Identifying Barriers and Facilitators That Affect Community Pharmacists' Ability to Engage Children in Medication Counseling: A Pilot Study

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OBJECTIVES This study aimed to describe the barriers and facilitators that influence community pharmacists' ability to provide medication counseling to pediatric patients.

METHODS Semistructured interviews ($n = 16$) were conducted with pharmacy staff at 3 community pharmacies in 2 Eastern states. The interview guide elicited pharmacy staff experiences interacting with children and their perceived barriers and facilitators to providing medication counseling. Transcripts were reviewed for accuracy and a codebook was developed for data analysis. NVivo 10 was used for content analysis and identifying relevant themes.

RESULTS Ten pharmacists and 6 pharmacy technicians were interviewed. Most participants were female (69%), aged 30 to 49 years (56%), with ≥ 5 years of pharmacy practice experience. Eight themes emerged as barriers to pharmacists' engaging children in medication counseling, the most prevalent being the child's absence during medication pickup, the child appearing to be distracted or uninterested, and having an uncondusive pharmacy environment. Pharmacy staff noted 7 common facilitators to engaging children, most importantly, availability of demonstrative and interactive devices/technology, pharmacist demeanor and communication approach, and having child-friendly educational materials.

CONCLUSIONS Findings suggest that pharmacy personnel are rarely able to engage children in medication counseling because of the patient's absence during medication pickup; however, having child-friendly materials could facilitate interactions when the child is present. These findings can inform programs and interventions aimed at addressing the barriers pharmacists encounter while educating children about safe and appropriate use of medicines.

ABBREVIATIONS MTM, medication therapy management; NCPIC, The National Council on Patient Information and Education; USP, United States Pharmacopoeia

KEYWORDS community pharmacies; patient education; pediatrics; pharmaceutical services; pharmacists

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Introduction

In the United States, children are major consumers of both prescription and non-prescription medications, with 1 in 5 reporting taking 1 prescription drug in the past month.¹ Medication non-adherence is increasing among the pediatric patient population, particularly among adolescents as they begin taking more responsibility in medication management from their parents.^{2–7} Effective child-provider communication is a potential strategy for addressing medication and health-related problems.^{8,9} The National Council on Patient Information and Education (NCPIC) has also recognized that the improper use of prescription medicines in children is a national health problem that spans all ethnic and socioeconomic groups.¹⁰ Therefore, the NCPIC issued a report calling on all health professionals to educate

not only parents or caregivers about the proper use of over-the-counter and prescription medications, but also children.¹⁰

The United States Pharmacopeia (USP) recommends that health professionals such as pharmacists should communicate directly with children about their medicines by providing developmentally appropriate information.¹¹ With the availability of over 70,000 pharmacies in the United States, pharmacists are among the most accessible health care professionals who may prevent medication errors and provide counseling for pediatric patients with acute or chronic conditions and their parents or caregivers.¹² Despite having great potential to assume a role as a health and medication educator to children, studies have shown that these patients receive less attention from pharmacists because communications regarding medication use are often

geared toward the children's parents or caregivers.¹³ As medication experts, pharmacists play a vital role in counseling children in adhering to their medication regimens through direct collaboration and communication about safe and effective use of medicines.

There has been limited research to explore current practices of child-pharmacist communications and opportunities to engage children in medication education. Additionally, there is a paucity of literature on pharmacists' experience and perceptions toward providing medication education to children. This line of research is greatly needed as the number of children with chronic health problems rises, medication use in this population rapidly increases, and medication non-adherence persists as they transition to adulthood. Given the USP recommendation and minimal research, the purpose of this study was to explore community pharmacy personnel's experiences and identify the barriers and facilitators that influence their ability to provide medication counseling to children.

Materials and Methods

Participants. Study participants were recruited from 3 community pharmacies in 2 Eastern states. Two of these pharmacies were located in an urban area of Pennsylvania within 10 miles of a large children's hospital, and the third in a rural area of North Carolina. The pharmacy manager at each of these pharmacies provided permission and identified participants at their respective practices. Participants provided written informed consent before participating in the study. Pharmacy personnel were eligible to participate in the study if they could speak English and were employed as a pharmacist, or pharmacy technician, for at least 6 months. Pharmacy technicians were included as participants in this study owing to their frequent interaction with parents or caregivers during prescription drop-off or pickup.

