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Effect of Communication Style and Physician–Family Relationships on Satisfaction With Pediatric Chronic Disease Care

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Abstract

Over 8% of children have a chronic disease and many are unable to adhere to treatment. Satisfaction with chronic disease care can impact adherence. We examine how visit satisfaction is associated with physician communication style and ongoing physician-family relationships. We collected surveys and visit videos for 75 children ages 9–16 years visiting for asthma, diabetes, or sickle cell disease management. Raters assessed physician communication style (friendliness, interest, responsiveness, and dominance) from visit videos. Quality of the ongoing relationship was measured with four survey items (parent-physician relationship, child-physician relationship, comfort asking questions, and trust in the physician), while a single item assessed satisfaction. Correlations and chi square were used to assess association of satisfaction with communication style or quality of the ongoing relationship. Satisfaction was positively associated with physician to parent ($p < 0.05$) friendliness. Satisfaction was also associated with the quality of the ongoing parent-physician ($p < 0.001$) and child-physician relationships ($p < 0.05$), comfort asking questions ($p < 0.001$), and trust ($p < 0.01$). This shows that both the communication style and the quality of the ongoing relationship contribute to pediatric chronic disease visit satisfaction.

Between 8 and 20% of the global pediatric population lives with chronic disease (van Dyck, Kogan, McPherson, Weissman, & Newacheck, 2004), and the incidence of common chronic diseases, including asthma and diabetes mellitus type I, is increasing (Dabelea et al., 2007; Patterson et al., 2009). Adherence to complex management regimens can be problematic for children (Østbye et al., 2005; Sawyer, Drew, Yeo, & Britto, 2007; Ziaian et al., 2006). Subsequently, many children are not receiving recommended therapies to treat their disease (Finkelstein, Lozano, Farber, Miroshnik, & Lieu, 2002; Halterman et al., 2002; Lozano, Finkelstein, Hecht, Shulruff, & Weiss, 2003; McNally, Rohan, Pendley, Delamater, & Drotar, 2010; Teach, Lillis, & Grossi, 1998; Thornburg, Calatroni, Telen, & Kemper, 2010; Thornburg et al., 2010), and existing work in asthma, diabetes mellitus, and sickle-cell

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disease demonstrates poor adherence to treatment (Lozano et al., 2003; Morris et al., 1997; Thornburg et al., 2010).

Physician communication style plays an important role in shaping chronic disease outcomes (Clark et al., 1998, 2008; Drotar, 2009). Social Interaction Theory suggests that in the setting of a knowledge inequality between a provider and consumer, the affective component of the provider's communication style is an important determinant of satisfaction (Ben-Sira, 1976, 1980). This affective component is described as "the way one verbally or paraverbally interacts to signal how meaning should be taken, interpreted, filtered or understood" (Norton, 1978, p. 99). Knowledge inequality commonly exists between physician and patient, suggesting patient satisfaction and outcomes are likely affected by affective components of communication style (Ben-Sira, 1976, 1980). Studies of communication style in a single pediatric visit highlight how physician communication style influences satisfaction and health outcomes (Tates & Meeuwesen, 2001). For children with asthma being evaluated in an emergency department, significantly higher parent satisfaction was associated with a patient-centered communication style (Wissow et al., 1998). Another study of asthma patients found physician communication style including careful listening and partnering with patients influenced satisfaction (Clark et al., 2008).

Pediatric visits are also nuanced by the inclusion of a patient and a parent (or other caregiver), creating a triadic interaction with a physician-parent relationship and a physician-child relationship (Cox, Smith, & Brown, 2007; Cox, Smith, Brown, & Fitzpatrick, 2007, 2008, 2009; Tates & Meeuwesen, 2001; van Dulmen, 2004; Wissow et al., 1998). Prior work has explored communication in pediatric acute care, demonstrating that relationship building and participation by the child, as well as the parent, can improve satisfaction and treatment outcomes (McPherson, Glazebrook, Forster, James, & Smyth, 2006; Wissow et al., 1998). Pediatric patients with chronic disease identify specific components of physician communication style as important factors in their satisfaction and adherence, including friendliness, interest, responsiveness, and limiting physician dominance (Clark et al., 2008; Drotar, 2009). Friendliness is demonstrated through encouragement and praise, interest through listening to the patient's story and lived experiences, and responsiveness through attention to patient concerns, while physician dominance is limited through sharing the visit with the patient (e.g., collaborating on treatment plans) (Clark et al., 2008; Drotar, 2009).

