Organizational supports for evidence use in child welfare

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ABSTRACT

Despite its importance to achieving positive outcomes for vulnerable children and families, use of evidence by child welfare managers and practitioners remains limited. This study describes four types of organizational supports that child welfare agencies may use to facilitate evidence use. Data collected in 2016 from a six-state sample of private child welfare agencies are used to examine agency investment in different supports for evidence use and their association with managerial evidence use. We also identify contextual, organizational, and managerial factors associated with agency investment in these supports. Findings suggest that technical infrastructure is necessary but not sufficient for promoting managerial evidence use in the absence of other supports. Implications for policy and practice are discussed.

1. Introduction

In 2020, child welfare agency staff in the U.S. investigated or assessed approximately 3.9 million children for alleged maltreatment (U.S. DHHS, 2022). As part of this process, caseworkers evaluate the danger posed by the child's environment and develop plans for promoting child safety, permanency, and well-being. Decisions made can have long-lasting consequences for children and families. Child welfare performance on child safety and permanency outcomes is often closely scrutinized, and many states continue to struggle to meet federal benchmarks in these areas (U.S. DHHS, 2021).

Effective use of evidence, or knowledge that has been subjected to testing and found to be credible by agencies and practitioners, can reduce disparities in the costs and quality of care, and improve the outcomes experienced by vulnerable children and families (Cabassa & Baumann, 2013; Napoles, Santoyo-Olsson, & Stewart, 2013). Recognizing the importance of evidence for improving organizational performance and service outcomes, policymakers in many countries have made evidence-informed human services a priority over the last decade (Dill & Shera, 2012; Gray, Joy, Plath, & Webb, 2013). In the U.S., many payers now link funding decisions or service reimbursement to evidence regarding 'effective' programs and practices (Littell & Shlonsky, 2010;

Testa & Kelly, 2020).

Unfortunately, despite significant resource investments, research-to-policy and research-to-practice gaps persist across settings, conditions, and population groups (Horwitz et al., 2014; Mallonee, Fowler, & Istre, 2006; Mangione-Smith et al., 2007). As child welfare agencies focus on improving performance and accountability of the private agencies with which they contract (Collins-Camargo, McBeath, & Ensign, 2011; Courtney, Needell, & Wulczyn, 2004; Gronbjerg & Salamon, 2012), there is a need to understand how to promote use of evidence to enhance agency practices and improve frontline service delivery.

Research conducted in other sectors has identified a range of formal supports used by organizations to facilitate access, dissemination, exchange, and/or other use of different types of evidence by staff (Feldman, Nadash, & Gursen, 2001; Humphries, Stafinski, Mumtaz, & Menon, 2014; Tetroe et al., 2008). For example, developing knowledge broker positions, i.e., intermediaries accountable for encouraging knowledge use, has been identified as critical for supporting evidence-informed decision-making in clinical settings (Ellen et al., 2013). Ties to opinion leaders and researchers outside of the organization, a supportive technical infrastructure, and an organizational climate that rewards evidence use have also been identified as affecting evidence use (Ellen et al., 2013; Oliver, Innvar, Lorenc, Woodman, & Thomas, 2014; Quinn,

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Huckel-Schneider, Campbell, Seale, & Milat, 2014). However, child welfare agency uptake of these and other supports for evidence use is unknown (Jolles, Collins-Camargo, McBeath, Bunger, & Chuang, 2022). Nor is there clarity as to the contextual and organizational factors associated with child welfare agency use of such supports.

The current study contributes to the literature by drawing on data from a national sample of private child welfare agencies to assess agency use of different organizational supports for facilitating evidence use and to identify contextual, organizational, and managerial characteristics associated with agency use of such supports. We also examine whether the presence of these supports is associated with higher managerial evidence use.

1.1. Evidence use in child welfare

In child welfare, two paradigms for evidence use have gained traction over the last decade: evidence-informed practice (EIP) and evidence-based practice (EBP). EIP involves integrating the best available evidence with local expertise and client preferences in making decisions about programs or practices (Collins-Camargo & Garstka, 2014; Starin et al., 2014). By contrast, EBP refers to the high-fidelity use of treatments or programs determined through rigorous scientific research – preferably systematic reviews and randomized controlled trials (RCTs) – to be safe and effective (Chaffin & Friedrich, 2004). Both paradigms are adapted from the evidence-based medicine movement, which has long argued for the integration of different types of evidence – including research, experience, and local contextual information – in decision-making processes (Rycroft-Malone et al., 2004; Sackett, Strauss, Richardson, Rosenberg, & Haynes, 2000).

A parallel movement, known as evidence-based management, emphasizes the importance of equivalent evidence use by managers for improving agency performance (Briggs & McBeath, 2009; Walshe & Rundall, 2001). Research on mechanisms of impact remains limited but suggests that managerial evidence use may improve agency performance in part through its impact on staff behavior, e.g., increased staff engagement in performance improvement activities and use of evidence in their own daily work (Carrilio, Packard, & Clapp, 2003; Collins-Camargo, Chuang, Lauzus, Bonilla, & McBeath, 2020; Jolles, Collins-Camargo, McBeath, Bunger, & Chuang, 2017).

Although evidence use by both managers and practitioners has been associated with more positive outcomes for vulnerable children and families (Han & Moynihan, 2021; Wulczyn et al., 2015), use of evidence by child welfare managers and practitioners remains limited (Collins-Camargo et al., 2020). One state-based study found that fewer than half of practitioners (43 %) reported routinely collecting, reviewing, and utilizing evidence to inform out-of-home care practice activities (Collins-Camargo, Sullivan, & Murphy, 2011). Another study focusing on a network of child welfare service providers found that only 18 % of administrators and practitioners reported frequent use of research in their practice (Chagnon, Pouliot, Malo, Gervais, & Pigeon, 2010). Child welfare agencies may also struggle to incorporate evidence into program development. For example, a national survey of public child welfare agency directors found that while 94 % of agencies had started a new program or practice within the last five years, only 54 % were developed using research evidence, and only 25 % were evidence-based (Horwitz et al., 2014).

1.2. Factors affecting evidence use

Studies of evidence use have identified a number of factors that may affect uptake by managers and practitioners, including characteristics of the evidence, the individuals involved, and the local context (Barends et al., 2017; Buckley, Tonmyr, Lewig, & Jack, 2014; Gray et al., 2013). Research evidence, for example, can be costly to access, particularly in the absence of a supportive infrastructure (e.g., computer access to web-based databases or journal subscriptions) or dedicated staff time to review and synthesize available resources (Barratt, 2003; Tricco et al., 2016).

