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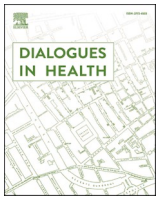

Medical provider perspectives on children with incarcerated parents: A mixed-methods study

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ABSTRACT

Purpose: To understand health care providers' perceptions, clinical considerations, and clinical actions towards children with incarcerated parents.
Methods: We implemented an experimental vignette study in which health care provider participants were randomly assigned a patient case describing a child with a parent absent for unspecified reasons (control) vs. incarceration (experimental). Participants completed a survey of closed- and open-ended items regarding their clinical approach. Groups were compared with chi-square and ANOVA. Qualitative data were analyzed inductively.
Results: Medical providers ($N = 391$) were predominantly non-Hispanic white, male, and physicians who had not received training on social determinants of health. There were no significant differences between the experimental and control groups in comfort with or approach towards the patient; specific conditions of concern; or number of concerns. Across groups, providers commonly endorsed intentions for additional emotional-behavioral screening and concerns for ADHD and adjustment disorders. Providers responding to the experimental vignette indicated interest in the child's psychosocial context (e.g., behavior/attention at home), current experiences (e.g., with trauma or abuse), relationships (e.g., with grandparents), perspectives of other reporters (e.g., teachers), and additional clinical actions (e.g., in-depth medical or developmental history).
Conclusion: Medical providers' approach to children of incarcerated parents may be similar to that of any child with an absentee parent, contrasting existing literature on teachers. When signaled about parental incarceration, providers evidenced attention to children's holistic contexts and needs.

1. Introduction

The majority of adults who are incarcerated in the United States (U.S.) are parents of minor children [1]. Approximately five million children in the U.S. have had a parent in jail or prison at some point during childhood, representing about 1 in 14 children [2]. Further, parental incarceration is disproportionately experienced by Black children and those in families of lower socioeconomic status. As an adverse childhood experience (ACE), parental incarceration poses significant risk to multiple domains of child well-being [3–8]. Affected children are at greater risk for multiple physical (e.g., asthma, obesity), mental health (e.g., depression, conduct disorder), and developmental (e.g., speech and language problems) conditions [5,6,9,10]. Research has proposed that stigma, strain (e.g., financial difficulties, parental stress and poor mental health, caregiving struggles), and separation from caregivers may be the mechanisms through which parental incarceration leads to poor outcomes [11,12].

Prior research has documented that the stigma of parental incarceration shapes teachers' expectations for children with incarcerated parents. In a qualitative study of classroom teachers, Dallaire and colleagues found that teachers have witnessed, and in some cases come to expect, greater emotional and behavioral issues among children of incarcerated parents, thereby conferring academic disadvantage [13]. The authors subsequently designed an experimental study, which found

Abbreviations: ACE, Adverse childhood experience; SDOH, Social determinants of health.

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that classroom teachers rated fictional children with an incarcerated mother as less competent than their peers whose parents were not incarcerated [13]. Similarly, Wildeman and colleagues' experimental research found that teachers rated a fictional student whose father was incarcerated as having 10–40 % more behavior problems than unaffected peers [14].

In a separate body of research, there is also evidence that adults with criminal legal involvement experience discrimination by medical providers, which may contribute to health disparities [15,16]. However, it is not clear if medical providers - like teachers - are biased against children with incarcerated parents or if their perceptions influence the care they provide. Addressing this gap is critical in light of the widespread prevalence of criminal legal contact documented among primary care patients and their families [17,18]. Such information would also be timely, as health care systems expand efforts to screen families for social determinants of health (SDOH) and ACEs. Understanding how provider bias against correctional history comes into play could inform interventions (e.g., clinician training) to optimize the success of nascent screening programs.

Parental incarceration continues to pose a significant health and developmental threat for affected children. Considering the bias documented against such children in school settings, it is imperative to understand if a similar phenomenon in medical settings may be occurring. To fill this gap, we carried out a mixed-methods study to assess medical professionals' perceptions of children of incarcerated parents, and how the care they deliver to this group might differ from children with no experience of parental incarceration.

2. Materials and methods

Data were collected online using an experimental vignette design. Participants were recruited from publicly available licensing board lists in one Midwestern state. Email addresses were provided for 2410 physicians and 3989 nurses, including licensed practical nurses, registered nurses, and nurse practitioners (hereinafter collectively referred to as "providers"). Potential participants were sent an email inviting them to participate, with a link to the online survey. In order to participate, providers had to affirm that they practice in the U.S. and that they were currently caring for pediatric patients. A link to the study's consent form was provided. Potential participants were told only that the study was being conducted in order to learn about how providers care for their patients, to limit bias related to revealing the study's purpose. Participants could enter a drawing to win a $10 gift card to an online retailer; 10 % were randomly selected to win.