Procedures. The study was reviewed and approved by the Institutional Review Boards at the University of Pittsburgh and the University of North Carolina. A qualitative design was used, which allowed the researchers to explore the perceptions of pharmacy personnel. Data were collected by using semistructured interviews. An interview guide was developed and piloted to elicit pharmacy staff experiences interacting with children and their perceptions about providing medication counseling. Specifically, interview questions asked about pharmacy staff perceptions about children's preference for medication education, common medication use issues, and barriers and facilitators to providing counseling. Interviews were conducted by 2 of the researchers at each study site in a private area of the pharmacy between May and June 2015. The face-to-face interviews took approximately 30 to 45 minutes with each participant. Characteristics of participants and their practice settings (demographics, practice ex-

perience, and prescription volume) were documented. Interviews were conducted until data saturation was reached (no new information was being gathered).¹⁴ All interviews were audiotaped and professionally transcribed verbatim.

Data Analysis. We conducted analysis of the transcripts concomitantly with data collection to identify emerging themes. The first author listened to all interviews to verify transcription accuracy. A codebook with a list of major conceptual categories in the data (codes) was developed for data analysis by the research team. Analysis of data included iterative reviews of the transcripts to identify themes and the creation of a master codebook with themes and definitions, so that coding was consistent across all interviews. Structured and open coding was used, i.e., transcribed data were coded so that a theme is attached to a repeated concept.^{15–17} We used a qualitative data analysis software program (NVivo 10, QSR International, City, State or Country) to organize and code all transcripts. The thematic analysis followed a standard text-analysis approach.^{15–17} All transcripts were independently coded by 2 qualitative researchers. The first author met weekly with the 2 coders to review all codes, discuss minor discrepancies, and verify coding consistency. We calculated interrater reliability by using the kappa coefficient and the average was found to be 0.66.

Results

A total of 16 interviews were conducted with 10 pharmacists and 6 pharmacy technicians. Table 1 shows the characteristics of study participants and their practice settings. Most participants were female (69%), aged 30 to 49 years (56%), with 5 or more years of pharmacy practice experience (62%). Four participants were from a grocery chain pharmacy in North Carolina and 6 each from 1 chain and 1 independent pharmacy in Pennsylvania. Participants reported that their pharmacies processed approximately 205 to 692 prescriptions daily with daily staffing ranging from 1 to 5 pharmacists and 3 to 12 technicians.

Barriers That Influence Pharmacists' Ability to Engage Children in Counseling. Eight themes emerged as reasons pharmacy staff found it challenging to provide medication counseling to children (barriers). Five themes were broadly categorized as child/parent-related barriers and the remaining 3 as pharmacy/pharmacist-related barriers. Examples of verbatim quotes from participants are shown in Table 2.

Child- and Parent-Related Barriers. Child's Absence During Medication Pickup. The most frequently mentioned barrier by participants was the child's absence at the pharmacy during medication pickup by a parent or caregiver. Participants reported that parents or caregivers often presented at the pharmacy during times the children would be expected to be at school (e.g., during the caregiver's work lunch breaks) or on

Table 1. Description of Pharmacy Staff Participants and Pharmacies (N = 16)

Characteristics	n (%)
Sex	
Women	11 (69)
Men	5 (31)
Age	
Younger than 30 yr	4 (25)
30–49 yr	9 (56)
≥50 yr	3 (19)
Race	
White, non-Hispanic	16 (100)
Role at pharmacy	
Pharmacist	10 (63)
Pharmacy technician	6 (38)
Length of time in pharmacy practice	
0–5 yr	6 (38)
6–20 yr	5 (31)
>20 yr	5 (31)
Length of time at study site	
0–5 yr	13 (81)
6–20 yr	2 (13)
>20 yr	1 (6)
Average Rx volume per day	
Chain pharmacy (PA)	692
Independent pharmacy (PA)	560
Chain pharmacy (NC)	205
Daily pharmacist staffing	
Chain pharmacy (PA)	5
Independent pharmacy (PA)	5
Chain pharmacy (NC)	1
Daily technician staffing	
Chain pharmacy (PA)	12
Independent pharmacy (PA)	8
Chain pharmacy (NC)	3

NC, North Carolina; PA, Pennsylvania; Rx, prescription

their evening commute home. This led to limited opportunities for pharmacists to interact with their child patients. Participants noted that children were more likely to accompany their parents during weekends or on weekday evenings; however, even at those times child presence was rare. The type of medication being picked up was also considered to have an impact on the likelihood of the patient being present with the parent. Pharmacy staff reported that parents were more likely

to pick up medications for chronic conditions without the child being present as compared to medications for acute conditions. It was presumed that children's medications for chronic conditions were often refilled monthly while if children had an acute illness, and were just seen at the doctor's office, they were more likely to come with their parent to pick up the medication on the way home.