Individuals also vary in their knowledge, skills, and attitudes towards different types of evidence, which may in turn affect the extent to which they routinely use such evidence in their daily work (Estabrooks, Floyd, Scoot-Findlays, O'Leary, & Gustha, 2003; Gray et al., 2013). One study found that fewer than half of staff participating in a regional survey knew how to search for and interpret research evidence and just under half were suspicious of EBPs (Booth, Booth, & Falzon, 2003). Another international survey of managers found that managers generally held positive attitudes towards evidence, but that limited time and understanding were barriers to use of evidence in decision-making and practice (Barends et al., 2017).

Finally, the quality of available evidence and its relevance to local organizational and practitioner needs can also vary considerably (Buckley et al., 2014). For example, many EBPs are developed and tested with specific client populations in relatively resource rich settings. However, the contexts in which agencies are expected to translate these EBPs are often significantly more heterogeneous in terms of available resources, client characteristics, and supportive infrastructure (Glasgow & Emmons, 2007; Kitson et al., 2008), requiring judgment about which EBPs to adopt, whether or how to adapt them to meet local needs, or how to improve their implementation and impact. Availability of supportive technologies and infrastructure can influence whether managers and staff use evidence to inform decision-making and practice (Garcia, DeNard, Morones, & Eldeeb, 2019; Li, Jeffs, Barwick, & Stevens, 2018). Leader behaviors, such as extent to which managers "role model" evidence use and foster a supportive organizational culture, also play a critical role in evidence uptake by staff (Aarons, Ehrhart, Farahnak, & Sklar, 2014; Guerrero, Padwa, Fenwick, Harris, & Aarons, 2016; Stetler, Ritchie, Rycroft-Malone, & Charns, 2014).

1.3. Organizational supports for evidence use

Absorptive capacity refers to an organization's ability to acquire, assimilate, and apply new knowledge or evidence (Zahra & George, 2002), which can in turn affect EBP implementation, quality of service delivery, and other organizational outcomes (Godfrey et al., 2022; Kash, Spaulding, Gamm, & Johnson, 2013; Knudsen & Roman, 2004). Research on absorptive capacity in child welfare is nascent, but has identified barriers that child welfare agencies may encounter in developing absorptive capacity, such as high workloads (Aarons, Hurlburt, & Horwitz, 2011; Afkinich, Winters, Gopalan, & Bright, 2019; Winters, Hooley, & Gopalan, 2022). This study examines four key organizational supports that when present, may reflect higher absorptive capacity: *linkage and exchange efforts*, *technical infrastructure*, *other knowledge management infrastructure*, and *strategic alignment*.

Linkage and exchange efforts refer to formal ties to knowledge brokers outside of the agency who can assist in acquiring, assessing, adapting, or applying evidence in decision-making or practice (Buckley et al., 2014; Ward, House, & Hamer, 2011). These interorganizational knowledge brokers can include researchers, professional associations, consultants, or research use networks, among others. For example, some county human service agencies participate in university-agency partnerships designed in part to promote uptake of practice-relevant research findings (Anthony & Austin, 2008; Bellamy, Bledsoe, Mullen, Fang, & Manuel, 2008); agencies not formally affiliated with universities or research networks may still have connections to individual researchers or experts outside of the organization. The use of knowledge brokers to assist with distilling and disseminating research to child welfare practitioners is increasingly common in Canada and the UK (Shera & Dill, 2012; Stevens, Liabo, Frost, & Roberts, 2005), but has not been systematically examined in the U.S.

Technical infrastructure includes internal data systems and/or other tools designed to facilitate access to and use of evidence by agency staff (Bakken, 2001; Bakken, Currie, & John, 2010; LeRoux & Wright, 2010).

At a basic level, agencies may provide managers and staff with computers that permit use of free online resources such as the California Evidence-Based Clearinghouse for Child Welfare or develop virtual libraries to promote staff access to research evidence. Agencies may also invest in performance measurement systems designed to collect and report data on program- or agency-level performance indicators or in client management information systems that provide real-time data on client service utilization and outcomes. Research suggests that investment in technical infrastructure may be necessary to facilitate evidence use (Mithas, Ramasubbu, & Sambamurthy, 2011; Syed-Ikhsan & Rowland, 2004); however, it is possible that such investment may not be sufficient for evidence use unless accompanied by other organizational supports such as strategic alignment and/or other knowledge management infrastructure. For example, the presence of management information systems alone does not guarantee their quality (Jonson-Reid & Drake, 2008), or that managers and staff will have sufficient training and time to use them (Collins-Camargo et al., 2020; Collins-Camargo et al., 2011).

Other knowledge management infrastructure includes other agency resources allocated for the purpose of building capacity to use or promote evidence use. These supports could include having formal staff positions (full or part-time) responsible for supporting evidence use, e.g., internal knowledge brokers or data analysts. Agencies may also promote staff training and continuing education on specific topics. For example, preliminary evidence suggests that over half of public child welfare agencies either pay for (53 %) or directly provide (81 %) continuing education related to EBP implementation (Horwitz et al., 2014). Less clear is whether private child welfare agencies also invest in knowledge management infrastructure or the impact of these investments on evidence use by managers or staff.

Finally, *strategic alignment* refers to other formal efforts intended to establish an organizational culture and climate, i.e., workers' perceptions of norms and expectations in their work environment, that prioritizes evidence use. Examples include emphasis on the importance of evidence use in the agency's mission or strategic plan, or establishing policies and practices that promote accountability for evidence use (e.g., incorporating a requirement for research evidence use into staff performance reviews or compensation plans). Strategic alignment has been identified as critical for evidence use (Aarons & Sommerfeld, 2012; Garcia et al., 2019); however, most research on this topic has focused on leadership behaviors that best support implementation of specific EBPs (Aarons, Ehrhart, et al., 2014) rather than general use of evidence to inform decision-making or practice (Jolles et al., 2017).

1.4. What influences agency investment in organizational supports for evidence use?

We conceptualize agency investment in organizational supports for evidence use as affected by factors at the contextual, agency, and managerial levels.

Contextual and organizational factors. To identify contextual and organizational factors affecting organizational supports for evidence use, we drew on two complementary macro-level theories: resource dependence and institutional theories. Briefly, resource dependence theory conceptualizes agency behavior as influenced by leaders' efforts to manage environmental uncertainty and ensure continued access to resources vital to organizational maintenance and survival (Hillman, Withers, & Collins, 2009; Pfeffer & Salancik, 2003); salient factors include agency size, ownership, competition, and financial dependence on child welfare. By contrast, institutional theory considers sources of institutional pressures in the external environment, such as requirements from funders, policymakers, or accrediting bodies, that can also influence behavior (Tolbert, 1985; Zucker, 1987). In the current study, we focus specifically on funder or accrediting body requirements for evidence use as the major salient institutional pressures affecting agency investment in organizational supports for evidence use.

