

Family-healthcare Provider Communication and Reported Health among Children and Adolescents in the United States: Results from the National Survey of Children's Health

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Abstract

Background and Purpose: Most research regarding healthcare communication focuses on adults. The study investigated how family-healthcare provider communication influences reported health and activity limitations among U.S. children ages 0 to 17. **Methods:** In the 2011-2012 National Survey of Children's Health, parents reported information on 87,133 children aged 0 to 17 years. The influences of different aspects of perceived healthcare communication on reported health and activity limitations were assessed using weighted logistic regression. **Results:** Children who were Hispanic or non-Hispanic Black, spoke a language other than English, had unemployed parents, and received public health coverage tended to have healthcare providers who did not communicate effectively. Hispanics reported worse communication experiences than non-Hispanic Blacks. Children whose provider never/sometimes spent enough time with them were more likely to have poor/fair health and to have activity limitations compared to those whose provider usually/always spent enough time. Having a healthcare provider who reportedly never/sometimes listened carefully to the caregiver was associated with poor/fair health and activity limitations (among children. **Conclusion:** Ineffective communication between healthcare providers and families was associated with poor reported health. Ineffective communication was more commonly reported by non-Hispanic Black and Hispanic families compared to non-Hispanic White families. Interventions to improve communication may promote children's health.

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Introduction

Communication is termed the most frequent "procedure" in medicine by the American Academy of Pediatrics (AAP) (2003). Effective communication between the physician and patient/parent promotes truthful disclosure of the reason for the visit, greater discussion of psychosocial issues, development of successful treatment plans, and parental satisfaction (American Academy of Pediatrics, 2003; Sutcliffe et al., 2004; Kodjebacheva, Sabo, & Xiong, 2016). In prior meta-analysis, establishing rapport and trust during the healthcare communication process were associated with improved adherence to treatment recommendations among children (Zolnierek & DiMatteo, 2009).

Most research to examine healthcare communication focused on the adult patient-physician relationship (Weeger & Farin, 2017; Lekas et al., 2016; Rogal et al., 2016; Santoso et al., 2016; Beck, Daughtridge, & Sloane, 2002). Prior research in adults found that emotionally supportive communication by physicians was associated with better health-related quality of life (Weeger & Farin, 2017). Research related to communication in pediatric care is limited. A prior study examined the influence of communication on delayed health care and emergency room visits among children with special health care needs in the U.S. (Kuo, Bird, & Tilford, 2011). Among children with special health care needs, having a physician who addressed family concerns in the communication

process was associated with less delayed health care and fewer emergency room visits (Kuo, Bird, & Tilford, 2011).

Aims and Hypotheses

To inform the development of future interventions, we aimed to investigate the socio-demographic differences in reported healthcare communication experiences and the influence of reported healthcare communication on health and activity limitations in a nationally-representative probability sample of 87,133 children and adolescents aged 0 to 17 years in the U.S. We hypothesized that reported ineffective healthcare communication experiences were more common in non-Hispanic Black and Hispanic families and families of lower socioeconomic status compared to non-Hispanic White and families of higher socioeconomic status, respectively (Hypothesis 1). We also hypothesized that reported ineffective healthcare communication was related to poor/fair health and activity limitations among children (Hypothesis 2).

Methods

Survey and Participants

The most recent data available from the 2011-2012 National Survey of Children's Health (NSCH) were used (Child and Adolescent Health Measurement Initiative, CAHMI, 2012). An advantage of the NSCH is that it included information on various communication experiences such as the "physician spending enough time with the child," "listening carefully to the caregiver," "being sensitive to the family's values and customs," and "helping the caregiver feel as a partner."

The NSCH has been used to collect data since 2003 (CAHMI, 2012; Kodjebacheva & Sabo, 2016; Kodjebacheva, Sabo, & Parker, 2016). A list-assisted random digit-dial (RDD) sample of landline telephone numbers and an independent RDD sample of cell-phone numbers were used. Stratification by state and sample (landline or cell-phone) occurred. During random telephone calls, households with one or more children under the age of 18 years were sought. One child was randomly selected per household. The

household member who reported to be most knowledgeable about the child's health participated in the telephone survey. The languages in which the interviews were conducted included English, Spanish, Mandarin, Cantonese, Vietnamese, and Korean. The response rates were 38.2% for landline sample, 15.5% for the cell phone sample, and 23.0% for the dual-frame sample (CAHMI).

The 2011-2012 survey obtained information on the physical and mental health status, access to quality health care, and neighborhood characteristics of 95,677 children and adolescents (henceforth referred to as "children") aged 0-17 years. For all the independent, dependent, and socio-demographic variables that were included in the final analysis, children with missing, "refused," or "I don't know" responses were excluded. In addition, 2,955 missing responses were deleted for each communication variable because the missing responses represented a "legitimate skip" when the child had no provider visit. The resulting sample included 87,133 participants. The 95,677 participants in the complete dataset and the 87,133 participants in this study had similar characteristics in terms of gender, age, race/ethnicity, health status, activity limitations, and communication.