Child Appears Distracted or Uninterested. When children were present, pharmacy staff reported they often wandered off to other areas of the pharmacy as their caregiver retrieved their medication from pharmacists; thus, pediatric patients were not paying attention to pharmacy staff as the medication was being picked up. Pharmacy staff stated that their child patients often appeared distracted or uninterested in engaging in discussion with pharmacy staff about their medications. Some participants attributed this to the age of the child and the lack of privacy of the pharmacy environment. For instance, younger children tended to lose interest more easily and get distracted than children of older age, notably 13 to 18 years. Some participants suggested that having a more private setting with fewer distractions would help to focus the child's attention on receiving medication education. Consequently, pharmacists tended to focus on providing only the parent with medication information.

Age and Limited Attention Span. Participants indicated that maintaining the attention of pediatric patients while trying to convey important medication information was challenging, particularly with younger patients with limited attention spans or lower levels of comprehension. Some participants believed that patients younger than 12 years were less likely to understand medication information. Pharmacy staff reported that adolescents should receive counseling because of potentially higher cognitive ability to understand and "take ownership" of their medication. Pharmacy staff perceived that children 13 years or older began to understand the long-term implications of taking medications, and were more interested in learning about their chronic conditions, and appreciated being counseled in a manner similar to adult patients.

Child's Comfort and Personality. Some participants perceived that children may be apprehensive about speaking to pharmacy staff because of the busy pharmacy setting, or their "white coat" appearance, or that they would become upset in discussing their disease or medication information with the pharmacists. Participants' past experiences led them to believe that some children were uncomfortable and shy in the presence of the pharmacy staff. Frequently, participants observed that children hid behind their parents and did not speak or ask questions during the pharmacist-parent conversations regarding their medications. Pharmacy staff perceived that the personalities of the pediatric patients often varied greatly with some showing more

Table 2. Barriers That Influence Pharmacists' Ability to Engage Children and Adolescents in Counseling

Prevalent Themes Identified	Occurrence/Description	Verbatim Quotes
Child/parent-related barriers		
Child's absence during medication pickup	#31 Statements Children are frequently not present during medication pickup	Pharmacist: <i>"The child does not come to the pharmacy. Ninety-nine percent of the time they do not come to the pharmacy; it's the mom picking up, or dad picking up. You know, it's a parent or caregiver. So when do I get to see the child?"</i> Technician: <i>"...You know, their parents are either picking it up, or they're elsewhere. Rarely do they come with a parent."</i> Pharmacist: <i>"So daily, not much. Not much. Definitely during the school year, you know, if a parent is on their way home from work, one parent is coming home from work, they pick up their meds between, you know, 4:00 and 6:00 is our busiest hours in the evening, or during their lunchbreak, 12:00 to 2:00, rarely we see children during the school year. Weekends, we do see children."</i>
Child appears distracted or uninterested	#27 Statements Child appears distracted or uninterested in receiving counseling	Pharmacist: <i>"I think at the actual counter, I found that when I'm talking to the parent the child is normally wandering. Even if it is about their meds...they're really kind of wandering."</i> Technician: <i>"I think the younger child is going to be easily distracted in a situation where there isn't a more private setting and that type of thing."</i> Pharmacist: <i>"But as for topics with medicine, they—a lot of them tend to get distracted and not really seem to be too interested."</i> Pharmacist: <i>"We always try to talk to the child when we see them... but typically, there's very little interaction. The child does not want to talk to us."</i>
Age and limited attention span	#19 Statements Limited attention span to pay attention to information being provided by the pharmacist	Technician: <i>"Again, attention, attention span could be—you know with a younger child, you've got 30 seconds or so to get through to them and then after that—so I think that's a part of it. Age is a big deal with it..."</i> Pharmacist: <i>"Keeping their attention, keeping them focused and nearby. Sometimes they're apt to want to run, want to, you know, just not staying put, if they're younger."</i> Technician: <i>"You know, some kids are more attentive than other kids. Some kids just want to get their medicine and get out. So, but some are more on top of their medication than others."</i> Pharmacist: <i>"Kids have a really short attention span, so I usually pick the most important thing that I want them to take away from me talking to them and get that in first, and then everything else is sort of—hopefully, the parent's picking up on it and they're going to follow through."</i>
Child's comfort and personality	#11 Statements Child is shy and uncomfortable talking with the pharmacist and also gets easily scared or upset about disease or medication information such as side effects	Pharmacist: <i>"Kids are shy of adults, especially a white coat I've learned. Kids don't always like the white coat."</i> Technician: <i>"A lot of them will hide. They'll be shy or whatever, but if you get them talking a little bit, they'll come out of their shell—but that's me."</i> Pharmacist: <i>"I will communicate to both the child and the parent, although like I said, the child...rarely does the child speak up. I don't know if it's embarrassment or if they're not comfortable...what the reason is, but they're mostly reserved."</i> Technician: <i>"I think it depends on the personality of the child. I really think some would prefer Mom get information and break it down."</i>