Managerial characteristics. Due to their formal roles and authority, agency leaders are essential catalysts of evidence use (Aarons et al., 2011). This study examines three key managerial characteristics hypothesized to affect agency investment in organizational supports to facilitate evidence use: boundary-spanning, leadership style, and education and training in evidence use. Boundary spanning, or time spent building relationships with external entities, is critical for representing agency interests to external stakeholders, securing needed resources, and identifying strategic opportunities and threats (Alexander, Wells, Jiang, & Pollack, 2008; Dollinger, 1984; Leifer & Huber, 1977); interactions with these external entities are in turn expected to shape agency priorities and behavior, including investment in organizational supports for evidence use. Leaders' prior education and training in research methods or quality improvement are also expected to influence agency investment in organizational supports for evidence use, as is use of a transformational leadership style, i.e., use of a more visionary or charismatic form of leadership to inspire staff (Aarons, Farahnak, & Ehrhart, 2014; Wang, Oh, Courtright, & Colbert, 2011).

2. Methods

2.1. Data and sample

Data for this study were drawn from a 2016–2017 survey of private child welfare agencies conducted as part of the Improving Performance with Evidence (IPWE) project, a mixed methods study funded by the William T Grant Foundation to identify supports for evidence use currently being used by private child welfare agencies and examine the impact of these supports on evidence use by staff at multiple levels of the agency. Key survey domains included organizational demographics, revenue and financing, organizational supports for evidence use, inter-organizational relationships, and organizational outcomes. Survey measures were all previously validated in either child welfare or other health and human service contexts, or were informed by prior research conducted by the study investigators. To ensure salience to private child welfare agency respondents, the survey instrument was also piloted with an expert panel comprised of 6 private child welfare agency administrators from states not identified for survey participation, and refined based on their feedback. Additional information about the survey are available elsewhere (Chuang, Collins-Camargo, & McBeath, 2017).

The survey sampling frame included all private child and family serving agencies registered on the membership listservs of the Alliance for Strong Families and Communities or the state associations for children and families in the National Organization of State Associations for Children in six states that collectively account for approximately one third of all U.S. maltreatment reports receiving a formal Child Protective Services (CPS) response: California, Indiana, Kentucky, Missouri, Pennsylvania, and Wisconsin. These states were purposefully selected to maximize variation in contextual factors such as size and diversity of child welfare population served, geographic location, and whether the child welfare system was administered at the state or local level; selected states also varied significantly in Child and Family Service Review (CFSR) performance metrics. CFSRs are an evaluative mechanism used by the U.S. government to assess state agencies' performance in ensuring child safety, permanency, and well-being; states have historically struggled to meet federal benchmarks in these domains (U.S. DHHS, 2021).

Directors of the state associations for children and families in each participating state sent an announcement about the IPWE study in fall 2016. Approximately two weeks later, executives within each agency received an electronic invitation letter with additional information about the study and a unique hyperlink to the survey. Respondents were asked to complete the survey once per agency. Respondents from 229 agencies completed the survey, for an overall response rate of 55 %, above-average for an organizational survey (Baruch & Holtom, 2008). Given heterogeneity in services provided by private child and family

serving agencies in the study, the current study was restricted to agencies that provided at least one of two child welfare services with a strong evidence base: foster care or group home / residential treatment. Application of this inclusion criteria reduced our study sample to 193 agencies. Missing data for survey item non-response was relatively low, and handled using complete case analysis, resulting in a final analytic sample of 185 private child welfare agencies.

2.2. Measures

2.2.1. Organizational supports for evidence use

This study examined four different organizational supports for evidence use. *Linkage and exchange efforts* assessed total number of ties (0–5) with the following types of external partners to support evidence use: university researchers or agency-university partnerships; consultants; professional associations other than the Alliance for Strong Families and Communities or the state association of child and family serving agencies; a multi-agency consortium, practice-based research network or collaborative network for sharing data for the purpose of improving client outcomes; or an external agency that scans the literature and distributes research evidence (e.g., on best practices or specific EBPs) to the agency.

Technical infrastructure was a count variable (range 0–12) of whether the agency had different technical resources available for regular use by frontline staff, such as computers, Internet, or access to peer-reviewed literature; whether the agency had management information systems for fiscal billing or tracking, client information (e.g., services provided, placements), or for reporting data on agency or program performance; and whether available resources were used to track trends over time, provide data or feedback on client outcomes or experience, contractual reporting, make comparisons within agency or between specific programs within the agency, or to compare agency performance to others.

Other knowledge management infrastructure reflected the percentage of staff within the agency dedicated to activities affecting evidence use, such as disseminating evidence on agency programs or performance, managing information technology, or conducting quality improvement or continuous quality improvement activities, program evaluation, or agency-based research.

Finally, *strategic alignment* was a count variable (range 0–6) of whether the agency referenced evidence use in agency mission, values, or strategic plan documents, in staff job descriptions or applicant interview protocols, or in staff performance reviews; whether the agency provide staff with regular opportunities to share knowledge about effective service delivery; whether the agency provides employees with information about best practices related to their jobs; or whether the agency encourages staff to use research as part of their ongoing work.

2.2.2. Factors which may influence organizational supports for evidence use

Contextual factors hypothesized to affect agency investment in organizational supports for evidence use included competition, accreditation, and funder requirements. *Competition* was operationalized as a 5-point Likert scale reflecting the extent to which the agency competed with public child welfare or with other private child and family serving agencies in the last year for funding, staff, or clients. *Accreditation* was a dichotomous variable set = 1 if the agency was accredited by the Council on Accreditation, the Joint Commission, the Commission on Accreditation of Rehabilitation Facilities, or another accrediting body. Finally, *funder requirements* was a dichotomous variable set = 1 if the child welfare agency was required by funders to implement interventions from a list of 'evidence-based programs' (e.g., programs included in the California Evidence-based Clearinghouse for Child Welfare), or to conduct research or evaluate programs as part of a grant or contract.