Participants ($N = 391$, $n = 238$ physicians and $n = 153$ nurses; overall response rate = 6.1 %) were presented with a hypothetical vignette about a 10 year-old male child presenting for care in the provider's office (Appendix A). The vignette, which was designed based on prior studies in the school setting [13,14], included basic social and health information about the fictional child (e.g. asthma, favorite subjects in school, favorite sports team). The vignette's face validity was reviewed by the author team, who has clinical experience providing pediatric medical care. Half of the participants were randomly assigned to review a vignette that stated that the child's father was not involved in his life because he was incarcerated (experimental group). The other half were told the child's father was not involved in the child's life, but were not provided with a specific reason for the absence (control group). Participants in both groups were asked the same questions about the care they would provide to the child and about themselves (e.g., personal demographics, training in SDOH).

After being presented the vignette, one item participants were asked was, "What is your next BEST step?" Answer options were "Offer reassurance," "Conduct emotional behavioral screening," "Refer to behavioral therapy," "Start a stimulant," "Schedule a follow up in six months," or "Other." Regardless of which option chosen, participants were then told that the child's mother completed a screening instrument (Pediatric Symptom Checklist) and the result suggested the presence of an emotional or behavioral problem (i.e., positive screen). Participants were asked which conditions they would be concerned about from a list of eleven common pediatric conditions (e.g. Autism, Attention Deficit/Hyperactivity Disorder, anxiety). Respondents could choose as many conditions as they wanted, or could indicate no concerns. Next, respondents were again asked the question, "What is your next BEST step?" followed by one open-ended qualitative item, "What additional information would you like to know about the child?" Finally, they were asked to rate their comfort in providing clinical care for the patient on a scale of 1 to 100.

2.1. Analysis of quantitative data

For the quantitative component we hypothesized that providers in the incarceration group would have significantly lower (1) comfort in providing care to the fictional child and (2) number of conditions of concern, compared to those in the control group. We also hypothesized that there would be significant differences in the composition of providers' proposed next steps and specific conditions of concern across groups. Quantitative items were analyzed with SPSS version 27. Respondents in the control and incarceration groups were compared on responses to the "next step" and "conditions" questions using chi-square analysis, and on the "comfort" question with ANOVA. Data met the statistical assumptions for both techniques. We did not examine study outcomes across demographic factors.

2.2. Analysis of qualitative data

To explore medical providers' perspectives on caring for children with incarcerated parents, we examined responses to the item on additional information providers desired among the experimental group. Responses were analyzed using a general inductive approach [19]. First, two investigators (MS, a trainee in clinical medicine, and LD, a family scientist) open-coded a random subsample of the responses (20 %) to develop an initial broad coding scheme which depicted a hierarchy of codes and sub-codes. From this coding scheme, we developed a codebook that listed each code and sub-code, a detailed definition, and exemplar responses (Appendix B).

To enhance our approach's trustworthiness, we assessed inter-rater reliability of these codes by calculating the simple proportion agreement across two coders [20]. Upon coding the initial sub-sample, the inter-rater reliability was 66.6 %. MS and LD then reviewed and discussed the coded data, revealing needed modifications to the codebook structure and definitions. This process continued iteratively over four cycles, until inter-rater reliability reached 78.8 %.

MS and LD then each coded half of remaining open-ended responses using the established codebook. A given response could have been categorized using multiple codes. Since this was a qualitative analysis of survey responses, we could not undertake additional interviews, but the dataset was rich enough to attain theoretical saturation using these open-ended responses. Throughout the process, an audit trail was maintained that chronologically documented emergent ideas, decisions, and potential biases (available upon request). In addition, we developed a concept map (Fig. 1) that visually depicts how codes clustered together and facilitated code reduction [21]. Finally, once coding was complete, we calculated basic frequencies of codes and sub-codes, which allowed us to understand the relative degree to which concepts were expressed [22].

The University of Minnesota Institutional Review Board reviewed and approved the study protocol and all study materials.