interest in their medications than others. Participants mentioned that teenagers appeared uncomfortable or embarrassed to talk with the pharmacist and perceived that this may be due to their negative perception of the disease state. For example, the child thinks something

is wrong with him/her, may fear being different, and is afraid to talk about his/her chronic condition, such as diabetes, or asthma. The child may be embarrassed to have the pharmacist watch him/her use his/her insulin pens or inhalers. Participants reported that when chil-

Table 2. Barriers That Influence Pharmacists' Ability to Engage Children and Adolescents in Counseling (cont.)

Prevalent Themes Identified	Occurrence/Description	Verbatim Quotes
Parent-perceived preferences and time constraints	#10 Statements Parent is in a hurry or appears in a rush to leave pharmacy	Pharmacist: "A lot of times when they come to the pharmacy, they're in a hurry." Technician: "...they might have a question for the pharmacist, but not want to ask the pharmacist because they've already waited in line and they need to get home and have Suzie to baseball practice. Time constraint, I think for everyone..." Pharmacist: "I don't have parents, as often, who seem like they want to stay and chat. Usually the child is sick, so they want to get the medication and get out." Pharmacist: "They don't have the time, kind of, because their, either parent is rushing them, or, you know, like if the parent seems in a rush then the child is going to kind of seem in a rush."
Pharmacist/pharmacy-related barriers		
Unconducive pharmacy environment	#27 Statements Lack of private area to counsel children because they are easily embarrassed, uncomfortable, shy, or easily distracted Pharmacy environment appears uninviting to the child and does not promote easy interaction with the pharmacist	Pharmacist: "...at our counter there are so many distractions around whether it's in the pharmacy, around the counter, people, that the kids are so not focused on what's happening..." Pharmacist: "It's tough because you don't have a designated—we have a designated area, but it's not four-walled, enclosed, so because of that it makes it more challenging..." Technician: "I think our setting, in particular, isn't the best for the child. There's a lot of other things usually going on—noises, usually a lot of people here, so I can imagine for a child, it would be hard to focus." Technician: "We have a drive-through here at this pharmacy. I would say that's the most difficult when it comes to prescriptions for children, only because there's that barrier of the window. There's the barrier that you're both speaking over a microphone. The child might be in the car, might not be in the car."
Pharmacist time constraints	#15 Statements Pharmacist has limited time to communicate with parent/child	Technician: "I would say time and not feeling time-constrained would be beneficial across the board in medicine in general." Pharmacist: "I would like to talk to everybody, but it's just not feasible with the constraints." Technician: "...Again I'm going to say time constraint."
Lack of experience engaging with children	#10 Statements Pharmacist has limited experience communicating or engaging with children and is unaware of their information needs	Pharmacist: "I just don't see kids. I just don't see them. And in pharmacy school I truly felt that we never really learned how to help kids. Like it was taught. We never viewed it. We never worked with kids." Pharmacist: "I feel that all pharmacists never really know how to help kids until they have kids as their own. Like, because until you understand a child's process through the day..." Pharmacist: "I don't know what kids have a problem taking. I would think—I can't imagine insulin being easy for kids. Like I'm thinking of my—I don't, like again, I don't hear from kids themselves."

dren appeared uncomfortable, it created a challenge to communicate effectively.

Parent-Perceived Preferences and Time Constraints. Pharmacy staff reported that parents' preferences and availability impacted their ability to counsel pediatric patients. When parents appeared to be in a hurry, pharmacy staff felt that they did not want to be delayed with medication counseling. Participants stated that parents often picked up their child's medication on their way home from work, right after leaving the pediatrician's office, or on their way to a child's sporting event. Participants reported that some parents refused counseling if they had waited in a long line, and phar-

macy staff perceived that this may be caused by not wanting to inconvenience other patients still waiting at the pharmacy.