Organizational factors hypothesized to affect organizational supports for evidence use included agency size, agency structure, ownership, service diversification, and financial dependence on child welfare (McBeath, Jolles, Carnochan, & Austin, 2015). *Agency size* reflected the

total number of full-time equivalent staff employed at the agency (i.e., excluding consultants, independent contractors, and volunteers). Agency structure was measured using a dichotomous variable set = 1 if the *agency was part of a larger organization with multiple sites*, either in a single state or across multiple states, rather than a standalone entity. Ownership was a dichotomous variable set = 1 if the agency was a *private for-profit* and set = 0 if the agency was a private nonprofit. *Service diversification* was operationalized as a count variable (0–5) of the different types of services provided by the agency (in addition to foster care or group and residential care). Specific service types assessed included other child welfare services (e.g., family preservation / in-home services, reunification, etc.), mental health treatment, substance abuse treatment, other health care services, other human or educational services. Financial dependence on child welfare was operationalized as the *percentage of agency revenue from public child welfare contracts* (0–100).

Finally, managerial characteristics hypothesized to affect organizational supports for evidence use included boundary-spanning activities, transformational leadership style, and prior education or training in research methods or quality improvement. *Boundary-spanning activities* was a count variable (0–6) reflecting whether the respondent engaged in the following activities in the last year: identify external resources to support agency projects and programs, coordinate agency activities with those of external partner(s), make it a point to find out what agency competitors are doing, scan the external environment for ideas or expertise that will benefit the agency, or actively develop partnerships to benefit the agency or the community(ies) the agency serves. *Transformational leadership style* was assessed using a 5-point Likert scale, reflecting the average of 9 salient items (α = 0.79) from the Multifactor Leadership Questionnaire (Antonakis, Avolio, & Sivasubramanian, 2003). Example items include "I talk enthusiastically about tasks that need to be accomplished," "I talk about my most important values and beliefs," "I get others to look at problems from many different angles," and "I spend time teaching and coaching." Finally, *prior education or training* was operationalized as a dichotomous variable set = 1 if the respondent reported any prior training in research design, program evaluation, quality improvement, or statistical analysis.

2.2.3. Managerial evidence use

We examined four types of evidence use by managers: *persuasive use, conceptual use, instrumental use,* and *process use*. *Persuasive use*, refers to the use of evidence to legitimize, justify, or otherwise mobilize support for actions or decisions and was assessed using salient items (α = 0.86) from the Survey of Practitioners' Research Use (Penuel et al., 2017); e.g., "How often have you used evidence to mobilize support for important issues?" *Conceptual use* refers to the use of evidence to inform one's thinking about a topic, problem, or practice area, and was assessed using three salient items (α = 0.83) from the Conceptual Research Utilization scale (Squires, Estabrooks, Newburn-Cook, & Gierl, 2011). *Instrumental use* refers to the direct use of evidence in decision-making or in identifying a solution to a specific problem, e.g., in deciding to adopt or eliminate a specific program or practice or choosing a specific course of action with a client. Finally, *process use* refers to direct engagement in research or evaluation by the respondent or their agency. Both instrumental and process use were measured using salient items from the Survey of Practitioners' Research Use (Penuel et al., 2017). All measures were based on a 5-point Likert scale reflecting frequency of different types of evidence use, where 1 = Never, 3 = Sometimes, and 5 = Always. We also constructed a measure of "any evidence use", set = 1 if managers reported using any type of evidence "Very Often" or "Always.".

We also examined sources of evidence used by managers. Managers were asked to rate on a 5-point Likert scale the extent to which they relied on the following sources for learning about new developments in the field, including research (i.e., journals, professional publications, or online research clearinghouses); professional associations (including associated conferences and meetings); trainings, seminars, or

workshops; advisory boards, commissions, or panels; market research sponsored by their agency or purchased from an outside source; informal conversations with other private agency leaders; informal conversations with leaders of other types of organizations; and informal conversations with providers and staff within their agencies.

2.3. Analyses

Data were analyzed in a multi-stage process. First, we used descriptive statistics to describe the characteristics of our sample. Next, cluster analysis was used to place private agencies into mutually exclusive clusters based on similarity in agency use of organizational supports for evidence use. Cluster analysis is a multivariate statistical technique that subdivides objects into a hierarchical arrangement of homogeneous subgroupings (Everitt, Landau, Leese, & Stahl, 2011); it is particularly useful when the number and types of groups cannot be determined a priori by the researcher. To conduct this analysis, we standardized all measures to z-scores to limit potential effects of scale differences among variables and used Mahalanobis distance measures to identify potential outliers. To select the most parsimonious number of well-defined clusters, we visually inspected clusters and their distance measures, and also examined pseudo-F and pseudo-t^2 statistics. Cluster membership was reviewed and discussed via webinars to members of the state associations for children and families in the six participating states, providing an additional external validity check from a policy-practice perspective. We also used predictive discriminant analysis to validate the final cluster solution. We used multinomial logistic regression to identify contextual, organizational, and managerial characteristics associated with organizational supports for evidence use (clusters), adjusted for potential nesting of agencies within states.

We used one-way analysis of variance (ANOVA) to identify significant differences across clusters in managerial evidence use; in post-hoc analyses, we used the Bonferroni adjustment when variances were equal and Games-Howell when not (Cramer et al., 2015; Games, Keselman, & Rogan, 1981). Results of fully unconditional random effects models indicated minimal between-state variation in managerial evidence use (intraclass correlation coefficient 0 % for all types of evidence use); thus, these analyses were not adjusted to account for potential nesting of agencies within states. All analyses were conducted using Stata 16.0 software. The study was reviewed and approved by the Institutional Review Board at the lead author's institution.

3. Results

3.1. Descriptive characteristics of the sample

On average, private child welfare agencies in our sample had 234 full-time staff employees (range 3 to 2000), and total annual revenue of $21 million (range <$1 - $130 million). As shown in Table 1, average percent revenue from child welfare was 58 %. Only 13 % of agencies were private for-profit, and just over a fifth (21 %) were part of a larger organization with multiple sites either in the same state or in multiple states. Most agencies (87 %) offered services in addition to foster care or group home / residential care. The most commonly provided services were mental health treatment (69 %), other child welfare services (68 %), or other social or educational services (50 %). Least commonly provided services were substance abuse treatment (31 %) or other health care services (13 %). The majority of agencies were accredited (76 %). Most agencies (81 %) reported at least some competition with other private child and family serving agencies for funding, staff, or clients. Most agencies (76 %) also identified funder requirements to implement evidence-based programs, conduct research, or evaluate programs.

Leaders in most agencies (85 %) engaged in at least some boundary spanning activities in the last year. The most common activities were scanning the external environment for salient ideas or expertise (89 %) or identifying external resources to support agency programs (84 %).

