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ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/hhth20

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To cite this article: Brandon Q. Tran, Madeline M. Mendoza, Sunil K. Saini & Kate Sweeny (2022): Let the Kid Speak: Dynamics of Triadic Medical Interactions Involving Pediatric Patients, Health Communication, DOI: 10.1080/10410236.2022.2031450

To link to this article: https://doi.org/10.1080/10410236.2022.2031450

Published online: 26 Jan 2022.

HEALTH COMMUNICATION
https://doi.org/10.1080/10410236.2022.2031450

Let the Kid Speak: Dynamics of Triadic Medical Interactions Involving Pediatric Patients

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ABSTRACT

Communication in healthcare represents the complex interplay between multiple individual and contextual factors unfolding over the course of the medical encounter. Despite significant improvements in patient-centered care delivery, studies of health communication typically focus exclusively on clinical interactions between adult patients and their clinicians. Much less is known about non-dyadic interactions, such as pediatric triads involving a child patient and accompanying parent. Understanding the dynamics of triadic pediatric healthcare communication is the first step toward evaluating and ultimately optimizing these healthcare interactions. Thus, we undertook a mixed-method analysis of 28 audio-recorded triadic medical interactions between healthcare providers, pediatric asthma and allergy patients, and their parents to explore the prevalence of various features of these interactions. Our findings point to mechanisms through which healthcare providers and parents may facilitate or hinder children's involvement in their own asthma and allergy care, including interruptions, unclarified technical medical language, the flow of information exchange, and the formation of dyadic conversational partnerships (coalitions) between providers and parents. Our analyses further reveal that children's participation during their medical visits was minimal (13% of the interaction). Providers in our sample elicited input directly from pediatric patients more often than from parents, though the difference was small. Taken together, these findings provide a foundation on which to develop training and communication interventions to ensure that children have a voice in their medical care.

In 2019, more than 5.1 million children struggled with asthma, affecting 7% of all U.S. children, consistent with the prevalence of allergies and hay fever recorded in 2018 (Center for Disease Control and Prevention, 2021a, 2021b). Asthma and allergies typically emerge during childhood and manifest as long-term conditions, with most treatments focused on symptom management and prevention rather than curing disease (Center for Disease Control and Prevention, 2021b). Treatment for asthma and allergies often begins under pediatric care, with effective communication between child patients and providers serving as the foundation for long-term care continuity, patient self-efficacy, and disease management (Butz et al., 2007; DiMatteo, 2004; Sleath et al., 2011). The present study utilizes an exploratory approach to document communication dynamics within a small but rich dataset of pediatric triads receiving asthma and allergy care. Our goal was to better understand unique dynamics that may arise in these interactions, thus distinguishing them from the typically-studied adult dyads. We document specific behaviors that may interfere with triadic healthcare communication in pediatric settings, thus updating the limited and outdated evidence base addressing pediatric healthcare interactions. We focused on asthma and allergies due to their relative high prevalence in children and the importance of children's engagement in their care, given that medications and treatments are often self-administered away from home (e.g., at school).

Theory and research addressing the complex pathways through which effective health communication promotes desirable care outcomes tends to focus on the normative context of the adult patient-provider dyad (e.g., Street et al., 2009; Tran, 2020). Whether the relatively well-understood dynamics in adult patient-provider dyads extend to medical triads is unknown, despite the fact that medical triads are relatively common – including pediatric patients accompanied by a parent, geriatric patients with a caretaker, or adult patients with a language translator (Greene & Adelman, 2013; Laidsaar-Powell et al., 2013; Shah et al., 2020). Contrary to communication patterns within the patient-provider dyad, interactions involving patient-provider-ally triads introduces a multitude of unique and novel factors to consider, such as the nature of information exchange between members of the triad and the potential for dyadic coalitions to form, in which a conversation between two members of the triad emerges and excludes the third member (Greene & Adelman, 2013). These interactive nuances are further complicated in triadic care involving pediatric patients, which often requires different styles of communication to address varying beliefs about the roles that children, parents, and healthcare providers should occupy during the medical encounter and how these roles may differ across pediatric age groups (see, Shah et al., 2020 for a review). Understanding the unique dynamics of triadic healthcare communication, and specifically pediatric triadic

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communication, is a necessary first step toward optimizing communication in these contexts, with the ultimate goal of optimizing patient outcomes.

Communication efficacy in healthcare and medicine

Communication during healthcare interactions entails the interactive process through which patients and providers strive to establish rapport, exchange information about the patients' unique health context and personal preferences for care, and then use these preferences to navigate available treatment options together and reach a shared decision for care moving forward (Callon et al., 2018; Maskrey, 2019; Tran, 2020). Extensive evidence has emphasized the centrality of patient-provider communication for the effective delivery of healthcare and bolstering desirable care outcomes, including patient comprehension, involvement in care, trust, satisfaction, and treatment adherence (e.g., Miller & DiMatteo, 2020; Rodriguez & Pellegrini, 2019).