Pharmacy- and Pharmacist-Related Barriers. Unconducive Pharmacy Environment. Participants stated that they often talked with patients at the counter during checkout, with a lot of noise and distractions in the background. Pharmacy staff said that a private meeting area would allow for much greater communication with the child in a relaxed environment, unlike the busy counter. Specific physical barriers in the pharmacy environment such as the pharmacy layout (having high countertops separating patients and pharmacy staff),

proximity to sales racks (often holding impulse items such as candy or magazines), and possible crowding of other customers in line were described as creating a sense of distance between the pharmacist and the child, and limiting direct communication. A few participants mentioned that the environment lacks child-friendly décor that would make the pharmacy a more inviting atmosphere for children. During busy periods, the environment appears rushed and noisy, which is potentially distracting or disturbing to children. Although pharmacists are required to provide medication counseling when necessary, not all pharmacies were equipped with a consultation room to engage in more private medication-related conversations with children. In addition, pharmacy staff reported that the use of the drive-through window impeded interaction between pharmacy staff and children. Specifically, speaking through a glass window with a microphone in the drive-through created difficulty in pharmacists' ability to communicate directly with pediatric patients. Participants noted that if the children were younger, they were often in a car seat in the back, limiting visibility of the pharmacist. The overall chaotic and busy environment was reported as being distracting for children to focus on conversation with the pharmacist.

Pharmacist Time Constraints. In addition to perceived parental time constraints, pharmacist time constraints were mentioned as a barrier to providing children with medication counseling during their typical workflow. Pharmacists said they would take the time to answer questions or provide counseling when an issue with a prescription or patient necessitated it, but they might be able to spend more time individually with children and their parents during periods when their workflow was less demanding.

Lack of Experience Engaging With Children. Some participants noted that pharmacy staff who had more experience engaging with children or had children of their own were more comfortable communicating with younger patients about their medicines or in identifying their medication use challenges. Pharmacists reported that there is little focus on interacting with pediatric patients in pharmacy school, and they were never taught specifically how to communicate with pediatric patients. It was noted that lack of experience in learning to simplify medication counseling to suit a child's level of understanding was an issue. Additionally, some participants without children of their own stated that they were hesitant to tell a parent or caregiver what to do because of the fear of overstepping a parent's personal experience with his/her own child.

Facilitators That Influence Pharmacists' Ability to Engage Children in Counseling. Participants identified a variety of factors that would enhance their interactions with children. These facilitators of medication counseling were categorized into 7 themes and verbatim quotes from participants are shown in Table 3.

Demonstrative and Interactive Devices/Technology.

This was the most prevalent facilitator mentioned by participants. Pharmacy personnel perceived that the availability of demonstrative tools or technologies such as iPads with learning videos or educative games, practice devices (i.e., inhalers, insulin syringes, EpiPens), and pictorial medication guides would result in better engagement of pediatric patients. Participants noted that children and caregivers were more interested in talking with the pharmacist when they were able to see a demonstration on how to use the device, practice it with the pharmacist, and leave the pharmacy with more confidence to continue medication therapy at home. For instance, having information about medications or the condition in the form of an interactive game could encourage conversation between a child and the pharmacist.

Pharmacist Demeanor and Communication Approach. Several pharmacy staff highlighted the need to adapt to the child's level of health understanding. Examples of such approaches included speaking in a pleasant communicative tone, using minimal medical jargon, and having a friendly personality.

Availability of Child-Friendly Educational Materials. Pharmacy staff stated that currently available medication education materials were oriented toward the literacy level of adults and were not necessarily appropriate for their younger patients. Participants commented that having kid-friendly materials designed to have colorful pictures, minimal text, and clear and easy to understand information will be more visually appealing to younger patients.

Older Child's Presence and Ability to Comprehend Information. Participants observed that children of driving age sometimes picked up their medications without their parents. This enabled pharmacists to directly provide medication counseling to older children who were better able to comprehend information than younger children. Pharmacy staff reported that some adolescents were more open to discussing medication side effects and outcomes with pharmacists in the absence of their parents.

Familiarity With Child and Caregiver. Pharmacy staff stated that having existing relationships with parents and pediatric patients was helpful in establishing trust and understanding their preferences in receiving counseling. One participant indicated that having a smaller number of patients helped develop pharmacist-patient relationships. Participants noted that children were more receptive of counseling when they knew the pharmacist was a friendly face in the community.