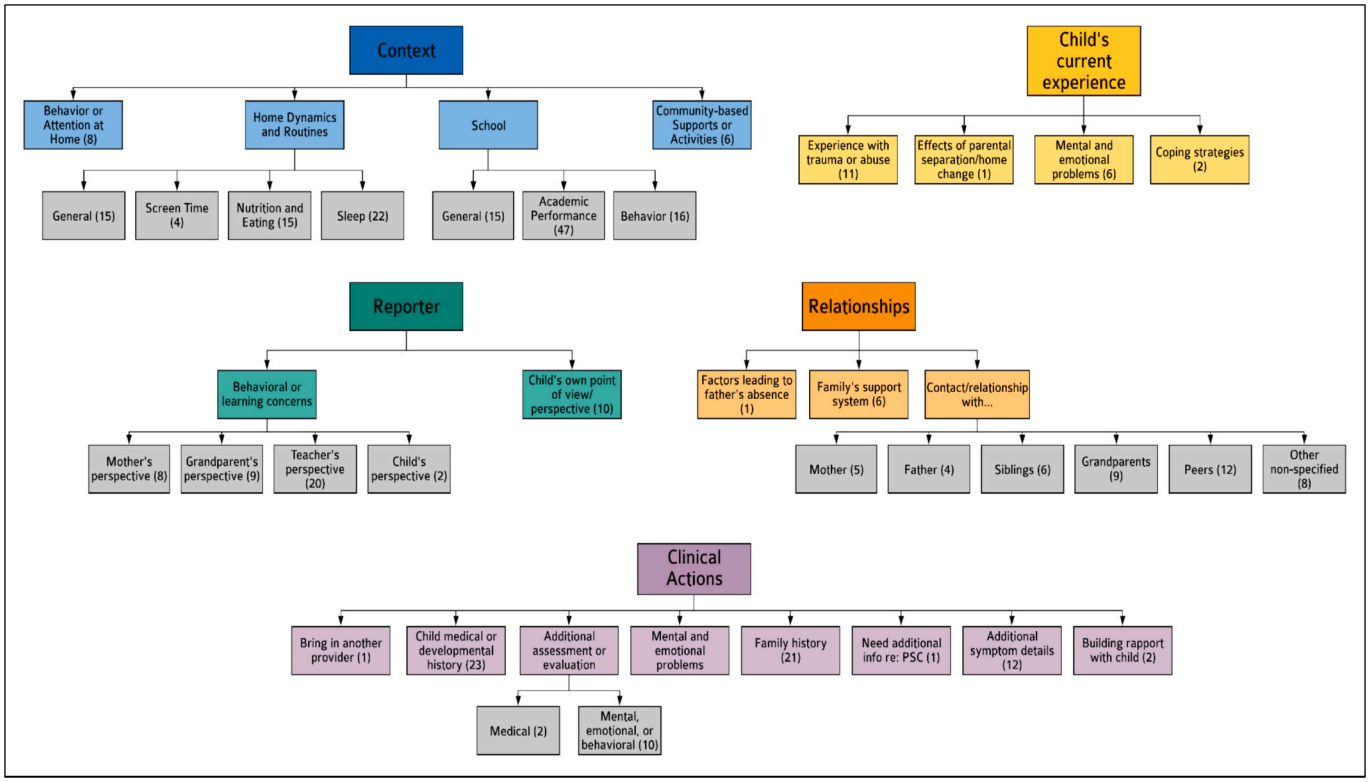

Fig. 1. Concept map depicting primary themes, codes, and code frequencies from open-ended responses on additional information sought in an experimental vignette study of medical providers' perspectives on children of incarcerated parents.
PSC: Pediatric Symptom Checklist.

3. Results

3.1. Quantitative

Participants were nearly half female (46 %), and the majority identified as non-Hispanic white (67 %) (Table 1). More physicians (61 %) were represented than nurses (39 %). Providers had practiced in their profession for an average of 23 years (SD: 11) with an average practice size of 27 providers (SD: 39). Provider panels had a range of patients who were publicly insured; most frequently providers reported that 21–40 % of their patient population were on public insurance. About one-third (32 %) of providers had received training in the SDOH. There were no significant between-group differences in any demographic characteristic.

The overall level of comfort among study participants in caring for the index child was 68.4 (SD: 24; Table 2). There were no significant between-group differences in providers' comfort, approach to treating the child (both before and after being presented with screening results), specific conditions of concern, or total number of concerns. The most common approach was to order additional emotional or behavioral screening (73 %), and no providers in either group recommended an inappropriate approach (i.e., stimulant prescription). Providers endorsed 3.5 specific emotional-behavioral concerns on average (SD: 2.1) after being presented with screening results; ADHD and adjustment disorder were each endorsed by more than half of providers as specific conditions of concern.

3.2. Qualitative

In 105 total open-ended responses, participants in the intervention condition raised several factors they would like to additionally know about the child. These factors emerged within five themes, described narratively below and displayed graphically in Fig. 1.

3.2.1. Context

Providers expressed interest across several dimensions of the child's life in the home, school, and community settings. Comments regarding home dynamics most frequently concerned "sleep pattern." Additional home-related factors of interest included nutrition/eating, general home routines, and screen time. Providers were also interested in learning more about the child's behavior and attention at home. Regarding the school setting, providers were most interested in hearing about academic performance (e.g., "getting work completed and turned in on time," "grades"). Other school-related concerns included behavior in the educational context, such as mentions of teachers' perceptions of the child and any disciplinary actions, as well as non-specific inquiries of the child's school experience or performance (e.g., "how is he doing in school?"). Finally, providers probed about relevant community-based supports or activities, spanning the child's participation in extracurricular activities, sports, and faith communities. This included supportive people (e.g., friends) the child has in those contexts.

3.2.2. Relationships

Providers inquired about the child's contact and relationship with others. Providers were more often interested in the child's interactions or time with peers, grandparents, and others (including mentors and non-specific mentions of general relationships). In addition, some providers mentioned interest in hearing about relationships with the child's siblings, mother, or father. One respondent asked "Does he communicate with his dad? What was dad's crime?". Respondents also shared interest in hearing about the family's support system (e.g., "what other supports around mom and family?").

