conducted secondary analyses of a single nationally-representative dataset, the National Survey of Child and Adolescent Well-Being (NSCAW) (Burns et al. 2004; Chuang and Wells 2010; Wells et al. 2009). One study constructed a randomized sample from youth receiving services from multiple settings in a single U.S. state (Pumariega et al. 1999).

Study Outcomes

The two studies implemented within the child welfare system measured utilization as a study outcome. Wells et al. (2009) used logistic regression to examine the relationship between various factors and odds for receiving recommended counseling; compared to children with public insurance, children with private or no insurance had lower odds for receiving such services. Residential placement type (foster care, kinship care, group home) was not found to be associated with service receipt, although the authors cautioned against the null finding conceivably due to inadequate statistical power. Burns et al.'s (2004) examination of the same dataset found that children ages 6–10 and 11–14 placed at home had lower odds of receiving mental health services compared to children in the same respective age groups placed in out-of-home care. The same relationship did not hold for children ages 2–5.

We identified two studies delivered for children involved in the juvenile justice system. Again examining the NSCAW, Chuang and Wells (2010) determined via logistic regression that youth whose services were under the jurisdiction of child welfare had higher odds of receiving outpatient behavioral health services, compared to those who received services under jurisdiction of child welfare and juvenile justice concurrently. In Pumariega et al.'s (1999) study, the authors determined that adolescents in correctional facilities received outpatient and acute mental health services at lower rates than those who were hospitalized or receiving services at a community mental health center. These findings were echoed in subsequent regression analyses in the paper, which revealed lower odds for outpatient/acute mental health service receipt among incarcerated youth (compared to hospitalized or community mental health center patients).

Discussion

State of the Evidence

A comprehensive public health approach to supporting children's mental health recognizes policy as a key tool for intervention (Miles et al. 2010). This review synthesizes the evidence on the relationship between policy levers and access to and use of children's mental health services, current as of October 2017, drawing on 20 evaluations spanning more than three decades. With respect to study characteristics, much of the published research on this topic has examined policy levers aimed at the location of services (i.e., school-based services and integrated health care) or at health insurance coverage (i.e., parity and public health insurance), employed non-experimental cross-sectional study designs, and concentrated on assessing the utilization, affordability, and accessibility of services (as opposed to availability (0 studies) or acceptability (2 studies)).

Location-Based Policy Levers

Location-based models are often hypothesized to increase use of services by removing barriers to access and reducing the stigma associated with mental health services by placing services in familiar, trusted settings that families routinely visit (Smith et al. 2017; Wahlbeck 2015). All three studies of school-based services and the sole integrated care study that investigated utilization reported higher use (Atkins et al. 2003; Kaplan et al. 1999; Slade 2002). Both location-based studies that examined acceptability measures found that mental health services delivered in school and pediatric settings were rated as more acceptable to parents than mental health services at other locations (Kaplan et al. 1999; Stein and Jessop 1984), supporting hypotheses that school-based and integrated services could reduce stigma. We also found partial support for hypotheses that access can be enhanced by location-based policy levers. The integrated care study of a national sample of pediatric clinics suggested increased accessibility of counseling and therapy services (Bunik et al. 2013), supportive of an increased-access hypothesis. Although the school-based services study on accessibility demonstrated no significant difference in difficulty obtaining services, the study was limited to a single large metropolitan area (Denver, CO), where access to mental health services might be less of a barrier for families overall (Kaplan et al. 1999). Taken together, evidence from the published literature to date suggests that policy levers supportive of children's mental health services co-located in other settings were associated with increased utilization and acceptability of services. Given the mixed findings related to accessibility, geographic location or existing availability of service might need to be taken into account when considering adopting location-based policy levers such as school-based services and integrated care models.

Insurance-Based Policy Levers

The primary argument typically made in favor of insurance-based approaches is the intended positive impact on utilization of making services more affordable (Barry and Huskamp 2011; Gassman-Pines and Hill 2013). Consistent with that argument, four studies of insurance levers, one using longitudinal claims data and three using national cross-sectional survey data, reported lower financial burden for families with more coverage for mental health services (either via public insurance or parity of coverage for mental health services) (Azrin et al. 2007; Barry et al. 2013; Barry and Busch 2007; DeRigne 2010). However, two other insurance-lever studies provided less evidence in support of affordability justifications: an analysis of claims data found decreased financial burden in only three of the seven plans affected by parity (Busch and Barry 2007), and analysis of survey data found no effect of a mandate to cover autism services on financial burden among privately insured families with a child with autism spectrum disorder (Chatterji et al. 2015). Notably, the authors raise aspects of the study design warranting consideration—including the potential for insufficient time between mandate enactment and expected changes in affordability. The studies reviewed provided even less evidence for insurance policy levers on measures of utilization. One parity study found increases in utilization after implementation, though the study design left unclear if parity or the mental and behavioral health carve-out during the same time period should be credited with the increase (Zuvekas et al. 2002). The other parity study examining utilization found an increase in only one of seven health plans affected by parity (Azrin et al. 2007). Finally, the studies on insurance policy levers (one on parity, two on public insurance) also demonstrated mixed results for measures of accessibility. Although investigations of an autism mandate and public health insurance were not associated with changes in accessibility (Chatterji et al. 2015; Feinberg et al. 2002), one study of a statewide sample of low-income children did observe that children with full-year public insurance were less likely to report difficulty obtaining mental health counseling, compared to children with private insurance (DeVoe et al. 2011). However, this relationship did not hold when investigators operationalized insurance status at the point of data collection rather than past-year coverage; thus the authors suggest that insurance stability may matter more than insurance type. Therefore, even if healthcare coverage reduces or removes cost barriers by making care more affordable, failure to address other barriers such as accessibility, acceptability, and availability (that are likely driven by factors other than cost and insurance coverage) could continue to prevent covered families from utilizing needed services (Roll et al. 2013).