Despite substantial evidence touting strategies for and benefits of communicating effectively, most investigations of healthcare interactions and patient-centered care approaches have considered only dynamics of the patient-provider dyad, or two-party interaction between healthcare provider and adult patient (e.g., Rathert et al., 2012; Van Liew et al., 2018; Willis & O'Donohue, 2018). A comparatively small amount of empirical work to date has considered how these dynamics unfold within non-dyadic care interactions, such as among medical triads. In contrast to the relatively straightforward nature of communication between patient-provider dyads, medical triads are relatively sophisticated as participants encounter complex power dynamics, three-way exchanges of information, and the potential for coalitions, or distinct two-member dyads, that result in the exclusion of the third member (Gabe et al., 2004; Greene & Adelman, 2013). For the purpose of this investigation, we focus specifically on health communication involving pediatric triads in asthma and allergy care.

Interactive features within pediatric triads

Investigations of pediatric medical interactions consistently reveal that children's participation in their healthcare visits is minimal. For example, a review of 12 studies exploring children's roles within triadic consultations concluded that children's contributions accounted for only 2–12% of the entire healthcare interaction, compared to upwards of 40% and 60% by parents and healthcare providers, respectively (Tates & Meeuwesen, 2001). Importantly, a study in the mid-1990s compared video recordings of pediatric visits from 15 years earlier up to current day (at that time) found that children's participation in those visits had increased significantly (Meeuwesen & Kaptein, 1996), presumably with the advent of more patient-focused care. As nearly all studies of pediatric healthcare visits are now at least 15 years old (ranging from 1971–2013, most published before the year 2000), the time has come for a new assessment.

Parents (or guardians, referred to hereafter as parents for simplicity) may restrict their child's participation by speaking on behalf of the child or excluding the child from participating in treatment planning, and healthcare providers may also discourage the child's involvement by directing questions exclusively to the parent (e.g., Carpenter et al., 2013; Van Dulmen, 1998) or failing to use age-appropriate language (e.g., Tates et al., 2002; Worobey et al., 1987). Within pediatric triads, the tendency for parents and providers to minimize children's participation during medical interactions can arise from the perception that children lack the competence to meaningfully contribute to discussions of medical care (Cahill & Papageorgiou, 2007; Coyne & Harder, 2011). Parents and healthcare providers often serve as "gatekeepers," restricting the pediatric patient's contributions to non-substantive inquiries (e.g., small-talk about school, jokes) rather than discussing instrumental topics that pertain to the child's health condition or treatment plan (e.g., Coyne, 2008; Coyne & Gallagher, 2011; Tates & Meeuwesen, 2001). To be clear, parents and providers might mean well while nonetheless hampering children's contributions to their care. Parents may attempt to act in (what they perceive to be) their child's "best interests," despite disrupting opportunities for their child to cultivate their self-efficacy and long-term disease management (Alexander et al., 2016; Coyne, 2008; Coyne & Harder, 2011).

Parents' and providers' concern that allowing the pediatric patient to contribute will detract from other goals of the medical visit are likely unfounded. One study found that asthma consultations in which pediatric patients asked questions were only 4 minutes longer than visits in which the child did not ask questions (Sleath et al., 2011). Importantly, children's involvement during medical interactions from an early age predicts greater self-efficacy, motivation to manage their illness, long-term continuity of care, more realistic and sustainable treatment plans, and better health outcomes (Dixon-Woods et al., 1999; Gabe et al., 2004; Miller, 2018). In fact, children as young as two years old may be capable of participating in health communication, providing more relevant health information than their parents by age seven, self-managing their own medication by age eight, and demonstrating competence similar to adult patients by age fourteen (Coyne & Gallagher, 2011; Coyne & Harder, 2011; Levetown & Committee on Bioethics, 2008). With asthma and allergies in particular, pediatric patients are often capable of providing important insights into how their illness affects their daily life (e.g., how asthma restricts their ability to perform daily activities at school), whereas parental reports are often limited to observations within the household (Callery & Milnes, 2012; Callery et al., 2003).

Taken together, existing evidence on patient-provider communication during medical consultations, whether dyadic or triadic, reveals a sophisticated, dynamic, and multifaceted process. Although the studies outlined above present clear evidence for a lack of pediatric patients' involvement during triadic medical interactions and some hints at the reasons for this lack of participation, little research has identified the specific behaviors that might discourage pediatric patients' involvement during healthcare interactions. Although some of the studies cited above took a similar approach to ours (i.e., quantifying communication behavior like number and nature of interruptions, use of medical jargon, direction of

communication, etc.), such approaches are quite rare, particularly in the past 20 years, and nearly nonexistent in the context of allergy and asthma care.

Our study utilizes an in-depth, mixed-method approach to explore distinct features of medical interactions involving pediatric patients, parents, and healthcare providers in asthma and allergy care – a healthcare context that is particularly common among pediatric patients and one in which pediatric patients must self-manage their illness at a fairly early age. We targeted a set of behaviors that emerge from the patient-provider communication literature broadly, and the literature on pediatric communication specifically, as potential causes of nonparticipation by pediatric patients: use of medical jargon, interruptions, requests for input, unsolicited feedback, and the formation of dyadic coalitions between members of the triad. We took an exploratory approach to our investigation, seeking to document patterns of communication within a small but rich dataset of triadic pediatric medical visits. Given the limited empirical evidence to address our other documented communication behaviors, our only *a priori* hypothesis was that pediatric patients' participation during the medical encounter would be minimal, relative to the involvement of parents and healthcare providers.