Private and Welcoming Consultation Area and Pharmacist Training. Participants stated that a private consultation area and formal pharmacist training would facilitate engagement with children. These items were discussed at length as barriers to pediatric counseling, but were also classified as facilitators.

Table 3. Facilitators That Influence Pharmacists' Ability to Engage Children and Adolescents in Counseling

Prevalent Themes Identified	Occurrence/Description	Verbatim Quotes
Demonstrative and interactive devices/technology	#52 Statements Use of interactive demonstration devices and interactive technology such as iPads with visually appealing information display	Pharmacist: <i>"They're all using their electronics. So any type of an electronic device that they could use to educate them would be helpful."</i> Pharmacist: <i>"I would say maybe like demonstration as, like if it's an inhaler, or if maybe it's insulin or something like that, and one of those disease states, I would think that children are more receptive if you physically show them how to do it, as opposed to just telling them."</i> Pharmacist: <i>"...most kids, you can give them an iPhone or an iPad or a tablet of some sort and they're pretty user-friendly and intuitive for them to engage in and play the video or rewind or just play around with it. Touch-screen technology, I would say."</i>
Pharmacist demeanor/age and communication approach	#41 Statements Pharmacists' kid-friendly behavior in proactively engaging children: communicating at their level (making medication information easy to comprehend), smiling, making eye contact, and tone of voice	Technician: <i>"I think we try to be kind of more cute, like more...not just like factually based—but I think we're more like as if I was teaching a kindergarten class, I think we're more like high-toned, and we kind of like get to their level, and we kind of get excited because we don't really see that many kids. I think that we kind of make it, we try to make it fun, and don't make it scary. I think we try to definitely look at all the benefits, and more so don't talk about necessarily some of the, you know, some of the negatives that could go along with it. I think that we try to always kind of put a spin on things, other than talking to an adult you can kind of be a little bit more straight—sometimes. But I do think with a kid, with a child involved you kind of pretend like you're teaching a kindergarten class. You know, in the way that you speak."</i> Pharmacist: <i>"I think you need to talk on their level. You need to make sure that you're not throwing words out there that they're not gonna understand."</i> Technician: <i>"I mean, you kind of use a lighter tone when you're talking to the kids. You try to be a little bit more cheerful and try to engage them. You don't really need to do that so much with the adults than you do the kids."</i> Technician: <i>"I think just the language that you use has to be different and the way you approach the child versus an adult has to definitely be different. You don't want to be, you know, this adult, towering over them, telling them this new medication that they have to take because they have a disease. It's very—I can imagine it can be very overwhelming."</i>
Availability of child-friendly educational materials/resources	#37 Statements Availability of developmentally appropriate and visually appealing medication information for common disease states/medications Having pictures/visual cues Minimum textual information	Pharmacist: <i>"...if we had specific pediatric-geared like printouts, or even medication boxes, or something, you know, like Monday, Tuesday, Wednesday, if that was more, that would make it a little bit easier, you know, to remember each day to take your medications, or something a little bit more fun, or an app on their phone, or tablet, or whatever they have, I think that would make it a lot better."</i> Technician: <i>"Something that would be helpful, maybe, for kids would be something that's more age-appropriate, something that would show here's why you're taking medication, especially for a chronic-type situation. It might be good to see that sort of thing: 'Hey, there's other kids like me that have to use an inhaler.' Or, we have several kids on ADD/ADHD-type medicine—Ok, there's other kids out there. Maybe they need to know that. That it's not just Johnny. That Janie as well and Jimmy as well—that sort of thing. Might be a good idea."</i> Pharmacist: <i>"Having some type of a printout with any type of pictures, depending on what the medication is, too. If it's an inhaler, that, pictures are a lot easier to describe an inhaler, or, like a physical demo, something like that. If it's just like a daily medication, daily oral tablet, that might not be as necessary. But I think some type of like printout or picture would be feasible to have in the pharmacy."</i>

ADD, attention deficit disorder; ADHD, attention deficit hyperactivity disorder; CE, continuing education

Discussion

The scope of community pharmacy practice is rapidly changing to integrate patient-centered models of care that focus primarily on medication counseling through the provision of medication therapy management (MTM) services for diverse patient populations.¹⁸ Medication counseling is a critical aspect of MTM pharmacy

services and involves educating and empowering all patients with chronic conditions to take an active role in managing their medications. Children are a unique patient population that often faces barriers to health care, particularly related to medication adherence.⁸ Medication non-adherence is common among children with chronic conditions and their need for medication counseling is often overlooked by community pharma-

Table 3. Facilitators That Influence Pharmacists' Ability to Engage Children and Adolescents in Counseling (cont.)