3.2.3. Reporter

Providers were also interested in hearing more about the child from a variety of different reporters or raters. The most common perspective they were interested in was the teacher's, described as "school/teacher

Table 1
Demographic characteristics of participants by condition in an experimental vignette study of medical providers' perspectives on children of incarcerated parents.

		Overall	Control	Experimental
		N (%) or *M* (*SD*)	*N* (%) or *M* (*SD*)	*N* (%) or *M* (*SD*)
Sex	Male	107 (27.4)	60 (30.6)	47 (24.1)
	Female	181 (46.3)	89 (45.4)	92 (47.2)
	Missing	97 (24.9)	44 (22.4)	53 (27.2)
	Declined to report	6 (1.5)	3 (1.5)	3 (1.5)
Race/ethnicity	Asian non-Hispanic	6 (1.5)	2 (1.0)	4 (2.1)
	Black non-Hispanic	4 (1.0)	3 (1.5)	1 (0.5)
	Hispanic	4 (1.0)	4 (2.0)	0
	American Indian non-Hispanic	2 (0.5)	1 (0.5)	1 (0.5)
	White non-Hispanic	262 (67.0)	136 (69.4)	126 (64.6)
	Multiple races/ethnicities	2 (0.5)	1 (0.5)	1 (0.5)
	Missing	97 (24.8)	43 (21.9)	54 (27.7)
	Declined to report	14 (3.6)	6 (3.1)	8 (4.1)
Profession	Physician	238 (60.9)	123 (62.8)	115 (59.0)
	Nurse	153 (39.1)	73 (37.2)	80 (41.0)
Percent of patients on public insurance	0–20 %	59 (15.1)	30 (16.3)	29 (14.9)
	21–40 %	101 (25.8)	53 (27)	48 (24.6)
	41–60 %	72 (18.4)	34 (17.3)	38 (19.5)
	61–80 %	35 (9.0)	18 (9.2)	17 (8.7)
	81–100 %	22 (5.6)	14 (7.1)	8 (4.1)
	Missing	102 (26.1)	47 (23.9)	55 (28.3)
SDOH training	Yes	125 (32.0)	71 (36.2)	54 (27.7)
	No	113 (28.9)	48 (24.5)	65 (33.3)
	Not sure	58 (14.8)	34 (17.3)	24 (12.3)
	Missing	95 (24.3)	43 (21.9)	51 (26.2)
# of years practicing		22.5 (11.0)	22.0 (10.6)	23.1 (11.4)
Size of practice		26.5 (38.8)	29.4 (43.6)	23.4 (32.8)

SDOH: social determinants of health. All comparisons were $p > 0.05$.

Table 2
Outcomes by condition in an experimental vignette study of medical providers' perspectives on children of incarcerated parents.

		Overall	Control	Experimental
		N (%) or *M* (*SD*)	*N* (%) or *M* (*SD*)	*N* (%) or *M* (*SD*)
Comfort providing care to the patient (Scale: 1–100)		68.4 (23.5)	70.3 (22.9)	66.4 (24.0)
What is your next best step?	Offer reassurance	16 (4.1)	10 (5.1)	6 (3.1)
	Conduct emotional / behavioral screening	286 (73.1)	147 (75)	139 (73.1)
	Refer to behavioral therapy	16 (4.1)	4 (2.0)	12 (6.2)
	Start a stimulant	0	0	0
	Schedule a follow up in six months	16 (4.1)	5 (2.6)	11 (5.6)
	Other	15 (3.8)	7 (3.6)	8 (4.1)
Concern for specific conditions	ADHD	218 (55.8)	116 (59.2)	102 (52.3)
	ODD	63 (16.1)	32 (16.3)	31 (15.9)
	ASD	43 (11.0)	18 (9.2)	25 (12.8)
	Anxiety disorder	136 (38.4)	74 (37.8)	62 (31.8)
	Bipolar disorder	7 (1.8)	4 (2)	3 (1.5)
	PTSD	84 (21.5)	35 (17.9)	49 (25.1)
	Learning disorder	76 (19.4)	44 (22.4)	32 (16.4)
	Conduct disorder	66 (16.9)	35 (17.9)	31 (15.9)
	Adjustment disorder	222 (56.8)	115 (58.7)	107 (54.9)
	Other	30 (7.7)	16 (8.2)	14 (17.2)
	None	2 (0.5)	1 (0.5)	1 (0.5)
Total number of endorsed concerns		3.5 (2.1)	3.7 (2.0)	3.4 (2.2)

ADHA: Attention-Deficit/Hyperactivity Disorder. ODD: Oppositional Defiant Disorder. ASD: Autism Spectrum Disorder. PTSD: Post-Traumatic Stress Disorder. All comparisons were $p > 0.05$.

assessments of learning needs" by one respondent. Less often, providers mentioned interest in hearing the point of view of the child, (e.g., "what does [child's name] say about all of this?"), or hearing the grandparent or mothers' perspectives.

