Abstract

**Background:** Effective communication is integral to establishing the caregiver-patient-physician relationship in pediatrics to deliver high quality healthcare. Understanding the drivers of quality caregiver-physician communication can improve patient-physician interactions. The goal of this study is to identify caregiver expectations and preferences of communication in the pediatric outpatient clinical visit and to determine if there is a correlation between communication strategies and satisfaction.

**Methods:** A survey assessment was administered to caregivers of new patients under 9 years old at the Children's Hospital of Philadelphia outpatient clinic. The pre-visit survey assessed caregiver preferences of on various aspects of caregiver-physician communication (Preferred KEECC). The post-visit survey assessed caregiver perception of the quality of physician communication (Perceived KEECC) and caregiver satisfaction using the patient satisfaction questionnaire-18 (PSQ-18).

**Results:** Of 37 caregivers surveyed, the average Preferred KEECC score was 32.14/35 compared to an average Perceived KEECC total score of 32.42. There was no statistically significant difference between Preferred KEECC and Perceived KEECC scores (p-value 0.4707). Caregivers identified the categories of ‘Building a relationship’ and ‘Sharing Information’ as key for communicating with their child’s physician. The average caregiver PSQ-18 score was 4.3/5. Perceived KEECC score was correlated with the PSQ-18 score for satisfaction (R= 0.4687, p-value <0.01).

**Conclusions:** There is a correlation between perceived quality of physician communication and caregiver satisfaction. This study identifies caregiver-preferred elements of patient-physician communication in the pediatric outpatient clinical setting.

ABBREVIATIONS

KEECC: Kalamazoo Essential Elements of Communication Checklist; PSQ-18: Patient Satisfaction Questionnaire Short Form

INTRODUCTION

As the patient-provider relationship evolves from an authoritative to more of a collaborative partnership, the expectations of patients have similarly transformed and there is a renewed emphasis on patient satisfaction. Many factors influence patient satisfaction, with communication and interpersonal skills being one that the practitioner has more autonomous control. Effective communication is an important component of building and maintaining a strong patient-provider relationship and delivering high quality healthcare. In pediatrics, there is an added layer of intricacy, as communication about patient health often occurs indirectly through caregivers (legal guardians or parents). Physicians must be able to recognize the interpersonal dynamics during a clinical interaction to determine how best to adapt their communication style to the patient and caregiver, in order to provide the best care possible and promote patient satisfaction [1-5].

Previous studies indicate that patients desire to be treated with respect while simultaneously achieving an understanding of what is being communicated during a clinical interaction [6]. Training can improve physician communication skills, but the effects of these interventions on patient satisfaction, health behavior and health outcomes are mixed [7,8]. Nevertheless, interventions that can help physicians integrate effective communication skills remains appealing for both improving patient care and patient satisfaction.
The increased awareness of the role of communication in healthcare is reflected in the focus on communication skills in the medical education curriculum at both the undergraduate and graduate level [9-12]. Despite the focus on teaching communication skills in the medical setting [13-16], accurate assessment of these skills remains difficult [17]. Self-assessment is limited by the possibility of self-over-appraisal and can result in not fully recognizing or addressing areas that need improvement [17-19]. Faculty observers and standardized patients tend to share more similar agreement in their assessment of physician communication and interpersonal skills, but these opportunities are limited after the completion of undergraduate medical education [20,21]. Ultimately, the receiver (patient/caregiver) perception of communication is likely the most important outcome to measure, but one study suggests that physicians and patients have differing views of the physician’s communication skill in a clinical encounter [22].

The ability to communicate clearly is integral to a successful clinical interaction [19]. There are limited studies on physician communication performance. As physicians serve as role models for trainees, it is imperative to ensure appropriate modeling of behaviors. Understanding patient expectations of patient-physician communication can further help direct training efforts. The goal of this survey study is to better understand caregiver expectation and preferences of communication in the pediatric outpatient clinical visit and to determine if there is a correlation between physician communication strategies and caregiver satisfaction.

MATERIALS AND METHODS

Setting and design

A survey study was performed at the Children’s Hospital of Philadelphia, Pediatric Gastroenterology (GI) outpatient clinic in 2015. Caregivers with children under 9 years of age who were being seen in the GI clinic for a new patient visit were approached for the study.