Prevalent Themes Identified	Occurrence/Description	Verbatim Quotes
Older child's presence and ability to comprehend information	#22 Statements Pharmacists prefer to counsel older children because they perceive they are better able to understand medication information and ask questions Also, children ≥16 yr often drive to the pharmacy to pick up their prescriptions	Pharmacist: "...some of the older kids are picking up—like I know a couple 16-, 17-year-olds that are picking up their own medicine. I notice more the kids, I see kids more when they start driving. Because they feel like they have, they're more independent. They say, 'I'll go get my medicine.' So 16- to 17-year-olds, I feel that they come in on their own more." Technician: "...would say the older the child, the more involved they would definitely want to be, especially in having individual questions asked. I would think the younger child really isn't capable of necessarily even grasping the counseling that's being given at the time. I think if the child's capable of, you know, being taught the directions then they should be involved in that, for sure." Pharmacist: "...their interest in pharmacy things isn't really there at the age of 7 to 12, or 14. You know, I think once you reach the 16 to 17 group, you kind of sometimes see them coming actually on their own because they can drive at that point. But the younger, you know, younger than 14 I would say, you know, they kind of want to be in and out, they probably don't even want to be coming into the grocery store as a child." Pharmacist: "there's a big difference between a 7-year-old and a 17-year-old. So the younger kids obviously you want to make sure that you have the parents involved, side effects whatever's gonna happen, you know. The older children maybe not so much, maybe you want to pull them aside and talk to them maybe individually."
Familiarity with child and caregiver	#4 Statements Pharmacist having relationship and being familiar with parent and child	Pharmacist: "...we have a lot of parents that we have been working with them for them or their children for such a long time that I feel like we just are very, very trusted." Technician: Being a smaller pharmacy, I think the pharmacists do have a relationship with the patients, which I think helps." Pharmacist: "They'll typically run over to [name] and hug him or give him high-fives or jump on him. Just the fun nature of engaging a child...we just do it...not necessarily from a counseling perspective, but just fun because it's...just a good way to build a relationship."
Private and welcoming consultation area	#22 Statements Presence of a private consultation area that is appealing to children	Technician: "If we're really trying to zone in on helping children then I think that a kid-friendly, even pictures drawn on the wall or even if it's just a little booth, a little cubbyhole—you find that in pediatricians' offices..." Pharmacist: "...Privacy would really help that because then I could get out a lot more stuff and feel a little more comfortable with showing kids their stuff..." Technician: "I would think that a pharmacy would look a little bit intimidating to me. But maybe if you know like I said we took them away into the consultation room, like one-on-one, or, not standing at the counter with everything going on, it would be a little bit better."
Pharmacist training	#5 Statements Training on age-appropriate communication/counseling	Pharmacist: "If there were something like that, where it was a CE where maybe somebody came up with a way to start educating people on counseling children, I think that would be a good way to help that out, but—because I know when I was in school, we never really got any, 'Oh, this is the best way to help talk with the child.' They focus more on just how to counsel somebody who's elderly, but nobody ever said anything about, 'This is a good way to counsel a child and encourage them with their medication,' so I think continuing education might be a good way to do that." Pharmacist: "I would think having education during training or even after school would be really helpful because I think having some...having like the research you all are doing to see how different people take it—being able to get all of that knowledge together and analyze what work and what doesn't work. I think having that type of research would help probably provide an education platform for teaching people what would be beneficial for the child." Pharmacist: "I just think it's...maybe giving us information on the best ways to communicate with kids and what...at the various ages, what...developmentally, what are they...what's important to them? What kinds of things would turn off a child from having a solid, positive communication?"

ADD, attention deficit disorder; ADHD, attention deficit hyperactivity disorder; CE, continuing education

cists.¹³ This study is a first step in developing medication counseling services in community pharmacies targeted toward children. As medication experts, pharmacists are well positioned to decrease such barriers to care by providing developmentally appropriate medication education.

Although children are frequent consumers of prescription and non-prescription medications, little is known about their interactions with community pharmacists with respect to medication counseling. Provision of such pharmacy services can help reduce poor pediatric medication adherence.¹ In addition, there has also been limited research conducted to identify the needs of pharmacists so that they are better positioned to develop MTM services for children with chronic conditions. The current study's findings begin to address these gaps in care. We identified multiple barriers and facilitators that influence pharmacists' ability to provide medication counseling to children. The most frequently mentioned barrier was the absence of children during medication pickup by parents or caregivers. Many parents are picking up prescriptions from pharmacies without the child being present, which limits the frequency of child-pharmacist interactions and communication about medications. Lack of caregiver interest has been reported as a reason why pharmacists do not provide counseling to children, though this was not a prevalent barrier reported by participants in this study.¹⁹ Further research is needed to examine pharmacists' perceptions that parents are not comfortable with providing direct medication counseling to their children.