Method

Participants

A sample of two healthcare providers (one male, one female) and 28 of their pediatric outpatients (each accompanied by a parent) who were scheduled for a consultation at a pediatric asthma and allergy specialist center in Southern California between 2012 and 2013 were included in the present analyses. All study materials and procedures were approved by the first author's university Institutional Review Board prior to data collection. Healthcare providers and parents provided written consent to participate in the study and to have their consultations audio-recorded; pediatric patients provided verbal assent. Pediatric patients were mostly male (75%) and ethnically diverse (see, Table 1 for demographics), ranging in age from four to eighteen (M_{age} = 11, SD_{age} = 4.10), and had been diagnosed with asthma and/or allergies. Pediatric patients were accompanied by only their mother in 19 consultations (68%), only their father in 5 consultations (18%), and both parents in 4 consultations (14%). The male provider (a physician) was present in 16 interactions (57%), and the female provider (a nurse practitioner) was present in 12 interactions (43%). Participation was entirely voluntary, although pediatric participants were invited to select an age-appropriate toy following the visit.

Table 1. Sample characteristics.

Patient characteristics	(*n* = 28)
% female	25%
Age	
Mean (*SD*)	11 (4.10)
Range	4 to 18
Mean (*SD*) male patients	11.4 (3.8)
Mean (*SD*) female patients	12.3 (4.9)
Ethnicity	
Hispanic/Latinx	28%
Race	
White/Caucasian	39%
Black/African-American	11%
Other/multiple	22%
Diagnoses	
Allergies & asthma	43%
Allergies only	36%
Asthma only	14%
Not specified	7%

Procedure

Pediatric patient-parent dyads were introduced to the study by a researcher in the waiting room, who conducted consent procedures and verbally guided them through a brief questionnaire assessing the pediatric patient's demographic information prior to the patient's consultation with the specialist. Pediatric patients also completed an assessment of their comprehension of bodily functions that is not relevant to the current investigation. If the patient's parent and provider consented and the patient assented, the researcher then set up a recording device within the examination room that was programmed to record all ambient sound. Following the consultation, the researcher returned to the examination room to collect the recorder.

Analyses

Audio-recordings of triadic pediatric consultations were transcribed and analyzed by a set of three trained researchers. Once transcribed, each file was separated by speaker (i.e., provider, pediatric patient, or parent). Full transcripts were independently analyzed by three trained coders to identify the context and prevalence of features of the triadic interaction and provide subjective ratings of the consultation as a whole. Coders were trained to extract individual phrases corresponding to objective features of the interaction pertinent to our study (i.e., technical language, interruptions, requests for input, unsolicited feedback, dyadic coalitions).

Features of the interaction

First, coders extracted instances of each of the five interaction features and, where relevant, noted the "direction" of the behavior (e.g., who interrupted whom). Regarding *technical language* used by providers (e.g., prednisone, Veramyst, high hygrometer mediating gauge), coders noted to whom the language was directed (i.e., parent, patient, or both) and whether providers offered clarification of technical terms without being prompted or if they were prompted by the parent or patient to clarify their language (Table 2). For example, the healthcare provider (HCP) in the following excerpt introduces the term

Table 2. Frequency and directionality of providers' use of medical Jargon.

	Jargon used (*n*)	Jargon clarified (*n*)	% of Total Jargon Clarified
Provider to parent	28	8	29%
Provider to pediatric patient	9	4	44%
Provider to parent and pediatric patient	34	19	56%
Total	71	27	43%

"bronchodilator" when discussing various treatment options with the parent (P), proactively clarifying that it is a medication that helps relax the muscles of the airway:

*"**P:** The Advair seems to work.*

***HCP**: The Advair has the long-acting bronchodilator in it, okay? So, like the Ventolin, it's a bronchodilator, which relaxes those smooth muscles that wrap around the bronchioles . . . to prevent the broncho-spasming and, hopefully, that will help prevent some of the asthma."*

Second, coders identified *interruptions* that occurred during the consultation, which were operationalized as any type of disruption to a speaker's complete statement (excluding back-channels or verbal cues of attentiveness, e.g., "mhmm"; Menz & Al-Roubaie, 2008), including the directionality of the interruption (i.e., who is interrupting whom) and whether the interruption successfully redirected the flow of conversation (Table 3). For example, in the following excerpt a healthcare provider first uses a backchannel statement ("Right") then successfully interrupts the parent speaking and assuming control of the interaction:

*"**P:** It's all so compacted and, you know, just . . .*

***HCP:** Right.*

***P:** . . . can take a long time, so I know the next 4 months are going to go by fast. So I- [interruption]*

***HCP:** Stuff to do and everything, exactly, yeah. So okay, so yeah. So, whose idea was it to go there?*

***P:** Well, it's kind of like a family decision."*

Finally, coders identified the prevalence and directionality of information exchange, operationalized as *requests for input* (i.e., direct inquiries, such as the provider asking for the patient's or parent's opinion on a specific treatment; Table 4) and instances of *unsolicited feedback*, or how often triad members spoke out of turn or provided some type of statement without being explicitly prompted to do so (e.g., parents answering for their child or volunteering an opinion about treatment; see, Table 5). For example, the following excerpt captures a parent requesting input from the healthcare provider about medication-supplement interactions

Table 3. Frequency and directionality of interruptions between triad members.