3.2.4. Child's current experience

Respondents also indicated other aspects of the child's life they wanted to better understand. Experiences with past or contemporaneous trauma or abuse were most commonly queried, including remarks about "adverse childhood experiences" and physical, emotional, or sexual abuse. Several providers also wanted to hear about the child's emotional or mental problems, spanning specific mental health conditions (e.g., anxiety), as well as broader statements (e.g., "risk behaviors," "general mood"). Rarely, providers indicated interest in hearing about the child's coping strategies.

3.2.5. Clinical actions

Finally, respondents described a range of clinical actions they would consider for the patient. The most frequently noted inquiries were additional information about the child's medical or developmental history (e.g., "how well controlled is his asthma?", "previous medical workup"), or family history as it pertained to behavioral health (e.g., "is there a family history of ADHD or other psychological diagnoses?"). Several providers also expressed a need to hear more details about the child's symptom chronicity, severity, and exacerbating or ameliorating factors. The need for additional mental, emotional, or behavioral assessment was also raised, inclusive of both specific instruments (e.g., "PHQ-9", "parent and teacher Vanderbilt questionnaire") as well as general recommendations (e.g., "behavioral testing", "[neuropsychological] testing for [learning disability]"). Only a few providers indicated wanting to pursue additional medical assessment or evaluation (e.g., "results of vision and hearing assessments") or further build rapport with the patient (e.g., asking about "his favorite things to eat / to do").

4. Discussion

In this study, we leveraged an online experiment to understand how medical providers perceive and approach caring for a hypothetical child with an incarcerated parent. Contrasting experimental findings from teachers in educational settings in similarly designed studies [13,14],

our quantitative data evidenced no differences in how medical providers reported they would care for a child with an incarcerated parent, compared to one with a generically absent parent. Qualitative data from the experimental group offer insight into how providers typically address the parental incarceration experience in practice. The findings imply that although children of incarcerated parents experience stigma in the school setting, they may not in the medical setting.

There are several potential explanations for the null quantitative findings. One possibility is that medical providers do not possess biases against this particular population, contrasting previous work demonstrating health care bias for adults with incarceration experience [15,16]. Relatedly, other studies have observed biases for children in health care settings pertaining to other characteristics, specifically race/ethnicity. For example, studies have shown differences in pediatric pain management approaches based on patient race/ethnicity [23] and providers' levels of implicit bias [24]. Another study documented comparable levels of anti-Black bias for Black children as for Black adults among emergency physicians [25]. Interpersonal and structural discrimination affect children's health through myriad pathways, including provoking chronic stress and reduced utilization of services [23]. Although it is challenging to directly compare the prior literature with our study given study design differences (e.g., patient scenarios involving acute pain vs. behavioral symptoms), it may be that providers hold more prominent biases against children based on race/ethnicity, rather than incarceration experience, especially as we did not identify the child's ethnic background in our vignette. In the U.S., there are large racial/ethnic disparities in the likelihood of involvement in the criminal legal system for both youth and adults. Systemic racism in both the health care and criminal legal systems mean that affected families face marginalization across multiple systems.

Another potential explanation is that providers do not perceive parental incarceration as influencing children's health; thereby explaining no differences in clinical actions across groups. Despite the threats parental incarceration poses for development and health [3–6,8], these distinctions were not reflected in group differences in clinical approach. It may be that providers do recognize parental incarceration as a health threat, but not one meaningful enough to yield significant effect when nested in a constellation of other risk factors or when compared to unspecified parental absence. As the stigmatizing nature of parental incarceration often prompts families to conceal or minimize discussion of the experience [11], providers' prior discussions with families about caregiver incarceration may have been largely similar to other forms of caregiver absence, such as divorce. Our vignette included a number of potential indicators of concern (e.g., aggression with peers, attention difficulties), so providers may have focused mainly on the child's presenting needs. This hypothesis is supported by the qualitative responses, which showed that providers rarely mentioned the father's incarceration. Rather, providers seemed to be focusing on issues such as potential trauma, food insecurity, and family social support. Providers also expressed interest in home dynamics and routines, as well as the child's interpersonal relationships. These responses suggest that providers are more inclined to concentrate on risk and protective factors that could be clinically intervenable. Although we were unable to further probe for intent, the factors mentioned point to an interest in addressing symptoms by ameliorating psychosocial stress or family instability (e.g., sleep) or meeting basic needs that correlate with incarceration (e.g., food insecurity).

Relatedly, a quarter of respondents reported they did not have training in SDOH; 15 % didn't know whether they had such training. This could suggest a gap in provider awareness of the impact of social determinants such as mass incarceration. Alternatively, previous studies have shown that providers can encounter practical challenges in identifying and acting upon ACEs linked to SDOH, even when their importance is understood [26]. Ultimately, the health care system's ability to meaningfully address parental incarceration may depend not only on awareness of social risks, but also other factors such as provider attitudes/beliefs or the availability of responsive community resources [26,27]. Increased investment in supporting providers' ability to recognize and act upon social determinants and ACEs (e.g., training in trauma-informed care, patient financial assistance programs) could advance health equity.