Table 1
Characteristics of private child welfare agencies (n = 185).

	Mean (SD) /%	Min	Max
Organizational supports for evidence use			
Linkage and exchange efforts	1.26 (1.36)	0	5
Technical infrastructure	8.03 (3.56)	0	12
Other knowledge management infrastructure	17 %	0	1
Strategic alignment	3.18 (1.81)	0	6
Contextual factors			
Competition	3.17 (1.22)	1	5
Accreditation	73 %	0	1
Funder requirements	76 %	0	1
Organizational factors			
Staff FTEs (in hundreds)	2.35 (3.31)	0.02	20
Part of larger organization	21 %	0	1
For-profit ownership	13 %	0	1
Service diversification	2.31 (1.33)	0	5
% Revenue child welfare	58 (32)	0	100
Managerial characteristics			
Boundary-spanning	4.07 (2.1)	0	6
Transformational leadership	4.28 (0.39)	3.1	5
Prior education or training	66 %	0	1
Manager evidence use			
Any evidence use	72 %	0	1
Persuasive use	3.63 (0.75)	1	5
Conceptual evidence use	3.47 (0.65)	1	5
Instrumental use	3.16 (0.87)	1	5
Process use	3.48 (0.83)	1	5
Sources of evidence			
Research	3.16 (0.93)	1	5
Professional associations	3.87 (0.82)	1	5
Trainings, seminars, or workshops	3.66 (0.75)	2	5
Advisory boards, commissions, or panels	3.22 (1.04)	1	5
Market research	1.99 (1.01)	1	5
Leaders of other private child welfare agencies	3.65 (0.83)	1	5
Leaders of other types of organizations	3.45 (0.94)	1	5
Providers and staff within own agency	4.01 (0.74)	2	5

The least common activity was coordinating agency activities with those of external partners (66 %). Average levels of transformational leadership were high among agencies in our sample (mean 4.28), and close to two thirds (66 %) of agency leaders also had at least some prior education or training in program evaluation, quality improvement, research design, or statistical analysis,

3.2. Organizational supports for evidence use

Most agencies (60 %) engaged in at least some linkage and exchange efforts to support evidence use, with an average of 1 of 5 types of ties in place (see Table 1). The most commonly reported ties were participation in a multi-agency consortium or collaborative network focused on sharing data to improve practice or overall agency outcomes (35 %) or in a professional association (other than NOSAC or the Alliance) (35 %). The least common ties were use of research consultants (16 %) or external agency to scan the research literature and distribute research evidence (e.g., on best practices or specific EBPs) (15 %).

With regards to technical infrastructure, on average, private child welfare agencies had 8 of 12 identified supports in place. Most agencies (92 %) reported at least some frontline worker access to computers, Internet, or peer-reviewed literature. Most agencies (88 %) also had at least one management information system (MIS); however, close to half of agencies with more than one MIS (48 %) indicated that these MIS did not interface. The most common uses of these information systems were to track trends over time (81 %) or to provide timely data or feedback to staff on client utilization, outcomes, or experience (80 %). The least common use of data was to compare agency performance to others (42 %).

Private child welfare agencies had a mean of 17 % and a median of 5 % of staff dedicated to activities affecting evidence use. Finally, most agencies (88 %) exhibited at least some strategic alignment with

evidence use, i.e., engaged in at least one of six possible activities. The most common activities were providing staff with information about best practices relevant to their work (88 %), and creating regular opportunities for staff to share knowledge about effective service delivery (83 %). The least common were referencing research or evidence in staff performance reviews (39 %) or encouraging staff to use research as part of their ongoing work (44 %).

3.3. Cluster profiles

Cluster analysis identified a five-cluster solution, i.e., five distinct configurations of agency investment in organizational supports for evidence use. Discriminant analysis indicated that 100 % of agencies were correctly classified, providing further support for the internal validity of the solution. The basic structure of the final cluster solution is provided in a dendrogram (see Fig. 1), which traces the hierarchical order in which agencies clustered into groups, and can be used to identify groups that are more similar vs. dissimilar in organizational supports for evidence use. Descriptive characteristics of agencies in each group are provided in Table 2. Table 3 provides multinomial logit results with Group 3 as the referent; significant differences between other groups are not shown in Table but are briefly summarized below. The only variables that did not significantly differ across groups were ownership and whether the agency was part of a larger organization.

3.3.1. Group 1: Agencies with technical infrastructure but limited other supports (25 %; n = 46)

Agencies in Group 1 had above average technical infrastructure, with an average of 9.78 of 12 supports in place and robust use of data to track trends (93 %) and provide timely data or feedback to staff (89 %). However, these agencies had few other organizational supports for evidence use in place, with limited ties to external partners to support evidence use, an average of only 5 % of staff dedicated to supporting knowledge management, and below average strategic alignment. With regards to differentiating contextual, organizational, and managerial characteristics, agencies in Group 1 reported low competition with public or private child welfare agencies, provided diverse services (e.g., 83 % offered mental health or substance abuse treatment and 65 % offered other social services in addition to child welfare) and low leader engagement in boundary spanning activities.

3.3.2. Group 2: Agencies with high technical infrastructure and strategic alignment (17 %; n = 31)

Agencies in Group 2 had the highest technical infrastructure and strategic alignment in our sample. All agencies in this group reported use
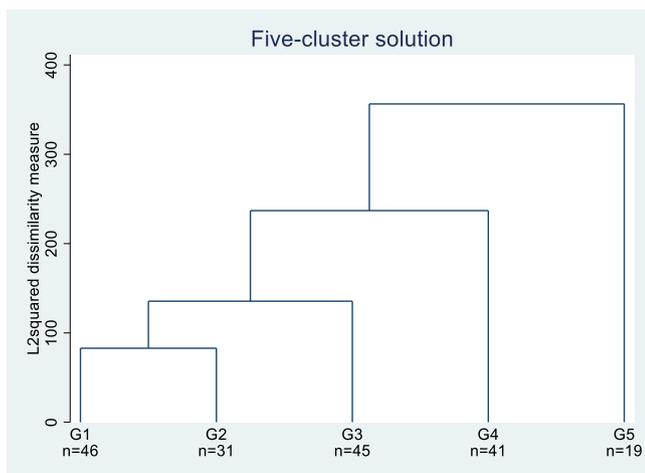

Fig. 1. Organizational supports for evidence use: Dendrogram of agency groupings.

Table 2
Characteristics of private child welfare agencies in each group*.