	Interruptions (*n*)	Proportion of total interruptions (%)	Successful interruptions (%)
Provider interrupting parent	88	40%	74%
Provider interrupting pediatric patient	13	6%	70%
Parent interrupting provider	84	38%	75%
Parent interrupting pediatric patient	12	6%	91%
Pediatric patient interrupting provider	9	4%	91%
Pediatric patient interrupting parent	13	6%	70%
Total	219		*M* = 78.5% successful

Table 4. Frequency and directionality of requests for input between triad members.

	Requests for input (*n*)	% of Total requests
Provider from parent	35	27%
Provider from pediatric patient	38	30%
Parent from provider	46	36%
Parent from pediatric patient	3	2%
Pediatric patient from provider	7	5%
Pediatric patient from parent	0	0%
Total	129	

Table 5. Frequency and directionality of unsolicited feedback between triad members.

	Unsolicited feedback (*n*)	% of total requests
Provider to parent	7	26%
Provider to pediatric patient	2	7%
Parent to provider	12	45%
Parent to pediatric patient	0	0%
Pediatric patient to provider	6	22%
Pediatric patient to parent	0	0%
Total	27	

*"**P:** That was one of the supplements that they said could be at risk on that medication. So, I was wondering does it make sense to check her magnesium levels first before giving it to her?*

***HCP:** Is she supplementing magnesium regularly?*

***P:** That's her regular supplement, but remember we took her off her supplement while we'd go through the food testing."*

Coders also identified instances of *unsolicited feedback*. The following excerpt reveals a parent successfully interrupting the healthcare provider (coded as an interruption) and raising concerns without being explicitly prompted by the provider to do so (coded as unsolicited feedback):

*"**HCP:** You figured if something really, really big was discovered-[interruption]*

***P:** Yeah, you would call us.*

***HCP:** Exactly, which we definitely would have done. Um, yeah, everything looks good.*

***P:** So, with her allergies, since her nose, every time I take her to the pediatrician for anything, you know, they do a whole check. Her nose is always swollen. Even when she's been on Nasonex, so should she just be on it all the time, regardless? Or, I mean, how do I monitor when to do it? Because she doesn't show any allergy symptoms."*

Subjective evaluations

Coders also provided subjective ratings of each interaction (Table 6). These subjective ratings were exploratory (aside from the percentage of the interaction attributable to each speaker), but we include discussion of them in the interest of thoroughness.

First, coders estimated the percentage of each interaction attributable to each speaker ("List the proportion of the conversation attributable to the [provider/parental guardian/pediatric patient]"; *0–100%*; for providers, *ICC* = .89; for parents, *ICC* = .87; for pediatric patients, *ICC* = .84). Second, coders completed a battery of ratings about each speaker's unique contributions

Table 6. Subjective evaluations of interaction between triad members.

	Mean (*SD*)
Proportion (%) of interaction	
Provider	53.6 (11.4)
Parent/guardian	33.2 (11.6)
Pediatric patient	13.2 (10.7)
Subjective Ratings of Pediatric Patients	
"Child shared their experiences regarding illness"	2.82 (1.50)
"Child was capable of providing information to the provider"	4.83 (2.08)
"Child approached visit with their own agenda"	3.73 (1.93)
"Child was capable of administering own medication"	3.98 (2.06)
Subjective Ratings of Providers	
"Encouraged the child to actively participate"	3.23 (0.94)
"Actively considered the child's contributions"	5.22 (1.38)*
"Was considerate and addressed the child's concerns"	5.22 (1.32)*
"Communication efforts were focused on the parent"	5.12 (1.64)*
Subjective Ratings of Parents	
"Confident the child could administer their own treatment"	4.21 (1.93)*

*items assessed on a 7-point scale.

and the consultation as a whole using a 5-point Likert- scale (1 = *never*, 5 = *always*). Only ratings that demonstrated high reliability across raters, as measured using intraclass correlations (*ICC* > .70, $p < .001$), are presented here. Regarding the pediatric patient, ratings included the extent to which the patient shared their own experiences ("The child shared their own experiences regarding their illness"; *ICC* = .84), seemed competent in providing medical information ("The child was competent and capable of providing relevant information to the provider"; *ICC* = .87), expressed personal goals for the visit ("The child approached the visit with their own agenda or interests"; *ICC* = .83), and seemed capable of administering their own medication ("The child was competent in administering their own medication and/or overseeing their own treatment"; *ICC* = .77).

Regarding the provider, coders indicated the extent to which they actively encouraged the patient to participate in the interaction ("The physician encouraged the child to actively participate in the conversation and decision-making process"; *ICC* = .82). Other ratings were made on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*) and included the extent to which the provider seemed to make an effort to understand the patient's experience ("The physician actively considered the child's contributions and subjective experience"; *ICC* = .76), addressed the patient's concerns ("The physician was considerate and addressed the child's concerns"; *ICC* = .83), and focused on the parent's concerns ("The physician's communication efforts were focused on the parent"; *ICC* = .83). Regarding the parent, only one rating met the reliability criterion described above, which assessed the extent to which the parent expressed confidence in the child's ability to self-administer treatment ("The parent was confident that the child could administer and oversee their own treatment"; *ICC* = .81).