Many providers expressed the need for further exploration into the patient's medical, social, and family history, and the history of present illness. These responses generally imply an interest in diagnostic work-up consistent with the medical model of care. The time required for additional investigation into these areas emphasizes the need for revising existing standards of care to best serve this population; a model that may require additional time, care team members, or payment reform for comprehensive support [36]. In addition, although appropriate diagnosis is an important element of health care, few respondents probed about the skills or resources the child had to cope with the situation. Providers are well-positioned to promote protective factors (e.g., parent-child relationships), which could attenuate the developmental consequences of parental incarceration [28,29]. Health care organizations can directly provide or refer families to resources that may bolster resilience and coping despite contextual risks, such as educational materials or parenting support interventions [30].

Another area that commonly surfaced was provider recommendations for additional assessment for mental, behavioral, or emotional concerns; comparatively, additional evaluation for physical health conditions was less often mentioned. This finding may reflect a general view that parental incarceration predominantly impacts children through socio-emotional or behavioral mechanisms (e.g., stress coping), more so than pathophysiologic pathways. However, children's exposure to familial criminal legal involvement (e.g., witnessing parental arrest) may directly alter neurophysiologic processes underlying both physical and mental health conditions, such as the hypothalamic-pituitary-adrenal axis [31]. Providers conveyed familiarity with approaches for evaluation of behavioral health conditions, given their desire for collateral input which is often a component of screening instruments (e.g., Vanderbilt scale). Health care providers and systems that recognize the linkages between physiologic and psychological stress (e.g., primary care-behavioral health integration) will best be equipped to care for this population [36].

4.1. *Limitations and strengths*

This study has limitations. First, our recruitment pool consisted of medical providers in a single Midwestern state, and we were not able to include all relevant providers (e.g., physician assistants). Further, we did not investigate outcomes by various sociodemographic factors (e.g., % of patients on pubic insurance) in part due to small subsample sizes. Characterizing how findings might differ across provider types or other factors may be a useful target for future research and inform tailored interventions. Relatedly, the demographic characteristics of our sample, although similar to overall provider characteristics in the state [32], may not be generalizable. Specifically, it plausible that a more sociodemographically diverse sample of providers may have yielded different study results. Future studies should seek to include additional viewpoints, including non-White and non-physician providers.

Second, we utilized a fictitious, outpatient-based case to elicit self-reported provider perceptions, which is likely subject to several

biases, including social desirability and non-response bias. Although respondents in both study groups were unaware of the study's purpose, being cued about parental incarceration may have influenced the providers in the experimental group in unknown ways. One possibility is that social desirability may have affected this group's responses in an outsized fashion, skewing outcomes towards the null.

Observation of providers' actual clinical behaviors, analysis of electronic health record data among affected patients [33], and investigation into care received in other settings (e.g., emergency department) could yield collateral insights. Third, the qualitative portion of our study focused on understanding providers' perceptions of incarcerated parents in-depth, but we did not examine perspectives of providers in the control group.

Finally, our response rate of 6.1 % was low, likely limiting the external validity of findings. Due to the use of state licensing lists to obtain our sample, it is difficult to accurately interpret the true response rate as our online survey software cannot determine whether an e-mail was opened. Further, the list we used was not limited to providers who serve pediatric populations, so a likely substantial portion of the providers we contacted would not have been eligible to participate. Ultimately, prior research suggests low response rates are common in medical provider surveys, and that response bias resulting from low response rates may be minimal among pediatric medical providers [34].

Despite these concerns, to our knowledge this is the first study to explore how medical providers consider the needs of children with an incarcerated parent. Integrating findings from the experimental vignette study and qualitative analysis enhances confidence in the validity of our findings. The study contributes to the body of research on biases that children of incarcerated parents encounter, within a novel service setting. It also adds to previous work illustrating the biases and prejudices encountered by incarcerated adults when accessing health care services [15]. Additional research can shed light into other aspects of the health care experience (e.g., accessing specialist care, or other contributors to health outcomes (e.g., family financial hardship). Further, although models of care for individuals with incarceration experience (e.g., Transitions Clinic Network) have been developed and show promise [35], it is not yet clear whether such approaches can yield collateral benefits for their children and families.

5. Conclusion

Despite evidence on the health impacts of children with incarcerated parents, this experimental vignette study revealed that providers approach care for these children comparably to children with absent but non-incarcerated parents. Providers' open-ended responses point to general recognition of co-occurring risks associated with parental incarceration and the value of comprehensive history-taking and assessment, particularly regarding children's mental health and protective factors. Together, the mixed-method findings raise the possibility that pediatric medical providers possess appropriate competence to care for children affected by incarceration in the outpatient setting. Contributions from other experiences within and outside health care may be driving health disparities borne by this population and deserve further investigation. Nonetheless, millions of children continue to be affected by parental incarceration nationwide. System and policy interventions to address social determinants and ACEs, strengthen family resilience, and deliver integrated care may support affected families in the interim.