Participating caregivers completed a pre-visit and post-visit survey. The pre-visit survey was administered just prior to the clinic visit while the patient was waiting to be seen and assessed caregiver preferences of various aspects of caregiver-physician communication (Preferred KEECC). The post-visit survey was administered immediately after the clinic visit and assessed both caregiver satisfaction (PSQ-18) and the perceived quality of the communication between caregiver and physician (Perceived KEECC).

Outcome measures

An adapted version of the Kalamazoo Essential Elements of Communication Checklist (KEECC) was utilized to measure caregiver perception of physician communication [23] which has been shown to be a reliable and valid measure of physician communication skills [17]. The KEECC consists of 24 items corresponding to one of the seven essential elements of physician communication: Building a Relationship, Opening the Discussion, Gathering Information, Understanding Patient Perspective, Sharing Information, Reaching an Agreement, and Providing Closure [23]. Each item is rated on five-point Likert scale, with higher scores indicating better communication skills [21,23]. The same KEECC survey was administered: 1) before the clinic visit to assess caregiver preferred communication strategies (Preferred KEECC), and 2) after the clinic visit to assess caregiver perceived quality of communication (Perceived KEECC).

To assess caregiver satisfaction with clinical care, the Patient Satisfaction Questionnaire Short Form (PSQ-18) was used [24-26]. The PSQ-18 is a validated 18-item instrument that measures seven dimensions of satisfaction with medical care: general satisfaction, communication, interpersonal manner, time spent with doctor, technical quality, financial aspects, and accessibility and convenience. The PSQ-18 can be used in various settings and PSQ-18 scores correlate with the full-length PSQ-II scores [27,28].

Statistical analysis

Descriptive statistics were used and data are presented as mean and standard deviation for continuous parametric data and as median (interquartile range) for continuous nonparametric data. Cronbach α was calculated to assess internal consistency across items for each survey instrument (KEECC and PSQ-18). Wilcoxon signed rank test was performed to compare caregiver preferred versus caregiver perceived KEECC scores. Spearman’s rho was used to determine correlation between caregiver satisfaction and perceived physician communication behaviors.

RESULTS AND DISCUSSION

A total of 37 new patient clinical visits were approached for survey with a 100% response rate. The age of the patients ranged from 2 months to 9 years old. The primary caregiver was most commonly female (86%). Caregivers were asked about the importance and their preference of experience, gender, and age of their child’s physician. 86% of caregivers reported physician experience was important, while 20% and 26% felt that physician gender and age were important respectively. Caregivers reported a preference for a female physician (66%) although 28% stated no preference with regards to physician gender. Most caregivers (63%) preferred their child to be seen by a physician who was perceived to be older than the caregiver.

Caregivers most commonly (66%) approached the clinic visit as a consultative experience where they preferred asking questions before accepting physician recommendations; 31% viewed the clinic visit as an authoritative experience where they expected the physician to tell them what to do. All caregivers felt that communication with the physician was a key aspect of the clinic visit as 63% of caregivers reported that their first impression of the healthcare provider was integral to their overall satisfaction with the clinical visit.

To assess caregiver preferred communication strategies, the Preferred KEECC score was calculated based on pre-visit KEECC survey responses. The average caregiver Preferred KEECC score was 32.14 out of a total possible score of 35 (σ=3.99). Caregivers identified the categories of ‘Building a Relationship’ and ‘Sharing Information’ were as being preferred communication strategies when interaction with their child’s physician. Specific caregiver-preferred physician communication skills include perceiving that the physician: ‘shows interest in you/your child as a person’, ‘uses tone and pace that show care and concern’, and asks ‘if you
have any questions about the treatment plan'. Caregiver gender did not play a role in communication preferences.

Caregivers reported a generally positive clinic communication experience as measured by the Perceived KEECC score. Most caregivers perceived that their child's physician communicated at or above their expectation with an average Perceived KEECC total score of 32.42 out of 35 ($n=4.17$). Caregivers perceived that physicians communicated best in the categories of 'Sharing Information' and 'Reaching an agreement' (Table 1). There was no significant difference between Preferred KEECC and Perceived KEECC scores ($p$-value 0.4707).