Gaps in Evidence

Although evaluating the intended or actual effects of policy interventions is critical to improve children's well-being (U.S. Government Accountability Office 2017), very little has been published on policies' impacts on the availability and acceptability of children's mental health services. Further, although we specified our search protocol for studies examining the impacts of policy levers in support of telehealth and workforce development strategies a priori, none met the inclusion criteria. The diversification and training of the behavioral health workforce have been emphasized as important avenues to expand access to care (Boat et al. 2017), but our review uncovered a paucity of investigations of these models. Evaluations of workforce development strategies could help fill in the aforementioned dearth of studies concerning availability (e.g., quantity and distribution of qualified providers). In addition, while the number of studies comparing telehealth approaches to in-person therapeutic approaches continues to grow (Siemer et al. 2011), we found no studies investigating telehealth policy levers' impacts on access to or utilization of services for children. These gaps may be ripe for future researchers, as both telehealth and workforce development strategies increasingly proliferate.

The strategies examined in this paper have garnered significant interest as potential avenues to improve the delivery of care to children with, or at risk for, MBDDs. The promise of these policy levers has been thoroughly expressed in a range of case studies, commentaries, chapters, and selective reviews from researchers (Garland et al. 2013; Kelleher and Gardner 2017; Murphey et al. 2013; Stagman and Cooper 2010), professional associations (Carpenter et al. n.d.; Perrin et al. 2016), advocacy groups (Mental Health America 2014), national commissions (NASEM 2016), foundations and non-profit organizations (Behrens et al. 2013; Pires et al. 2013b). Despite this enthusiasm, our findings highlight substantial knowledge gaps in the literature. We acknowledge that numerous evidence syntheses attest to the capacity for the alternate delivery methods, settings, and providers analyzed herein to achieve equivalent child-level outcomes (e.g., disruptive behavior problems) as usual care (see Asarnow et al. 2015; Bower et al. 2001; Garland et al. 2013; Rones and Hoagwood 2000; Siemer et al. 2011). However, our review suggests that less is known about the impact of related policy levers on measures of access and utilization—both crucial determinants of population health. Although these outcomes are typically considered process measures in efficacy and effectiveness trials, a recent review identified insufficient evidence for the relationship between interventions to increase utilization ("health service contacts") and developmental outcomes—suggesting that utilization may not be the only factor influencing whether intended effects are achieved (Hurt et al. 2018). Rigorous studies linking policy levers with these outcomes (i.e., implementation research), with particular attention to children could further our ability to lift up the interventions that work (Forman-Hoffman et al. 2016; Raghavan et al. 2008).

Limitations and Future Directions

We considered a limited number of potentially relevant policy levers and thus there are likely other strategies warranting investigation. Relatedly, our choice of search terms may have resulted in incomplete retrieval of all relevant studies, as with any review protocol (Moher et al. 2009). For example, our decision to explicitly use search terms for "policy" or "law," although abetted by targeted searches for seminal policy approaches, may have excluded studies reporting on other health system interventions that might be amenable to modification via policy levers. The search terms used to operationalize services (e.g., "group therapy", "psychological services") may have excluded other relevant services—such as school-based behavioral management interventions—or types of services (e.g., psychological assessment). Studies included in this review on policy levers that were not explicitly targeted by our search (e.g., mental health parity) may not comprehensively represent available research on the topic. In particular, at least two other studies evaluating state autism mandates may have fit the inclusion criteria (Bilaver and Jordan 2013; Doshi et al. 2017).

Another limitation is that our search was restricted to peer-reviewed, published literature. Government reports, or unpublished literature that would otherwise fit our inclusion criteria may provide additional evidence, though their inclusion could have introduced unknown bias into the sample of studies. Certain state or local policy actions that may have increased eligible providers or accessible services [e.g., secure data-sharing agreements across disciplines (Behrens et al. 2013), provider-based care management entities Pires et al. 2013a)] but that were not subsequently evaluated and described in peer-reviewed journals would not have been captured in our assessment.