Children with chronic disease and their parents experience repeated episodes of care (Boekaerts & Röder, 1999) and form ongoing relationships with their physician (DiMatteo, 2004; Drotar, 2009; Nobile & Drotar, 2003), which can impact satisfaction with care and outcomes (Street, 2003). Yet few studies have addressed the impact of these ongoing relationships on chronic disease visit satisfaction and adherence (DiMatteo, 2004). Crucial aspects of these relationships include the existence of an ongoing relationship (Nakhla, Daneman, To, Paradis, & Guttman, 2009), trust between the physician and the family, and comfort asking the physician questions (Beresford & Sloper, 2003; DiMatteo, 2004). Based on Social Interaction Theory, one would hypothesize that the quality of the ongoing relationship also influences satisfaction with care, especially in pediatric chronic disease where there may be a greater knowledge inequality due to the complexity of the disease.

This study examines how satisfaction within the unique setting of pediatric chronic disease care is affected by the physician's communication style during the visit as well as the quality of the ongoing relationship with both the parent and the child. We hypothesize that both physician communication style and the quality of the ongoing relationship will have significant associations with parent satisfaction with pediatric chronic disease care.

METHODS

Sample

We studied 75 children and adolescents ages 9 to 16 years from English-speaking families presenting for routine management of asthma, diabetes mellitus, or sickle-cell disease at two large Midwestern academic children's hospitals. Institutional review boards at both institutions approved this study.

Recruitment

We recruited pediatric specialists in asthma ($n = 2$), diabetes mellitus ($n = 2$), and sickle-cell disease ($n = 4$) at the participating institutions. Once physicians were recruited, parents of eligible children were approached prior to their visits by clinic staff until 25 children per target disease were enrolled.

Data Collection

Parent pre-visit surveys included demographic information and four items assessing the ongoing relationship with the physician. Immediately after the visit, parents responded to a single item assessing satisfaction (Beach et al., 2005). A video recording of the entire clinic visit was collected for each child with a small high-definition (HD) camera that was turned on when the physician entered the room and turned off when the physician exited. The researcher did not remain in the room during the visit.

Dependent Variable

The main outcome of interest was post-visit satisfaction. The satisfaction item in the survey ("How satisfied were you with your child's physician visit today?") was measured on a 6-point Likert scale (1 = *very dissatisfied* to 6 = *extremely satisfied*). As satisfaction ratings are often quite skewed (Beach et al., 2005; Patel & Cabana, 2010), responses were dichotomized for the purposes of analysis into extremely satisfied versus less than extremely satisfied (Beach et al., 2005).

Independent Variables

After viewing the visit video in its entirety, each rater provided a single rating for each of the four affective components of the physician's communication style (friendliness, interest, responsiveness, and dominance). Raters were trained using a manual and example visit videos. To ensure representation of the communication style as experienced by the parent and by the child, raters evaluated the physician's communication style with the parent and the child separately. Raters used a scale ranging from 1 to 6 (1 = *no indication* to 6 = *very prominent*). Ratings for each of the four communication style components were averaged across all three raters and the average value for each component in a given visit was used in our analyses.

The four survey items assessing the ongoing relationship were: (1) parent has an ongoing relationship with the physician ("I feel that I have an ongoing relationship with my child's doctor"), (2) child has an ongoing relationship with the physician ("I feel that my child has an ongoing relationship with his/her doctor"), (3) parent comfort asking questions of the physician ("I feel comfortable asking questions of the doctor"), and (4) parent trusts the physician ("I trust my child's doctor"). The items were rated on a 5-point Likert scale (1 = *disagree strongly* to 5 = *agree strongly*).

Data Analysis

The unit of analysis was the visit. Descriptive analysis was performed to characterize the sample and included mean, median, and interquartile range (IQR). No statistically significant differences were detected among disease groups in child or parent age, gender of the parent present in the visit, or visit satisfaction. Associations of satisfaction with communication style and with the ongoing relationship were assessed with Spearman correlation coefficients and chi-squared tests, respectively. Significance was assessed at a two-tailed $p < .05$. All analyses were performed in Stata v.11 (StataCorp, 2009).

RESULTS

Visit Characteristics

Family and physician demographics are shown in Table 1. Median child age was 11.2 years, and more than 80% of children were accompanied by their mothers. Median parent age was 39.5 years and more than one-fourth (26%) of parents had at least a bachelor's degree. Nearly half of children had been seeing their physician for more than 4 years. Physicians had a breadth of practice experience and saw an average of six patients per half-day clinic. The median visit length was 20.9 minutes (IQR 17.6–27.4 minutes).

Satisfaction

Forty-seven percent of parents were extremely satisfied with the visit, while 45% were very satisfied, 5% were satisfied, and 3% were very dissatisfied.

Communication Style

Assessments of the physician's communication style with the parent and the child during the visit is summarized in Table 2. Overall, median values ranged between 3 and 4 on the 6-point scale. Physicians' communication style with parents was similar for friendliness, interest, and responsiveness, with median values around 3.7. Dominance by the physician was rated as less evident with a median value of 3.0. Physician communication style with children was rated as more friendly and also more dominant compared to the ratings with parents.