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CRediT authorship contribution statement

Laurel Davis: Writing – review & editing, Writing – original draft, Validation, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Marvin So:** Writing – original draft, Visualization, Validation, Formal analysis. **Andrew J. Barnes:** Writing – review & editing. **Rebecca J. Shlafer:** Writing – review & editing, Supervision, Resources, Project administration, Methodology, Funding acquisition, Data curation, Conceptualization.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

Rebecca Shlafer reports financial support was provided by University of Minnesota Twin Cities. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Patient case vignette in an experimental vignette study of medical providers' perspectives on children of incarcerated parents

> Michael is a patient in your practice. He is ten years old, and in the fourth grade. Today Michael is in your office for a well child visit, but he has been seen at your clinic twice before – about three months ago for strep throat and a year ago for a concern about his asthma.
>
> In the time you have spent with Michael, you have learned that he is a big fan of the Dallas Cowboys, his favorite subjects are gym and math; he likes carrots, but not broccoli. Michael reports that he has two best friends who he gets along with most of the time. Michael's mother reports that Michael recently had a disagreement with his best friend in which Michael pushed the child. You have noticed that Michael sometimes appears to be daydreaming or staring off into space. You sometimes have to ask Michael more than once before he complies with your instructions in the clinic.
>
> At today's visit, you ask Michael to tell you about who he lives with. Michael's mother tells you that Michael's father isn't in the picture [because he is incarcerated in another part of the state (*not included in control condition*)]. She tells you that Michael spends a lot of time at his grandparent's house while she works at her job as a supervisor at a small restaurant.
>
> Please answer the following questions based on what you know about Michael so far.

Appendix B. Finalized codebook used to inductively analyze open-ended responses on additional information sought in an experimental vignette study of medical providers' perspectives on children of incarcerated parents

Code	Working Definition
CONTEXT	
Home dynamics and routines: screen time	Statements describing interest in learning more about dynamics and routines within the home, specifically around screen time. Could include mentions of monitors, computers, video games, phones/cell phones, tablets, etc.
Home dynamics and routines: sleep	Statements describing interest in learning more about dynamics and routines within the home, specifically around sleep. This could include mentions of "how well he sleeps", "bed time", "sleeping patterns", "how many hours of sleep a night", etc.
Home dynamics and routines: nutrition and eating	Statements describing interest in learning more about dynamics and routines within the home, specifically around diet and food. Could include mentions regarding what the child eats, what their diet is like, their nutritional status, meal patterns, etc.
Home dynamics and routines: general	Statements describing interest in learning more about dynamics and routines within the home, though the respondent does not provide enough information to know what aspect they are interested in. This category includes generic mentions of "stressors" or "life changes", assuming these refer to changes that would impact home dynamics and routines.
School: Academic performance	Statements describing interest in learning more about the child's academic performance. This could include mentions of grades, GPA, tests, scores, homework, school work, or general mentions of "academic performance". Notably this code differs from the "School: General" code, which captures statements that do not explicitly call out an academic component of the child's experience in school.
School: Behavior	Statements describing interest in child's behavior at school. Could include mentions of "acting out", "behavior problems", "classroom behavior", or "attention". Mentions of disciplinary actions, such as detention or citations, could also be included here. The main criterion for being assigned this code is explicit reference to behavior while at school.
School: General	Statements describing interest in child's school experience, but that does not provide enough information to know exactly what the respondent is referring to. Could include general mentions of child's activities, participation, extracurriculars, "how he is doing", etc. but the statement must be related to schools, classrooms, etc.
Behavior or attention at home	Statements describing interest in child's behavior or attention while at home. Important distinction from the "School: Behavior" code. Note that this is about the context of behavior/attention, not about the reporter.
Community-based supports or activities	Statements about child's participation in activities outside of school, including extracurriculars, sports, faith life, etc. Note that this is not about the family or parents' support; this code specifically focuses on the child's participation in other community supports.
REPORTER	
Behavioral or learning concerns: Teacher perspective	Statements describing interest in learning about behavioral or learning concerns specifically from the point of view of the teacher. Notably this is distinct from statements about wanting to gather teacher ratings on certain assessment tools. Can include mentions of what the teacher "sees" or "is seeing".
Behavioral or learning concerns: Mother perspective	Statements describing interest in learning about behavioral or learning concerns specifically from the point of view of the mother. Notably this is distinct from statements about wanting to gather mother ratings on certain assessment tools. Can include mentions of what the mother "sees" or "is seeing".
Behavioral or learning concerns: Child perspective	Statements describing interest in learning about behavioral or learning concerns specifically from the point of view of the child themselves. Notably this is distinct from statements about wanting to gather child ratings on certain assessment tools.
Behavioral or learning concerns: Grandparent perspective	Statements describing interest in learning about behavioral or learning concerns specifically from the point of view of the grandparents. Can include mentions of what the grandparent(s) "sees" or "is seeing".
Child's own point of view/perspective	Statements describing interest in learning about child's point of view (e.g., about their family, condition, etc.)
CURRENT CHILD EXPERIENCE	
Child's experience with trauma or abuse	Statements describing interest in learning more about child's previous experience with trauma, abuse, or adverse childhood experiences.
Child's coping strategies	Statements describing interest in learning about what strategies the child uses to cope with or manage emotions or behaviors.
Effect of parental separation and home change	Statements describing interest in learning more about how the parents' separation and/or change in home has influenced the child's life, behavior, health, etc. This code supercedes the child's own point of view/perspective code if explicit mention is made about parental separation.
Child mental and emotional problems	Statements describing desire to better understand child's mental and emotional health. Could include general mentions or remarks of specific mental illnesses, conditions, etc., as well as statements regarding behavior problems (e.g., "risk behaviors", "conduct incidents").
RELATIONSHIPS	
Contact/relationship with father	Statement describing interest in learning about how the child interacts with his father, including aspects of his relationship or what the father perceives about the child.
Contact/relationship with grandparents	Statement describing interest in learning about how the child interacts with their grandparents, including aspects of their relationship or what the grandparents perceive about the child.
Contact/relationship with mother	Statement describing interest in learning about how the child interacts with his mother, including aspects of his relationship or what the mother perceives about the child. When a respondent makes generic statements about "parent-child relationships" or "parent-child interactions", code into this category, as the vignette presented the mother as the primary caregiver with whom the child could interact with.
Contact/relationship with siblings	Statement describing interest in learning about how the child interacts with his siblings, including aspects of his relationship or what the siblings perceives about the child. Notably this is distinct from peers (e.g., friends).
Contact/relationship with peers	Statement describing interest in learning about how the child interacts with his peers, including aspects of his relationship or what his peers perceive about the child. This could include mentions of "classmates", "friends", "kids his age", etc. Could also include references to bullying or conflict with other peers.
Contact/relationship: other	Statement describing interest in learning about how the child interacts with unspecified/vague others (e.g., "relationships") or with other individuals not captured in the other five contact/relationship codes (e.g., mentors).
Factors leading to father's absence	Statements describing interest in what events or factors led the father to be absent from the child's life. Note that this is about precipitating factors rather than effects or impacts.
Family's support system	Statement communicating interest in learning more about the family's support system. This could include mentions of family and friends, "social network", "social capital", etc. Could also refer to specific people (e.g., mother) or the family as a whole. Note that this is distinct from "Community-based supports or activities".