Our operationalization of *access* may also be limiting. Although we relied on Penchansky and Thomas' (1981) widely-cited framework, other prominent models might have netted different results (e.g., Andersen's behavioral model of health services use (1995)). Further, our methods limited our ability to probe for the mechanisms by which policy levers influenced access and utilization outcomes. For example, state or federal mental health benefits legislation could reduce mental health coverage restrictions, in turn leading to reduced family out-of-pocket costs paid for services and subsequent increase in service utilization (Sipe et al. 2015). Although this is a common shortcoming in existing literature (Moulton et al. 2009; Shonkoff 2017), future studies could disentangle these mechanisms to facilitate causal inferences.

This review cannot provide conclusions about the extent to which psychological services under investigation in individual studies include those that are evidence-based. Most studies only described mental health services in general terms, and rarely identified specific mental health interventions or program models. This remains a "black box" for the field (Garland et al. 2013), and would be an important area for investigation now that certain states have recently begun to pass laws requiring the use of evidence-based therapies for publicly-funded children's behavioral health services (Raghavan et al. 2008; Trupin and Kerns 2017).

We also acknowledge that statistical significance of study outcomes does not incorporate nor convey the magnitude of effects. Although a meta-analysis would allow for conclusions about the strength of effects, the required statistical elements for calculating effect sizes were missing from most included studies, precluding a formal meta-analysis. The systematic review approach allowed us to accommodate and narratively summarize a broader range of study designs, analytic approaches, and outcomes measured than would a meta-analysis. Given that children's mental health services remain understudied compared to adult mental health services research (Carrey et al. 2014; Hurt et al. 2018), we opted for the more inclusive approach. To our knowledge, this is the first investigation that has scoped the peer-reviewed literature relating policy levers with the access to, and use of, children's psychological services, helping to fill a key gap in mental health knowledge translation. Our decisions to explicitly investigate recommended and emerging policy levers, verify results by two independent reviewers, search without limits by date nor study design, gather studies from three electronic databases spanning multiple disciplines, and frame the evidence in relation to policy application all represent noteworthy strengths. Further, bundling the evidence on policy levers of similar content facilitates interpretation by decision makers regarding potential population impact, even though the legislative and regulatory detail needed to implement any of these levers in-practice would likely vary state to state or system to system (Baicker and Chandra 2017; Jewell and Bero 2008).

Our results prompt a set of questions that might elucidate a more comprehensive understanding of how diverse policy levers could modify families' ability to access and receive psychological services for children. First, outcomes beyond those included here could provide additional valuable information for decision makers. Our definition of *affordability* was constructed from the perspective of the family (e.g., out-of-pocket costs), rather than from the provider or insurer perspective. Literature estimating policy levers' impact on plan or provider cost, or cost from the societal perspective, does exist (e.g., McConnell et al. 2012), but offers less about families' experiences. However, because terms related to those perspectives had not been included in our original searches, this particular set of studies that we reviewed is unlikely to represent all available research. Similarly, outcomes related to the quality of services received, how early children were identified and connected to services, and the effectiveness of services (i.e., child behavioral outcomes) were beyond the scope of this review. Clearly, increasing access to or utilization of ineffective or harmful services would be an undesirable policy impact. Additional research or evidence reviews could shed light on the policy considerations that we were unable to include in this review.

In addition, evidence is still emerging about the ideal channels for translating research into mental health policymaking (Friedman 2003; Williamson et al. 2015). Examination of the processes underpinning likelihood of policy receptivity and action at local, state, and national levels could help advance evidence-based policymaking (Tabak et al. 2012). Finally, this study focused solely on policy levers aimed at health systems; strategies that intervene on social determinants of health, such as economic security policies, are capable of powerfully shaping health outcomes and have potential to be more impactful on the mental health and development of the nation's children (Allen et al. 2014; Britto et al. 2017; Spencer and Komro 2017).

Conclusions

Policy levers offer possible pathways to help families overcome barriers to obtaining mental healthcare for their children. This review uncovered evidence that location-based policy levers (i.e., school-based services and integrated care models) have significant effects on utilization and acceptability, whereas their impact on accessibility may depend on other factors such as whether sufficient non-school-based services already exist in an area. We identified no studies of availability or affordability outcomes related to location-based mental health service policy levers. Studies of insurance-based policy levers (i.e., parity and public insurance) reported mixed evidence on affordability, limited evidence on utilization, and no significant effects on accessibility. No available studies of insurance-based policy levers reported availability or acceptability outcomes. Taken together, this evidence illuminates the need to consider these access and utilization outcomes as levers in the system by which children and families receive services. Availability and affordability may be levers that influence the accessibility of mental health services, which, when combined with acceptability of the services, influences service utilization. Policy levers that impact only one outcome in the system (e.g., affordability) may not translate to the ultimately desired impact of increased use of mental health services for children (Grace et al. 2015; Raghavan et al. 2008). Sets of complementary policies that address multiple outcomes simultaneously (e.g., affordability and availability of effective services) may be more likely to achieve population-level impact on children who need mental health services.

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Compliance with Ethical Standards

Conflict of interest M. So, R.F. McCord, and J.W. Kaminski declare no conflicts of interest.

Ethical Approval This article does not contain any studies with human participants performed by any of the authors.

Informed Consent Informed consent was not required, since this was a review of existing literature and not of human subjects.

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