Results

Features of interactions within pediatric triads

Technical language (Jargon)

Coders identified 71 instances of technical language (i.e., jargon) used by providers across the 28 interactions, with an average of about three jargon terms per interaction ($M = 2.54$, $SD = 2.85$). Providers varied in their use of jargon across interactions, with zero jargon terms used in eight interactions (29%) and five or more jargon terms in five interactions (18%), with a maximum of ten jargon terms used in a single interaction. When speaking to parents directly, providers most frequently used unclarified jargon, such that fewer than 30% of jargon terms were explicitly clarified. When speaking to pediatric patients directly, providers also frequently used unclarified jargon, such that fewer than half of the terms were followed up with clarification. However, when interacting with the parent and pediatric patient together, providers clarified just over half of their technical terms (56%). On average, providers clarified fewer than half of all medical terms used (39%). Parents explicitly sought clarification from the provider on five occasions (for nasal polyp, nebulizer, Veramyst, high hygrometer mediating gauge, and prednisone), and a pediatric patient sought clarification once (for Dymista). All explicit requests for clarification were fulfilled by the healthcare provider.

Interruptions

A total of 219 interruptions were recorded across the interactions, with an average of about eight interruptions per interaction ($M = 7.96$, $SD = 6.34$). The frequency of interruptions ranged widely from zero up to 21 interruptions recorded in two consultations. Providers most frequently interrupted parents, accounting for 40% of all interruptions, followed by parents interrupting the provider (38%), providers interrupting the pediatric patient (6%), and parents interrupting the pediatric patient (6%). Efforts to interrupt another member of the triad were often successful, with nearly 80% of attempts resulting in a redirection of the conversation. Providers seemed to be particularly receptive to pediatric patients' attempts to interrupt them, such that patients were successful in over 90% of their attempts to interrupt the provider.

Information exchange

A total of 156 instances of information exchange were recorded, 129 of which entailed requests for input ($M = 4.60$ per interaction, $SD = 3.96$), and 27 of which entailed instances of unsolicited feedback ($M = .96$ per interaction, $SD = 1.23$). Requests for input were most frequently made by parents seeking input from the provider, accounting for 36% of all requests, followed by providers seeking input from pediatric patients (30%) and providers requesting input from parents (27%). Instances of providing unsolicited feedback most frequently occurred when parents provided feedback to the provider (45% of all instances of unsolicited feedback), followed by providers providing feedback to parents (26%) and pediatric patients providing feedback to the provider (22%).

Subjective evaluations of interactions between pediatric triads

Across consultations, physicians' contributions accounted for the majority of the interactions (54%), followed by input from parents (33%), and relatively minimal input from pediatric patients (13%; see, Table 6), suggesting the emergence of dyadic coalitions between providers and parents. Notably, coders' evaluations of pediatric patients (see, Table 6) indicate that children in our sample were generally perceived to be competent and capable of providing medically relevant information

to the clinician, self-administering medication, and even approaching the consultation with particular goals in mind. Coders' evaluations of healthcare providers indicate minimal effort to directly involve the pediatric patients, instead opting to focus on the parent. Finally, ratings of the parents indicate that they seem to perceive their children as incapable or inadequately prepared to administer their own medications, despite ratings of the pediatric patients suggesting otherwise.

Discussion

The present study sought to reveal the dynamics of medical interactions involving pediatric triads, particularly within the context of asthma and allergy care. Our findings were consistent with prior evidence indicating minimal participation by pediatric patients during medical interactions, but we also uncovered novel insights into potential mechanisms through which healthcare providers and parents may encourage (or discourage) children's involvement.

With regard to technical medical language, our analysis revealed that healthcare providers in our sample clarified fewer than half of the jargon terms they used, consistent with prior studies of healthcare communication between adult patient-provider dyads (e.g., Castro et al., 2007; Farrell et al., 2008; Shitu et al., 2018). We would note that although a few studies have assessed the use of technical and non-technical language in pediatric healthcare visits (Korsch et al., 1968; Worobey et al., 1987), our analysis of whether healthcare providers clarified their technical language is novel. One interpretation of our finding is that providers in our sample may have treated the interaction as primarily dyadic, as evidenced by the fact that parent-provider interactions accounted for nearly 90% of consultation time in this study. Of course, adults vary widely in their degree of health literacy, so a failure to clarify complex medical terminology may affect parents' comprehension during these interactions, not just pediatric patients' comprehension (Paasche-Orlow & Wolf, 2007; Willis & O'Donohue, 2018).

Perhaps most interesting, our results indicated that nearly 80% of all recorded interruptions were between healthcare providers and parents, providing further evidence for the emergence of dyadic coalitions between parents and providers such that the child is relegated to the role of passive observer. The fact that parents and providers interrupted each other at similar rates also points to an interactive "tug-of-war" unfolding within the parent-provider coalition. Healthcare providers may use interruptions as a tool to divert overly talkative patients, given time constraints (Légaré et al., 2008; Menz & Al-Roubaie, 2008; Schildmeijer et al., 2018). Likewise, patients often worry about being a burden on their healthcare provider's time during dyadic interactions (Joseph-Williams et al., 2014; Paasche-Orlow & Wolf, 2007; Pollard et al., 2015). Thus, parents in our sample may have interrupted the provider in an effort to advance the conversation and minimize the time burden of their child's appointment (Irish & Hall, 1995). However, these good intentions could backfire, as interruptions have been found to lengthen medical interactions (Menz & Al-Roubaie, 2008).