Another key barrier that was identified by participants was the need for a pharmacy environment that is conducive for providing medication counseling to children. Similar to other studies, the physical layout can impact willingness of patients to receive counseling.²⁰ Participants noted that the use of the drive-through window by parents or caregivers, as opposed to walking into the pharmacy, was a barrier to child-pharmacist communication. This is in line with a study conducted in 22 community pharmacies that found that providing counseling at the drive-through area may negatively influence quality of patient care.²¹ In a public environment like a pharmacy, children may feel uncomfortable engaging in conversation with a pharmacist regarding the importance of their medications. For example, birth control medication counseling may lead to questions that are more suitable for a private environment. Pharmacists perceived that having a private consultation room free of noise and distractions from a chaotic workflow might encourage children to participate in medication counseling. Creating a child-friendly environment with a welcoming and private consultation area may prompt families with children to come into the pharmacy and facilitate pharmacist-led counseling.

Participants also noted the need for pharmacist training on how to approach counseling for children. This

finding is similar to previous study results on pharmacists' perceptions and practices with children, which reported that only 57% of pharmacists felt adequately trained with child-specific issues.⁸ Also, a recent survey of community pharmacists in Canada also indicates that there is significant variability in pharmacists' perceived comfort, confidence, and knowledge when providing care for children.²² A substantial percentage of these Canadian pharmacists reported not being comfortable with the common pediatric prescriptions and identified a need for more education to ensure that community pharmacists have the skills and confidence to provide safe and effective care to a wide range of pediatric patients.²² Consequently, the lack of pharmacists' training may prevent them from providing developmentally appropriate medication information to children.¹⁰ However, participants that had experience engaging with children or had children of their own reported that this made them more comfortable providing direct medication counseling to children.

Study participants also identified a variety of facilitators to providing medication counseling to children, the most notable of which was the availability of demonstrative devices (e.g. placebo devices to demonstrate proper use of syringes, inhalers) and interactive technologies. We recommend that pharmacies provide placebo demonstrative devices such as oral syringes to encourage community pharmacists to counsel on proper administration of liquid medications. Electronic devices and visual tools can enhance child-pharmacist communications, increase knowledge about safe use of medicines, and retain patients' attention during counseling. A previous study reported that playing games or asking questions about children's hobbies helped pharmacists to gain the patient's attention before talking about medications.²³ Another study found that brief videos were effective at improving the inhaler technique of children with asthma.²⁴ Currently, patient education materials used in pharmacies are designed for adult patients and are rarely designed to assist children in learning about their medicines.²¹ Two studies have highlighted practical approaches and specific resources for community pharmacists to adopt and implement pediatric medication counseling services.^{2,25}

A limitation of this study is that data were collected from a convenience sample of participants in only 3 pharmacies, which was not equally representative in age, race, and sex. Pharmacy staff who were interviewed were those identified by their pharmacy managers as being interested in the study, which may bias our findings to report perspectives of individuals who are more willing to counsel children. However, data saturation was reached with 16 pharmacy staff interviews and participants were from Pennsylvania and North Carolina. A second limitation of this study is that nearly half of the participants in this study were pharmacy technicians, who are not authorized or

trained to provide medication counseling. Technicians were included to assess their comfort with child and parent interactions given that they are often present when the medication is being purchased by the family. Future studies should explore developing programs that train pharmacists providing medication counseling to pediatric patients.

Conclusion

Pharmacists, as medication experts, are widely accessible in the community, but are a significantly untapped resource in addressing medication non-adherence and counseling needs of children with chronic illnesses. This study highlights current practice barriers and needed interventions that can be implemented to facilitate child-pharmacist relationships and medication education in pharmacies. Study results indicate that pharmacists are rarely able to engage children in medication counseling because of the child's absence during medication pickup. Several environmental factors, including having child-centered tools, educational materials, and demonstrative devices, could help pharmacists more effectively engage pediatric patients in medication education. Our findings can assist in developing interventions targeted at addressing the barriers pharmacists encounter while educating children about safe and appropriate use of medicines.

ARTICLE INFORMATION

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