	Group 1 n = 46 Mean (SD) / %	Group 2 n = 31 Mean (SD) / %	Group 3 n = 45 Mean (SD) / %	Group 4 n = 41 Mean (SD) / %	Group 5 n = 19 Mean (SD) / %
Organizational supports					
Linkage and exchange	0.65 (0.67)	0.9 (0.79)	0.62 (0.81)	3.17 (0.99)	2.37 (1.34)
Technical infrastructure	9.78 (1.28)	10.58 (1.15)	5.04 (1.58)	10.07 (1.54)	8.89 (2.69)
Knowledge management	5 %	10 %	13 %	10 %	92 %
Strategic alignment	2.28 (0.78)	4.9 (0.73)	2.7 (1.63)	4.22 (1.33)	4.42 (1.54)
Contextual factors					
Competition	2.87 (1.14)	3.65 (1.20)	3.00 (1.24)	3.40 (1.21)	3.13 (1.23)
Accreditation	69 %	80 %	41 %	88 %	67 %
Funder requirements	74 %	81 %	56 %	80 %	89 %
Organizational factors					
Staff FTEs (in hundreds)	2.26 (3.20)	3.41 (4.47)	0.95 (1.34)	3.93 (3.65)	0.77 (1.39)
Part of larger organization	24 %	35 %	11 %	20 %	21 %
For-profit ownership	6.50 %	10 %	22 %	12.50 %	26 %
Service diversification	2.71 (1.15)	2.74 (0.93)	1.84 (1.33)	2.83 (1.43)	1.47 (1.17)
% Revenue child welfare	55 %	52 %	57 %	47 %	81 %
Managerial characteristics					
Boundary-spanning	4.15 (1.59)	5.23 (0.99)	4.4 (1.71)	5.05 (1.48)	4.95 (1.31)
Transformational leadership	4.2 (0.37)	4.47 (0.36)	4.26 (0.39)	4.36 (0.36)	4.22 (0.43)
Prior education or training	67 %	87 %	60 %	93 %	84 %

Note: Group 1 "Agencies with technical infrastructure but limited other supports"; Group 2 "Agencies with high technical infrastructure and strategic alignment"; Group 3 "Smaller agencies with few organizational supports for evidence use"; Group 4 "Large agencies with high supports for evidence use"; Group 5 "Smaller agencies with low technical infrastructure but high other supports".

of evidence to track trends over time and provide timely data or feedback to staff; the majority of agencies also used data for contractual reporting (87 %) and to make within-agency comparisons (74 %). In addition, all agencies referenced evidence use in agency mission, values, or strategic plan documents, in staff job descriptions or interview protocols, or in staff performance reviews. All agencies also reported providing regular opportunities for agency staff to share knowledge about effective service delivery, providing staff with information about best practices related to their jobs, or encouraged staff to use research as part of their ongoing work. Agencies in this group reported fewer ties with external partners to support evidence use but had an average of 10 % of staff dedicated to supporting knowledge management activities. Compared to other groups, agencies in Group 2 reported the highest competition with public or private child welfare agencies, and high use of transformational leadership style by agency leaders.

3.3.3. Group 3: Smaller agencies with few organizational supports for evidence use (24 %; n = 45)

Agencies in Group 3 had limited organizational supports in place, with few ties to external partners to support evidence use, and the lowest technical infrastructure and strategic alignment. Agencies in this group were generally smaller, with an average of only 95 FTEs, and had more narrow service arrays (e.g., only 36 % of agencies offered other social

Table 3
Contextual, organizational, and managerial characteristics associated with organizational supports for evidence use: Multinomial logistic regression results.

	Group 1 vs. Group 3 RRR (SE)	Group 2 vs. Group 3 RRR (SE)	Group 4 vs. Group 3 RRR (SE)	Group 5 vs. Group 3 RRR (SE)
Contextual factors				
Competition	0.78 (0.16)	1.03 (0.25)	1.31 (0.30)	1.03 (0.27)
Accreditation	1.86 (0.99)	2.02 (1.31)	5.78* (4.76)	3.13 (2.62)
Funder requirements	1.68 (0.89)	1.56 (1.01)	1.78 (1.20)	11.23* (11.38)
Organizational factors				
Staff FTEs (in hundreds)	1.36 (0.25)	1.46* (0.28)	1.64* (0.31)	1.08 (0.36)
Part of larger organization	1.76 (1.23)	3.75 (2.89)	0.60 (0.53)	1.73 (1.62)
For-profit ownership	0.54 (0.46)	0.70 (0.74)	6.55 (6.87)	2.68 (2.77)
Service diversification	1.42 (0.34)	1.42 (0.41)	1.23 (0.36)	0.69 (0.25)
% Revenue child welfare	1.01 (0.01)	1.01 (0.01)	1.00 (0.01)	1.04* (0.02)
Managerial characteristics				
Boundary-spanning	0.98 (0.19)	1.72* (0.46)	2.71* (0.86)	1.80 (0.60)
Transformational leadership	1.04 (0.75)	4.43 (3.77)	1.05 (0.89)	0.57 (0.57)
Prior education or training	1.29 (0.68)	3.25 (2.34)	21.13* (24.09)	6.32 (6.56)

RRR = relative risk ratio; *$p < 0.05$.
Note: Group 1 "Agencies with technical infrastructure but limited other supports"; Group 2 "Agencies with high technical infrastructure and strategic alignment"; Group 3 "Smaller agencies with few organizational supports for evidence use"; Group 4 "Large agencies with high supports for evidence use"; Group 5 "Smaller agencies with low technical infrastructure but high other supports".

services in addition to child welfare). Agencies also experienced the fewest institutional pressures for evidence use, with only 41 % accredited and only 56 % reporting any funder requirements to implement evidence-based programs or to conduct research or evaluate programs as part of a grant or contract. Leaders also reported below average leader training in evidence use.

3.3.4. Group 4: Large agencies with high supports for evidence use (22 %; n = 41)

Agencies in Group 4 had robust supports for evidence use in place, with the highest number of ties with external partners to support evidence use, above-average technical infrastructure and strategic alignment, and approximately 10 % of staff dedicated to supporting knowledge management activities. Agencies in this group were larger, with an average of 393 FTEs, and reported high institutional pressures for evidence use (88 % accredited and 80 % reporting funder requirements for evidence use). Agency leaders were also more likely to be trained in evidence use, with 93 % reporting prior training in research design, program evaluation, quality improvement, or statistical analysis.