(*continued on next page*)

(*continued*)

Code	Working Definition
CLINICAL ACTIONS	
Child medical or developmental history	Statements communicating respondent's interest in learning about the child's medical or developmental history prior to the present visit. Could include mentions of whether the child was born prenatal or had other conditions, "Birth history", "medical history", management of asthma, previous conditions or procedures, medications used, services/therapies received, etc.
Family history	Statements describing interest in learning more about relevant family history of medical, mental, emotional, or behavioral health (including substance use) issues.
Additional assessment or evaluation: mental, emotional, or behavioral	Statements describing desire to conduct additional assessment or evaluation for mental, emotional, or behavioral problems in the child. This could include generic descriptions of assessment/evaluation or mentions of specific instruments (e.g., Vanderbilt). This could be completed by a teacher, parent, provider, or combination thereof.
Additional assessment or evaluation: medical	Statements describing desire to conduct additional assessment or evaluation for child's medical or physical health status. In order to be classified with this code the statement must make clear it is not referring to a psychological or behavioral assessment.
Additional symptom details	Statements describing interest in gathering further information about child symptoms (e.g., duration, settings/situations that exacerbate or ameliorate, impact on child's life).
Building rapport with child	Statements that do not seem to be about gathering medical, family, or social history, but are rather general inquiries that a provider might use to simply get to know the child (e.g., likes/dislikes, favorite show, etc.). At this point, this code also includes mentions of pets at the home.
Bring in another provider	Statement communicating that the respondent would want to consult with, invite, or discuss with another (medical or behavioral health) provider in order to figure out next steps.
Uncertainty about what to do	Statements that imply the respondent is not sure or uncertain about what next steps they would take. Note that this is a different code than if the respondent were to leave the field blank.
Need additional information re: PSC	Statement communicating that the respondent needs to better understand the instrument mentioned in the vignette, the Pediatric Symptom Checklist. This include additional information about psychometrics, adminsitration protocols, clinical utility, etc.
OTHER	
Deemed not pertinent to respondent	Statement communicating that the respondent does not feel that this specific clinical situation would be applicable to someone in their position, or may be out of scope of their discipline's practice responsibilities.
Too vague or uncodeable	For statements that are too unclear, generic, or general to fit into any other code in the codebook.

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