Ongoing Relationship With the Physician

Figure 1 shows 43% of parents strongly agreed that they had an ongoing relationship with the physician providing their child's chronic disease care, while 51% agreed. Similarly, 41% of parents strongly agreed that their child had an ongoing relationship with the physician, while 49% agreed. Sixty-four percent of parents strongly agreed that they were comfortable asking questions of their physician, while 35% agreed. Additionally, 65% of parents strongly agreed that they trusted their child's physician, while 33% agreed.

Association Between Satisfaction and Communication Style

Of the components of communication style assessed during the visit, only the friendliness of the physician toward the parent was significantly associated with visit satisfaction ($\rho = .25$, $p < .05$). Additionally, the friendliness of the physician toward the child ($\rho = .21$, $p < .10$) trended toward a positive association with satisfaction, but did not achieve statistical significance (Table 3).

Association Between Satisfaction and Quality of Ongoing Relationships

Satisfaction with chronic disease visits was significantly associated with the four measures of the quality of the ongoing relationship (Figure 2). Thirty-one percent of parents reported

feeling extremely satisfied and strongly agreed that they had an ongoing relationship with the physician, while 12% strongly agreed and were less satisfied ($p < .001$). Twenty-five percent of parents were extremely satisfied and strongly agreed that their child had an ongoing relationship with the physician while 16% strongly agreed and were less satisfied ($p < .05$). Forty-one percent of parents were extremely satisfied and strongly agreed that they were comfortable asking the physician questions, while 23% strongly agreed and were less satisfied ($p < .001$). Forty percent of parents reported being extremely satisfied and strongly agreed that they trusted the physician, while 25% strongly agreed and were less satisfied ($p < .01$).

DISCUSSION AND CONCLUSION

This study presents new information on how satisfaction with pediatric chronic disease visits is influenced by both the physician communication style in a single visit and the ongoing relationships children and their parents experience with physicians. Specifically, the physician's friendliness within the visit is significantly associated with higher satisfaction. Additionally, parents are significantly more satisfied with the care received for their child's chronic disease when they report higher quality ongoing relationships with their child's physician across all four measures of relationship quality. These findings inform efforts to improve satisfaction with pediatric chronic disease care and perhaps ultimately enhance adherence to self-management regimens.

Despite the known impact of communication style on visit satisfaction and adherence (Clark et al., 2008; Wissow et al., 1998), we demonstrated only one significant association with satisfaction—that of physician friendliness toward the parent. Yet studies based in Social Interaction Theory have supported its premise that communication style may be more important to patient satisfaction than actual content of the communication (Avis, Bond, & Arthur, 1997; Whitten, Mylod, Gavran, & Sypher, 2008). Other survey-based studies have found multiple associations between satisfaction and parent or child report of communication style (Clark et al., 2008; Wissow et al., 1998). These studies utilized survey measures of communication style and found improvements in satisfaction and outcomes as predicted by social interaction theory.

Various reviews discuss the relationship that parents and children experience with their pediatrician in chronic disease visits, often focusing on communication within a single visit (Drotar, 2009; Fielding & Duff, 1999; Nobile & Drotar, 2003). Relationships, however, are built across multiple interactions around a common goal (Hinde, 1997). A recent review of effective communication strategies in pediatric chronic disease concludes that little attention has been paid to the importance of long-term relationships to adherence (DiMatteo, 2004). Yet among children with chronic disease transitioning to adult care, increased hospitalizations occurred among children who switched disease management physicians and allied health teams, in comparison to children who either kept the same physician but experienced a change in the allied health team or kept the same physician and allied health care team (Nakhla et al., 2009). Our results demonstrating the effect of ongoing relationships on satisfaction with pediatric chronic disease visits are consistent with this study's findings. Further, little attention has been paid to elucidating the critical aspects of ongoing relationships. We identified four specific aspects of ongoing relationships that were significantly associated with satisfaction, namely, the relationship between the parent and the physician, the relationship between the child and the physician, the parent's comfort asking the physician questions, and the parent's trust in the physician.

Our study has notable strengths and limitations. The use of audio and video data in our study fills an important gap in the current understanding of how communication influences

outcomes, by allowing observation of communication as it occurs in the visit and including both verbal and non-verbal cues (Ben-Sira, 1976, 1980; Norton, 1978). Also, when attempting to help physicians improve communication with patients, having video data can provide concrete examples of visits perceived as “friendly” or “less friendly” styles of communicating. Future work could also expand the measures of communication style to further elucidate important influences on outcomes such as visit satisfaction and adherence.