3.3.5. Group 5: Smaller agencies with low technical infrastructure but high other supports (10 %, n = 19)

Agencies in Group 5 had below-average technical infrastructure but above average ties with external partners, high percent of staff supporting knowledge management activities, and high strategic alignment. Agencies in this group tended to be smaller, with an average of only 77 FTEs, more narrow service array, and strong financial dependence on child welfare (average 89 % revenue from child welfare contracts). Agencies in Group 5 also reported high funder requirements for evidence use (89 %).

3.4. Managerial evidence use and sources of evidence

As shown in Table 4, most agencies (72 %) indicated that managers used at least some types of evidence "Very Often" or "Always." Persuasive use of evidence was the most commonly reported type of evidence use, with 48 % of managers reporting persuasive use of evidence "Very Often" or "Always," and an average rating of 3.63 out of 5. Least common was instrumental evidence use, used "Very Often" or "Always" by only 34 % of managers and with an average rating 3.16 out of 5. In terms of evidence sources, managers reported greatest reliance on providers and staff (mean 4.01, s.d. 0.74) and on professional associations (mean 3.87, s.d. 0.82) for learning about new developments in the field, and least reliance on market research (mean 1.99, s.d. 0.82) or research (mean 3.16, s.d. 0.93).

Cross-group comparisons identified some differences in managerial evidence use and sources of evidence across groups (see Table 5). Specifically, managerial evidence use was significantly lower in Group 3, with less than half of managers (49 %) reporting any type of evidence use, and significantly higher in Groups 2 and 4, with 90 % of managers in Group 2 and 83 % of managers in Group 4 using evidence "Very Often" or "Frequently." Comparison of specific types of evidence use revealed that persuasive, conceptual, and instrumental evidence use were lower among managers in Group 3 than in Groups 2 and 4; managers in Group 3 also reported lower reliance on research than those in Groups 1, 2, and 4. Persuasive and instrumental evidence use was higher among managers in Group 2 than in Group 1; managers in Groups 2 and 4 reported reliance on broader range of evidence sources than those in

Table 4
Managerial evidence use and sources of evidence in each group*.

	Group 1 n = 46 Mean (SD) / %	Group 2 n = 31 Mean (SD) / %	Group 3 n = 45 Mean (SD) / %	Group 4 n = 41 Mean (SD) / %	Group 5 n = 19 Mean (SD) / %
Manager evidence use					
Any evidence use	65 %	90 %	49 %	83 %	84 %
Persuasive use	3.52 (0.62)	4.08 (0.66)	3.15 (0.83)	3.91 (0.62)	3.61 (0.46)
Conceptual evidence use	3.37 (0.53)	3.69 (0.61)	3.11 (0.75)	3.74 (0.57)	3.58 (0.52)
Instrumental use	3.00 (0.82)	3.29 (0.69)	2.93 (0.89)	3.24 (0.97)	3.50 (0.92)
Process use	3.43 (0.67)	3.97 (0.64)	2.89 (0.91)	3.79 (0.71)	3.45 (0.69)
Sources of evidence					
Research	3.00 (0.99)	3.45 (0.72)	2.75 (0.97)	3.62 (0.78)	3.16 (0.83)
Professional associations	3.89 (0.85)	4.0 (0.77)	3.66 (0.86)	4.08 (0.77)	3.79 (0.71)
Trainings, seminars, or workshops	3.54 (0.75)	3.77 (0.62)	3.45 (0.79)	3.90 (0.75)	3.78 (0.81)
Advisory boards, commissions, or panels	3.00 (0.97)	3.32 (0.108)	2.84 (1.10)	3.61 (0.97)	3.47 (0.90)
Market research	1.70 (0.89)	2.32 (1.05)	1.77 (0.94)	2.32 (1.02)	2.32 (1.06)
Leaders of other private child welfare agencies	3.70 (0.81)	3.77 (0.62)	3.39 (1.02)	3.82 (0.85)	3.63 (0.60)
Leaders of other types of organizations	3.15 (0.92)	3.71 (0.74)	3.23 (1.18)	3.77 (0.90)	3.53 (0.53)
Providers and staff within own agency	3.98 (0.71)	4.23 (0.62)	3.77 (0.81)	4.10 (0.72)	4.11 (0.66)

Note: Group 1 "Agencies with technical infrastructure but limited other supports"; Group 2 "Agencies with high technical infrastructure and strategic alignment"; Group 3 "Smaller agencies with few organizational supports for evidence use"; Group 4 "Large agencies with high supports for evidence use"; Group 5 "Smaller agencies with low technical infrastructure but high other supports".

Table 5
Differences across groups in managerial evidence use: ANOVA results.

	F-test (* if p < 0.01)	Bonferroni or Games-Howell Post-hoc (p < 0.05)
Manager evidence use		
Persuasive use	11.29*	Group 2 > 1, 3; Group 4 > 3
Conceptual evidence use	7.29*	Groups 2, 4 > 3
Instrumental use	12.12*	Groups 1, 2, 4 > 3; 2 > 1
Process use	2.11	
Managers' evidence sources		
Journals, publications, or research clearinghouses	6.18*	Groups 1, 2, 4 > 3; Group 4 > 1
Professional associations	1.62	
Trainings, seminars, or workshops	2.39	
Advisory boards, commissions, or panels	3.79*	Group 4 > 3
Market research	4.04*	Group 4 > 1
Leaders of other private child welfare agencies	1.73	
Leaders of other types of organizations+	3.61*	Group 2, 4 > 1
Providers and staff within own agency	2.19	

Note: We used Bonferroni when variances were equal and Games-Howell when not equal; + indicates use of Games-Howell

Group 1.

4. Discussion

This study examined private child welfare agencies' use of four key organizational supports affecting evidence use: linkage and exchange efforts, technical infrastructure, knowledge management infrastructure, and strategic alignment. We identified factors associated with agency investment in these supports, and also assessed whether presence of these supports was associated with managerial evidence use. Study findings revealed significant variation across private child welfare agencies in their use of different organizational supports, and identified five distinct groupings in our sample. These groups included agencies with technical infrastructure but limited other supports (Group 1), agencies with high technical infrastructure and strategic alignment (Group 2), small agencies with few organizational supports (Group 3), large agencies with high organizational supports (Group 4), and small agencies with limited technical infrastructure but high other supports (Group 5).

We identified several contextual, organizational, and managerial factors associated with differential agency investment in supports for evidence use. Reflecting the impact of external pressures on agency behavior (Collins-Camargo, Chuang, McBeath, & Mak, 2019), low competition or lower funder requirements for evidence use were associated with agency groupings reflecting lower organizational supports for evidence use (Groups 1 and 3) while high competition or high funder requirements were associated with groupings reflecting higher organizational supports for evidence use (Groups 2, 4, 5). Similarly, accreditation rates were lower among agencies with few organizational supports (Group 3) and higher among large agencies with robust organizational supports (Group 4). Organizational and managerial characteristics significantly differentiating groups included agency size, agency service array, managers' prior training in evidence use, and managers' use of transformational leadership styles. These findings support our hypotheses that institutional pressures, agency characteristics, and managerial behaviors are all associated with organizational investment in supports for evidence use.