To assess satisfaction, the PSQ-18 was administered. Caregivers reported an average PSQ-18 satisfaction score of 4.3 out of 5. Analysis of subset scores of the PSQ-18 showed that caregivers felt high satisfaction with regards to: general satisfaction, physician communication, and physician interpersonal manner (Table 2). Perceived quality of communication (Perceived KEECC score) was correlated with the PSQ-18 score for satisfaction ($R=0.4687, p$-value 0.0078) (Table 3).

**Internal Reliability**

Cronbach $\alpha$ value was 0.98 for caregiver Perceived KEECC ratings and each individual question was found to be strongly related to the overall KEECC measure. For the PSQ-18, Cronbach $\alpha$ was 0.87.

**DISCUSSION**

In our study, caregivers generally perceive that their child's physician is communicating well during the clinic visit. The caregiver’s approach to the clinic visit can impact physician communication strategies. For caregivers who view the clinic encounter as a consultative experience and ask questions before accepting physician recommendations, physicians should be cognizant of allowing caregivers sufficient time to share information and feel like they are heard [19]. However, a study by Beckman and Franke (1984) showed that on average, physicians interrupted patients after they had been speaking for only 18 seconds, typically during the patient’s statement of the reason for the clinic visit, which often limited patients from voicing additional concerns [30].

Our study showed that 'Building a Relationship' and 'Sharing Information' are key aspects of communications for caregivers.

---

### Table 1: Comparison of Caregiver Preferred Kalamazoo Essential Elements of Communication Checklist (Preferred KEECC) score versus Perceived KEECC score

<table>
<thead>
<tr>
<th></th>
<th>Preferred KEECC (n = 36)</th>
<th>Perceived KEECC (n = 31)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average (SD) Median (IQR)</td>
<td>Number &gt;= Very Good*</td>
</tr>
<tr>
<td>Total KEECC Score**</td>
<td>32.14 (3.99) 34.21 (29.87-35)</td>
<td>30 (83.3%)</td>
</tr>
<tr>
<td>Building a Relationship</td>
<td>4.69 (0.63) 5 (4.75-5)</td>
<td>33 (91.7%)</td>
</tr>
<tr>
<td>Opening the Conversation</td>
<td>4.45 (0.77) 5 (4-5)</td>
<td>30 (83.3%)</td>
</tr>
<tr>
<td>Gathering Information</td>
<td>4.56 (0.66) 5 (4-5)</td>
<td>32 (88.9%)</td>
</tr>
<tr>
<td>Understanding Patient Perspective</td>
<td>4.52 (0.65) 5 (4-5)</td>
<td>29 (80.6%)</td>
</tr>
<tr>
<td>Sharing Information</td>
<td>4.79 (0.57) 5 (4.75-5)</td>
<td>34 (94.4%)</td>
</tr>
<tr>
<td>Reaching an Agreement</td>
<td>4.58 (0.66) 5 (4.17-5)</td>
<td>32 (88.9%)</td>
</tr>
<tr>
<td>Providing Closure</td>
<td>4.59 (0.59) 4.75 (4.13-5)</td>
<td>33 (91.7%)</td>
</tr>
</tbody>
</table>

SD: Standard Deviation
* Each category scored on a five-point Likert scale (1 = Poor, 2 = Fair, 3 = Good, 4 = Very Good, 5 = Excellent)
** Maximum score of 35
* Corresponding score $\geq$ 28
to improve communication is to identify and emulate specific behaviors that are preferred by caregivers or associated with improved satisfaction [1,31,31]. Part of patient satisfaction can be attributed to establishing a compassionate and caring connection between patient and physician [1]. Specific to pediatrics, physicians need to interpret the patient-caregiver dynamic and determine the desired level of patient involvement in joint decision making processes. To better understand drivers of quality patient-physician communication, additional studies are needed.

Limitations of this study include reporting bias, as caregivers may be hesitant to rate their child’s physician poorly. Caregivers may have been primed to specifically monitor for physician communication strategies based on the nature of the study, which could also lead to bias. In addition, while the KEECC and PSQ-18 are well validated, the KEECC has largely been studied in a mock clinical setting, with the assessment being conducted by standardized patients who were trained in the observation of communication skills. However, many of the communication elements are self-explanatory and should be easily discerned by most caregivers. The PSQ-18 is designed to be answered by patients instead of a proxy such as the caregiver and it is possible that caregivers may interpret items of the PSQ differently than intended. Sample size may limit the full range of conclusions that can be made from this study and further studies are necessary to corroborate findings.