Also, although satisfaction was often quite high, we found evidence to support our hypotheses. Our families’ levels of satisfaction are similar to those in other studies of visits by adults and children (Beach et al., 2005; Byczkowski, Kollar, & Britto, 2010; Patel & Cabana, 2010), with the vast majority reporting they were either extremely or very satisfied. Yet there is still room for improvement if we aim to have all families extremely satisfied with their care, especially in light of how this satisfaction may impact adherence to complex chronic disease self-management regimens (Anderson & Zimmerman, 1993; Roter, Hall, & Katz, 1988).

With regard to limitations, first, our cross-sectional study design does not support longitudinal assessments of satisfaction or the ongoing relationship quality. Given that both the communication style in a single visit and the ongoing relationship influence satisfaction, future longitudinal work could illuminate how ongoing relationships and communication style change over time and how these changes influence satisfaction or adherence. Second, only parent satisfaction with care, and not child satisfaction, was measured, but at least one study suggests parent and child satisfaction may not be significantly different (Byczkowski et al., 2010). Third, we limited our study population to three pediatric chronic diseases, selected to represent treatment plans requiring varying levels of patient and family involvement (Smith & Shuchman, 2005; Williams, Holmbeck, & Greenley, 2002) in addition to capturing diseases with worldwide prevalence (ISAAC, 1998). Further, we studied care delivered at two academic institutions in the Midwest, which could limit the generalizability of study findings. However, 44% of pediatric subspecialists practice in an academic setting, and these physicians represent the care source for many children with chronic disease (Stoddard et al., 2000). Additionally, our sample size may have been insufficient to detect some associations and limits our ability to perform subgroup analyses for each disease. Despite the sample size, we did find significant associations between satisfaction and both the communication style within the visit and the ongoing relationship. Lastly, our measures may overestimate satisfaction with pediatric chronic disease visits since study patients were those who attended management visits and therefore may be more satisfied than patients who do not attend.

The results of this study have important implications for the care of children with chronic disease. Attention to communication style, specifically showing friendliness toward parents, can improve satisfaction. Additionally, building ongoing relationships with children and their parents, including comfort asking questions of the physician and high trust, could lead to improvements in visit satisfaction and ultimately adherence. Based on Social Interaction Theory, this may be particularly true for families where the knowledge gap is largest, such as those with limited health literacy. Development of ongoing relationships can be facilitated by showing interest in the patient and parent beyond their disease, respecting the patient and parent input regarding treatment plans, and ensuring adequate time and privacy during visits (Drotar, 2009). Additionally, medical school, residency, and fellowship programs should offer training on building strong, continuous relationships with pediatric patients with chronic disease and their parents. This recommendation is consistent with research demonstrating that interventions to improve medical student communication skills are feasible and efficacious (Ahsen et al., 2010) and that continuity of care in resident clinics is

feasible to schedule (McBurney, Moran, Ector, Quattlebaum, & Darden, 2004) and can improve outcomes (Christakis, Wright, Zimmerman, Bassett, & Connell, 2003).

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FIGURE 1.
Quality of Ongoing Relationship (n = 75).

FIGURE 2.

Parent Satisfaction by Quality of Ongoing Relationship (n = 75).

TABLE 1

Participant Characteristics

	% or Median (IQR [*])
Family Characteristics (n = 75)	
Child age in years, median (IQR [*])	11.2 (10.1–14.4)
White, non-Hispanic child	61%
Parent age in years, median (IQR [*])	39.5 (35.0–45.0)
Mother at visit	83%
Parent education	
High school or less	24%
Some college	30%
Associates degree	20%
Bachelors degree	12%
Graduate/professional degree	14%
How long child has known physician	
Less than 1 year	21%
1–2 years	17%
2–3 years	11%
3–4 years	7%
More than 4 years	44%
Physician Characteristics (n = 8)	
Years in practice, median (IQR [*])	10.0 (6.5–13.5)
White, non-Hispanic	100%
Patients per half-day clinic, median (IQR [*])	6.5 (4.5–7.5)

^{*}IQR = Interquartile Range.

TABLE 2

Median and Interquartile Range for Communication Style (n = 75)

	Friendliness	Interest	Responsiveness	Dominance
Physician to Parent	3.7 (3.3–4.0)	3.7 (3.3–4.0)	3.8 (3.3–4.0)	3.0 (3.0–3.3)
Physician to Child	4.0 (3.3–4.3)	3.7 (3.3–4.0)	3.7 (3.3–4.0)	3.3 (3.0–3.3)

Note: Ratings are on a scale from 1 = no indication - 6 = very prominent.

TABLE 3

Association of Satisfaction With Communication Style (n = 75)

Communication Styles	Spearman Rho
Physician to parent friendliness	0.25 ^a
Physician to parent interest	0.08
Physician to parent responsiveness	0.00
Physician to parent dominance	0.06
Physician to child friendliness	0.21
Physician to child interest	0.05
Physician to child responsiveness	0.02
Physician to child dominance	-0.02

^a
p < 0.05.