Managerial evidence use was more common than expected, with most agencies reporting at least some managerial use of evidence. However, uptake of specific types of evidence use was much lower. Persuasive use of evidence was the most prevalent form of managerial evidence use, with just under half of managers reporting frequent use of evidence to mobilize support for important issues or for consideration of new policies or programs. By contrast, instrumental use of evidence was the least common, with less than a third of managers reporting frequent use of evidence in deciding whether to adopt or eliminate specific programs or practices or decide on a specific course of action with a client. When asked about reliance on different sources of information for learning about new developments in the field, managers reported relying most heavily on agency providers and staff or on professional associations, and least often on research, either market research or journals, publications, or research clearinghouses.

Cross-group comparisons identified configurations of organizational supports significantly associated with managerial evidence use. Consistent with study hypotheses, agencies with few organizational supports (Group 3) also reported significantly lower levels of managerial evidence use; these agencies also reported the lowest reliance on research as a source of evidence. By contrast, agencies with high technical infrastructure and strategic alignment (Group 2), and larger agencies with high organizational supports (Group 4) both reported higher levels of managerial evidence use. Managers of large agencies with high organizational supports (Group 4) engaged in the greatest number of boundary-spanning activities and also reported highest reliance on all identified sources of evidence, including research. Finally, findings suggested that organizational supports for evidence use were associated with persuasive, conceptual, and instrumental use of evidence but not with process evidence use.

4.1. Study limitations

Several limitations must be taken into consideration in interpreting study results. First, our sampling frame was limited to agencies affiliated with the Alliance or state associations for children and families involved with NOSAC in six states, resulting in a sample that was national but not nationally representative. Prior research suggests that agencies that participate in professional associations are likely larger and with more professionalized leadership and collaborative ties (Mosley, 2011); thus, potential under-representation of small, community-based organizations and organizations with fewer organizational supports for evidence use in place must be taken into account and may limit generalizability of study results. The use of cross-sectional rather than longitudinal data also limited our ability to test the stability of identified organizational configurations over time. Our survey asked about ways in which managers used evidence (persuasive, conceptual, instrumental, process), and about extent to which managers relied on different sources for learning about new developments in the field; however, further research is needed to better understand the nature or quality of specific types of evidence used. Finally, because we did not collect data from frontline staff, we were unable to assess whether identified organizational supports were associated with evidence use by frontline staff. Given the potential impact of these supports on not just managerial but staff evidence use (Collins-Camargo et al., 2020), future research could address this gap by assessing whether and how presence or absence of different organizational supports may impact evidence use by frontline staff.

4.2. Implications for research, policy, and practice

Overall, study findings suggest that organizational supports can influence managerial evidence use and may reflect higher absorptive capacity. Specifically, we found that managers reported higher use of evidence to inform their thinking and decision-making, and higher reliance on research as a source of evidence when more organizational supports were in place. Further research is needed to determine whether presence of identified organizational supports are also associated with higher levels of evidence use by staff or with more successful evidence-informed practice or EBP implementation.

Study findings also reinforce prior work suggesting the importance of resource adequacy, leadership support and a strong implementation

climate for evidence uptake (Farahnak, Ehrhart, Torres, & Aarons, 2020; Garcia et al., 2019). In particular, we found that technical infrastructure was necessary but not sufficient for managerial evidence use in the absence of other supports such as strategic alignment and knowledge management infrastructure. Onerous data collection and reporting requirements may not yield intended benefits if agencies do not have the resources and capacity to meaningfully use available information to guide improvement efforts. Similarly, policymaker and payer requirements to implement specific, registry-based EBPs may not yield the intended benefit if agencies are not able to effectively use available evidence to guide EBP selection, adaptation, and implementation. Knowledge management infrastructure can be costly to develop and sustain; for child welfare agencies that lack resources to invest in knowledge management infrastructure "in-house," managerial efforts to build supportive interorganizational relationships and to internally message the importance of evidence use could still be sufficient to promote uptake (Collins-Camargo et al., 2020; Jolles et al., 2022).

While prior studies have linked evidence use by managers and practitioners to agency performance (Han & Moynihan, 2021; Wulczyn et al., 2015), further research is also needed to more definitively link different types of evidence use (e.g., persuasive, instrumental, conceptual) and reliance on different sources of evidence to more distal agency or client-level outcomes.

Finally, given prior research suggesting potential unintended consequences of institutional pressures on agency behavior (Carnochan, Samples, Myers, & Auto, 2014; Moynihan, 2009), further work is also needed to determine whether or under what circumstances funder requirements and other institutional pressures are associated with investments that support meaningful rather than performative use of evidence. For example, research could explore how agencies experiencing heightened institutional pressures for evidence use (e.g., due to new state reforms or class action lawsuits) can be supported in more effective use of evidence, or identify low-cost strategies for improving instrumental evidence use, e.g., by helping managers understand how evidence can be applied to improve service delivery or other aspects of agency performance in ways that ultimately help reduce disparities in access, quality, and outcomes of care.

4.3. Conclusion

Given the call for increased use of evidence to inform practice in child welfare (Chagnon et al., 2010; Testa & Poertner, 2010) and increasing requirements from governmental entities for performance management in child welfare (Carnochan et al., 2014), there is a need to focus attention on how evidence use can be promoted through an array of organizational strategies and implementation frameworks (Albers, Mildon, Lyon, & Shlonsky, 2017). The current study provides insight into current use of different supports by private child welfare agencies in six states and into how the presence or absence of these supports is associated with different types of managerial evidence use. Findings also highlight the important role that funders and managers can play in encouraging agency investment in supports for evidence use in child welfare.

CRediT authorship contribution statement

Emmeline Chuang: Conceptualization, Funding acquisition, Methodology, Investigation, Data curation, Formal analysis, Supervision, Writing – original draft, Writing – review & editing. **Crystal Collins-Camargo:** Conceptualization, Funding acquisition, Methodology, Investigation, Writing – review & editing. **Bowen McBeath:** Conceptualization, Funding acquisition, Methodology, Investigation, Writing – review & editing. **Monica Pérez Jolles:** Conceptualization, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The authors do not have permission to share data.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.childyouth.2023.107186.

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