CONCLUSION

Healthcare providers should possess some degree of communicative dexterity to help them navigate various types of patient and caregiver interactions. By understanding drivers of caregiver communication, healthcare providers gain the opportunity to improve the quality of care provided and patient-caregiver satisfaction. This study identifies caregiver-preferred essential elements of patient-physician communication in the pediatric outpatient clinical setting and suggests a correlation between perceived physician communication quality and patient satisfaction. One potential area of focus for physicians to meet the communication needs of caregivers is to identify how caregivers perceive information sharing and how they learn or receive information best. Overall, healthcare is a human service and as such, physicians are relied upon for more than just making the correct diagnosis. As stewards for patients through times of health and illness, physicians must be adequately trained in appropriate communication skills to provide high quality, high satisfaction patient care.

ACKNOWLEDGEMENTS

Funding for this research study was from a private foundation, the Fred and Suzanne Biesecker Pediatric Liver Center (217260616-01). The funders had no involvement in the design collection, analysis, or writing of this report.

REFERENCES

2. Kaplan SH, Greenfield S, Gandek B, Rogers WH, Ware JE Jr. Characteristics of physicians with participatory decision-making

| Table 2: Patient Satisfaction Questionnaire 18 (PSQ-18) scores by Caregivers. |
|-----------------------------|-----------------|------------|-----------------|
| **n = 35**                  | **Average (SD)**| **Median (IQR)** | **Number >= Very Good** |
| PSQ-18 Total                | 4.30 (0.51)     | 4.4 (3.85-4.78) | 24 (68.5%)       |
| General Satisfaction        | 4.53 (0.56)     | 5 (4-5)       | 32 (91.4%)       |
| Communication               | 4.59 (0.54)     | 5 (4-5)       | 33 (94.3%)       |
| Interpersonal Manner        | 4.43 (0.62)     | 4.5 (4-5)     | 31 (88.6%)       |
| Time Spent                  | 4.10 (0.77)     | 4 (4-5)       | 27 (77.1%)       |
| Accessibility & Convenience | 3.94 (0.87)     | 4 (3.33-4.67) | 18 (51.4%)       |
| Technical Quality           | 4.31 (0.60)     | 4.5 (4-4.75)  | 28 (80%)         |
| Financial Aspects           | 4.17 (0.83)     | 4 (3.75-5)    | 26 (74.3%)       |
| Modified Communication      | 4.51 (0.51)     | 4.6 (4-5)     | 32 (91.4%)       |

SD: Standard Deviation

*PSQ questions are scored on a five-point Likert scale (1 = Poor, 2 = Fair, 3 = Good, 4 = Very Good, 5 = Excellent)

| Table 3: Correlation between Caregiver Perceived Kalamazoo Essential Elements of Communication Checklist (Perceived KEECC) score and Patient Satisfaction Questionnaire 18 (PSQ-18) scores. |
|---------------------------------|-----------------|-----------------|
| **Spearman’s rho**             | **p-value**     |
| PSQ-18 Total                   | 0.4687          | 0.0078          |
| General Satisfaction           | 0.4346          | 0.0146          |
| Communication                  | 0.5056          | 0.0037          |
| Interpersonal Manner           | 0.1984          | 0.2846          |
| Modified Communication Satisfaction | 0.5028 | 0.0039          |

For these two aspects of communication, the interaction is more reciprocal as the caregiver possesses relatively more control and input over the pace and nature of the interaction. This observation reinforces the dynamic interaction between the caregiver and physician. However, in our study, ‘Building a Relationship’ was the lowest perceived essential element of caregiver satisfaction. This study identifies caregiver-preferred essential elements of patient-physician communication in the pediatric outpatient clinical setting and suggests a correlation between perceived physician communication quality and patient satisfaction. One potential area of focus for physicians to meet the communication needs of caregivers is to identify how caregivers perceive information sharing and how they learn or receive information best. Overall, healthcare is a human service and as such, physicians are relied upon for more than just making the correct diagnosis. As stewards for patients through times of health and illness, physicians must be adequately trained in appropriate communication skills to provide high quality, high satisfaction patient care.

Cite this article