Finally, our analysis of information exchange during triadic interactions suggests that parents most frequently sought input from the healthcare provider, followed by the provider seeking information from the pediatric patient. Although the difference was small, the fact that providers in our sample sought input from the child patient more often than from the parent may highlight growing awareness by healthcare providers of children's capacity to participate in their own healthcare interactions (e.g., Cahill & Papageorgiou, 2007; Levetown & Committee on Bioethics, 2008; Nova et al., 2005). Parents and providers rarely provided explicit, unsolicited feedback in our sample.

Taken together, our findings highlight features of healthcare communication that would be missed by focusing exclusively on patient-provider dyads. Regarding pediatric patients, our results update and build upon prior evidence that parents and healthcare providers may limit pediatric patients' opportunities to participate through the use of technical language, interruptions, formation of dyadic coalitions, and parents opting to speak on behalf of their child. That is, the tendency for children to minimally participate during healthcare interactions may be due, at least in part, to parents' and healthcare providers' explicit behaviors within the interaction, guided by perceptions of the child and attitudes toward pediatric patients more generally (e.g., Butz et al., 2007; Coyne & Harder, 2011). These efforts may undermine the quality of pediatric patients' care, as children are often the best reporter of the range of their health experiences (e.g., symptoms that arise at home vs. at school, adherence to treatment throughout their day).

Limitations and future directions

This study was guided by the empirically-derived premise that healthcare interactions involving adult patient-provider dyads are qualitatively different from consultations involving non-dyadic patient units, including pediatric triads. Our use of a multimethod approach using a small but rich dataset of real-world medical interactions offers a rare peek into the exam room during pediatric asthma and allergy appointments.

Despite this strength, the results were derived from a small sample of pediatric patients and parents and only two healthcare providers from a single medical office in Southern California that specializes in the treatment of allergies and asthma in children. We do not intend to suggest that the precise frequencies and ratings reported here are generalizable beyond our sample. Instead, our findings provide a sense of the dynamics in triadic pediatric medical interactions – for example, that dyadic coalitions tend to form between providers and parents and that providers frequently fail to clarify jargon even with pediatric patients. Although studies involving patient-provider interactions are often difficult to conduct, the dearth of evidence regarding triadic health communication reveal an avenue of research ripe for further investigation. For example, future studies of healthcare interactions involving pediatric triads should consider the role of children's age as a moderator of behavior during the medical encounter (e.g., Butz et al., 2007; Greene & Adelman, 2013). Given our relatively small sample size, it was not feasible to control for age in the current study or to examine age as a moderator in inferential analyses. Future endeavors should also

consider whether similar patterns of behavior replicate across different demographic groups, medical contexts, or diagnoses requiring acute versus long-term care. In addition, given the small sample size and wide variability in the composition of pediatric triads across visits,[1] we were unable to account for the role of the gender of patients, providers, and parents. Finally, experimental or intervention studies can elucidate the causal pathways through which parents' and providers' behaviors bolster or stymie children's participation during healthcare visits.

Conclusion

The current study offers a rare objective analysis of the dynamics of healthcare interactions among pediatric patients, their parents, and healthcare providers. Although it may be unsurprising that parents and providers are the predominant contributors during pediatric visits, these exploratory results suggest that parents and providers may engage in explicit behaviors, such as interruptions or unsolicited feedback, that can limit opportunities for children to participate in their own care. Our findings provide a first step toward the development of interventions to encourage children's productive participation in their own healthcare.

Note

1. The male physician saw 16 patients total (13 male, 3 female patients). Of these 16 visits, both parents were present in 3 recorded interactions, followed by mother only in 12 interactions and father only in 1 interaction. The female nurse practitioner saw 12 patients total (8 male, 4 female patients). Of these 12 visits, both parents were present in one recorded interaction, followed by mother only in 7 interactions and father only in 4 interactions.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The author(s) reported there is no funding associated with the work featured in this article.

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References

Alexander, D. S., Geryk, L., Arrindell, C., DeWalt, D. A., Weaver, M. A., Sleath, B., & Carpenter, D. M. (2016). Are children with asthma overconfident that they are using their inhalers correctly? *Journal of Asthma*, *53*(1), 107–112. https://doi.org/10.3109/02770903.2015.1057848

Butz, A. M., Walker, J. M., Pulsifer, M., & Winkelstein, M. (2007). Shared decision making in school age children with asthma. *Pediatric Nursing*, *33* (2), 111–116. PMCID: PMC2269724. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2269724/

Cahill, P., & Papageorgiou, A. (2007). Triadic communication in the primary care paediatric consultation: A review of the literature. *British Journal of General Practice*, *57* (544), 904–911. PMCID: PMC2169315. https://doi.org/10.3399/096016407782317892

Callery, P., & Milnes, L. (2012). Communication between nurses, children and their parents in asthma review consultations. *Journal of Clinical Nursing*, *21*(11–12), 1641–1650. https://dx.doi.org/10.1111/j.1365-2702.2011.03943.x

Callery, P., Milnes, L., Verduyn, C., & Couriel, J. (2003). Qualitative study of young people's and parents' beliefs about childhood asthma. *British Journal of General Practice*, *53* (488), 185–190 . PMCID: PMC1314542. https://bjgp.org/content/53/488/185.short

Callon, W., Beach, M. C., Links, A. R., Wasserman, C., & Boss, E. F. (2018). An expanded framework to define and measure shared decision-making in dialogue: A 'top-down' and 'bottom-up' approach. *Patient Education and Counseling*, *101*(8), 1368–1377. https://doi.org/10.1016/j.pec.2018.03.014

Carpenter, D. M., Ayala, G. X., Williams, D. M., Yeatts, K. B., Davis, S., & Sleath, B. (2013). The relationship between patient-provider communication and quality of life for children with asthma and their caregivers. *Journal of Asthma*, *50*(7), 791–798. https://doi.org/10.3109/02770903.2013.808347

Castro, C. M., Wilson, C., Wang, F., & Schillinger, D. (2007). Babel babble: Physicians' use of unclarified medical jargon with patients. *American Journal of Health Behavior*, *31* (1), S85–S95. PMID: 17931142. https://doi.org/10.5993/AJHB.31.s1.11

Center for Disease Control and Prevention. (2021a, August 23). *Summary health statistics: National health interview survey, 2019*. https://www.cdc.gov/nchs/fastats/asthma.htm

Center for Disease Control and Prevention. (2021b, September 13). *Summary health statistics: National health interview survey, 2018*. https://www.cdc.gov/nchs/fastats/allergies.htm

Coyne, I. (2008). Children's participation in consultations and decision-making at health service level: A review of the literature. *International Journal of Nursing Studies*, *45*(11), 1682–1689. https://dx.doi.org/10.1016/j.ijnurstu.2008.05.002

Coyne, I., & Gallagher, P. (2011). Participation in communication and decision-making: Children and young people's experiences in a hospital setting. *Journal of Clinical Nursing*, *20*(15–16), 2334–2343. https://dx.doi.org/10.1111/j.1365-2702.2010.03582.x

Coyne, I., & Harder, M. (2011). Children's participation in decision-making: Balancing protection with shared decision-making using a situational perspective. *Journal of Child Health Care*, *15*(4), 312–319. https://doi.org/10.1177/1367493511406570

DiMatteo, R. M. (2004). The role of effective communication with children and their families in fostering adherence to pediatric regiments. *Patient Education and Counseling*, *55*(3), 339–344. http://dx.doi.org/10.1016/j.pec.2003.04.003

Dixon-Woods, M., Young, B., & Heney, D. (1999). Partnerships with children. *BMJ*, *319*(7212), 778–780. https://doi.org/10.1136/bmj.319.7212.778

Farrell, M., Deuster, L., Donovan, J., & Christopher, S. (2008). Pediatric residents' use of jargon during counseling about newborn genetic screening results. *Pediatrics*, *122*(2), 243–249. https://doi.org/10.1542/peds.2007-2160

Gabe, J., Olumide, G., & Bury, M. (2004). 'It takes three to tango': A framework for understanding patient partnership in paediatric clinics. *Social Science & Medicine*, *59*(5), 1071–1079. https://doi.org/10.1016/j.socscimed.2003.09.035

Greene, M. G., & Adelman, R. D. (2013). Beyond the dyad: Communication in triadic (and more) medical encounters. In L. R. Martin & M. R. DiMatteo (Eds.), *The Oxford handbook of health communication, behavior change, and treatment adherence* (pp. 136–154). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199795833.013.003

Irish, J. T., & Hall, J. A. (1995). Interruptive patterns in medical visits: The effects of role, status, and gender. *Social Science & Medicine*, *41*(6), 873–881. https://doi.org/10.1016/0277-9536(94)00399-e

Joseph-Williams, N., Elwyn, G., & Edwards, A. (2014). Knowledge is *not* power for patients: A systematic review and thematic synthesis of patient-reported barriers and facilitators to shared decision making. *Patient Education and Counseling*, *94*(3), 291–309. http://dx.doi.org/10.1016/j.pec.2013.10.031

Korsch, B. M., Gozzi, E. K., & Francis, V. (1968). Gaps in doctor-patient communication. I. Doctor-patient interaction and patient satisfaction. *Pediatrics*, *42*(5), 855–871. https://doi.org/10.1542/peds.42.5.855

Laidsaar-Powell, R. C., Butow, P. N., Charles, C., Gafni, A., Lam, W. W. T., Jansen, J., McCaffery, K. J., Shepherd, H. L., Tattersall, M. H. N., & Juraskova, I. (2013). Physician-patient-companion communication and decision-making: A systematic review of triadic medical consultations. *Patient Education and Counseling*, *91*(1), 3–13. http://dx.doi.org/10.1016/j.pec.2012.11.007

Légaré, F., Ratté, S., Gravel, K., & Graham, I. D. (2008). Barriers and facilitators to implementing shared decision-making in clinical practice: Update of a systematic review of health professionals' perceptions. *Patient Education and Counseling*, *73*(3), 526–535. https://dx.doi.org/10.1016/j.pec.2008.07.018

Levetown, M., & Committee on Bioethics. (2008). Communicating with children and families: From everyday interactions to skill in conveying distressing information. *Pediatrics*, *121*(5), e1441–e1460. https://doi.org/10.1542/peds.2008-0565

Maskrey, N. (2019). Shared decision making: Why the slow progress? An essay by Neal Maskrey. *BMJ*, *367*(I6762), 1–3. https://doi.org/10.1136/bmj.l6762

Meeuwesen, L., & Kaptein, M. (1996). Changing interactions in doctor-parent-child communication. *Psychology & Health*, *11*(6), 787–795. https://doi.org/10.1080/08870449608400275

Menz, F., & Al-Roubaie, A. (2008). Interruptions, status and gender in medical interviews: The harder you brake, the longer it takes. *Discourse & Society*, *19*(5), 645–666. https://doi.org/10.1177/0957926508092247

Miller, T. A., & DiMatteo, R. M. (2020). Physician-patient communication. In K. Sweeny, M. L. Robbins, & L. M. Cohen (Eds.), *The Wiley encyclopedia of health psychology* (pp. 469–474). Wiley. https://doi.org/10.1002/9781119057840.ch97

Miller, V. A. (2018). Involving youth with a chronic illness in decision-making: Highlighting the role of providers. *Pediatrics*, *142* (Suppl. 3), S142–S148. https://doi.org/10.1542/peds.2018-0516D

Nova, C., Vegni, E., & Aldo Moja, E. (2005). The physician-patient-parent communication: A qualitative perspective on the child's contribution. *Patient Education and Counseling*, *58*(3), 327–333. https://dx.doi.org/10.1016/j.pec.2005.02.007

Paasche-Orlow, M. K., & Wolf, M. S. (2007). The causal pathways linking health literacy to health outcomes. *American Journal of Health Behavior*, *31*(Suppl. 1), S19–S26. https://dx.doi.org/10.5555/ajhb.2007.31.supp.S19

Pollard, S., Bansback, N., & Bryan, S. (2015). Physician attitudes toward shared decision making: A systematic review. *Patient Education and Counseling*, *98*(9), 1046–1057. http://dx.doi.org/10.1016/j.pec.2015.05.004

Rathert, C., Wyrwich, M. D., & Boren, S. A. (2012). Patient-centered care and outcomes: A systematic review of the literature. *Medical Care Research and Review*, *70*(4), 351–379. https://doi.org/10.1177/1077558712465774

Rodriguez, A. H., & Pellegrini, C. A. (2019). The surgeon-patient relationship: Built upon trust. In A. Ferreres (Ed.), *Surgical ethics* (pp. 171–178). Springer. http://doi.org/10.1007/978-3-030-05964-4_16

Schildmeijer, K., Nilsen, P., Ericsson, C., Broström, A., & Skagerström, J. (2018). Determinants of patient participation for safer care: A qualitative study of physicians' experiences and perceptions. *Health Science Reports*, *1*(10), e87. https://doi.org/10.1002/hsr2.87

Shah, P., Donovan, K., Rexrode, L., & Hubal, R. (2020). Pediatric patient interaction: Provider vs. parent expectations. *Journal of Communication in Healthcare*, *13*(4), 289–300. https://doi.org/10.1080/17538068.2020.1794765

Shitu, Z., Hassan, I., Aung, M. M. T., Kamaruzaman, T. H. T., & Musa, R. M. (2018). Avoiding medication errors through effective communication in a healthcare environment. *Malaysian Journal of Movement, Health, & Exercise*, *7*(1), 113–126. https://dx.doi.org/10.2139/ssrn.3573437

Sleath, B., Carpenter, D. M., Sayner, R., Ayala, G. X., Williams, D., Davis, S., Tudor, G., & Yeatts, K. (2011). Child and caregiver involvement and shared decision-making during asthma pediatric visits. *Journal of Asthma*, *48*(10), 1022–1031. https://doi.org/10.3109/02770903.2011.626482

Street, R. L., Jr., Makoul, G., Arora, N. J., & Epstein, R. M. (2009). How does communication heal? Pathways linking clinician-patient communication to health outcomes. *Patient Education and Counseling*, *74*(3), 295–301. http://dx.doi.org/10.1016/j.pec.2008.11.015

Tates, K., Elbers, E., Meeuwesen, L., & Bensing, J. (2002). Doctor-patient-child relationships: A 'pas de trois.' *Patient Education and Counseling*, *48*(1), 5–14. https://doi.org/10.1016/s0738-3991(02)00093-9

Tates, K., & Meeuwesen, L. (2001). Doctor-parent-child communication. A (re)view of the literature. *Social Science and Medicine*, *52*(6), 839–851. https://doi.org/10.1016/s0277-9536(00)00193-3

Tran, B. Q. (2020). Strategies for effective patient care: Integrating quality communication with the patient-centered approach. *Social and Personality Psychology Compass*, *15*(1), e12574. https://doi.org/10.1111/spc3.12574

Van Dulmen, A. M. (1998). Children's contributions to pediatric outpatient encounters. *Pediatrics*, *102*(3), 563–568. https://doi.org/10.1542/peds.102.3.563

Van Liew, J. R., Cvengros, J. A., & Christensen, A. J. (2018). Patient-provider interactions: Promoting effective behavior and providing optimal care. In E. B. Fisher (Ed.), *Principles and concepts of behavioral medicine* (pp. 595–621). Springer. https://doi.org/10.1007/978-0-387-93826-4_20

Willis, B., & O'Donohue, W. T. (2018). The neglected construct of health literacy, shared decision-making, and patient-centered care in behavioral health: An integrative model. In M. P. Duckworth & W. T. O. Donohue (Eds.), *Behavioral medicine and integrated care* (pp. 147–174). Springer. https://doi.org/10.1007/978-3-319-93003-9_8

Worobey, J., O'Hair, H. D., & O'Hair, M. J. C. (1987). Pediatrician-patient-parent communications: A descriptive analysis. *Language & Communication*, *7*(4), 293–301. https://doi.org/10.1016/0271-5309(87)90019-X