Independent Variables

To assess perceived family-provider communication, the survey items/questions for the independent variables were: "Doctor and other health care providers spend enough time with him/her;" "doctors and other health care providers listen carefully to you;" "doctors and other health care providers are sensitive to your family's values and customs;" "how often did you get the specific information you needed from your child's doctor or other health care providers;" and "how often did your child's doctors or other health care providers help you feel like a partner in his/her care." All items had Likert-scale responses: never, sometimes, usually, always.

Dependent Variables

To obtain information on the dependent variables, i.e. health and activity limitations, the

following questions were used: “In general, how would you describe the selected child's health?” (response options: Excellent, very good, good, fair and poor) and “Is selected child limited or prevented in any way in his/her ability to do the things most children of the same age can do?” (response options: yes, no).

Socio-Demographic Factors

Gender, race/ethnicity, the respondents' relation to the child, the number of adults in the household, primary language, healthcare coverage, employment status of the household, and poverty were the socio-demographic factors. The number of household adults was categorized as 1 adult, 2 adults, and greater than or equal to 3 adults. The relationship of the respondent to the child was maternal, paternal or other. The primary language of the household was classified as English or a language other than English. Healthcare coverage was categorized as “private” or “public.”

To obtain information on poverty status, a variable on whether the child was living in a working poor household was used. A household with a parent or parents employed full-time with an income of less than 100% the federal poverty level (FPL) was defined as a working poor household. To describe employment status, a question, which asked whether anyone in the household worked “at least 50 weeks of the past 52 weeks” was included.

Analyses

The analysis was performed using IBM SPSS 21.0. To compare the socio-demographic characteristics between children whose providers were perceived to never/sometimes communicate well versus those whose providers were perceived to usually/always communicate well as part of Hypothesis 1 testing, Pearson's chi-square tests were conducted. As part of Hypothesis 2 testing, using Pearson's chi-square tests, children whose providers never/sometimes communicated well versus those whose providers usually/always communicated well were compared based on the dependent variables: (1) having fair/poor health and excellent/very good/good health and (2) having or not having activity limitations.

In Tables 1-4, data can be assessed both horizontally and vertically. Horizontally, percentages for responses never/sometimes and usually/always for one socio-demographic or health status group sum up to 100%. For example, among all non-Hispanic White children, 5.7% had healthcare providers who never/sometimes “listened carefully” and 94.3% had healthcare providers who usually/always “listened carefully” ($5.7\% + 94.3\% = 100\%$) (Table 1). Among all non-Hispanic Black children, 11.9% had healthcare providers who never/sometimes “listened carefully” and 88.1% had healthcare providers who usually/always “listened carefully” ($11.9\% + 88.1\% = 100\%$) (Table 1). Among children with excellent/very good/good health status, 7.7% had healthcare providers who never/sometimes “listened carefully” and 92.3% had healthcare providers who usually/always “listened carefully” ($7.7\% + 92.3\% = 100\%$) (Table 3). Among children with poor/fair status, 20.1% had healthcare providers who never/sometimes “listened carefully” and 79.9% had healthcare providers who usually/always “listened carefully” ($20.1\% + 79.9\% = 100\%$) (Table 3). Vertically, we can compare percentages for different socio-demographic or health status groups who gave never/sometimes or usually/always responses. For example, among children whose provider reportedly never/sometimes “spent enough time” with them, 32.8% were Hispanic, 28.8% were non-Hispanic Black, 21.5% were non-Hispanic Multi-Racial/Other, and 10.7% were non-Hispanic White (Table 1).

To test Hypothesis 2, we also conducted adjusted logistic regression analysis that was weighted to the U.S. population. In order to conduct weighted analyses, we used the STATE and SAMPLE variables as strata, IDNUMR as the cluster and NSCHWT as the weight in the statistical software. Using adjusted weighted logistic regression, we investigated the influence of the different perceived communication variables (i.e. the variables in the sub-section “independent variables” above) on health and activity limitations while controlling for socio-demographic factors specifically race/ethnicity, gender, number of adults in household, language

spoken at home and living in a working poor household.

Results

Most participants were non-Hispanic White, lived in households with 2 adults, spoke English at home, and had private insurance coverage (Table 1).

Results Related to Hypothesis 1

A higher percentage of children whose provider never/sometimes communicated well were Hispanic or non-Hispanic Black, lived in households with 1 adult, and received public health care coverage compared to those who were non-Hispanic White, lived in households

with more than 1 adult, and received public coverage, respectively (Tables 1 and 2). These sociodemographic differences in reported communication were statistically significant. For example, among children whose provider reportedly never/sometimes “spent enough time” with them, 32.8% were Hispanic, 28.8% were non-Hispanic Black, 21.5% were non-Hispanic Multi-Racial/Other and 10.7% were non-Hispanic White ($p < 0.001$) (Table 1). Of all children whose provider reportedly never/sometimes was “sensitive to the family’s values and customs,” 12.2% had public coverage and 4.7% had private coverage ($p < 0.001$) (Table 2).

Table 1.
Socio-Demographic Characteristics of Children Overall and by Communication Variables
Regarding Providers’ Time Spent and Listening Carefully, $n=87,133$

Demographic Characteristic	All Children	Health care providers spend enough time with the child		χ^2	Health care providers listen carefully to the caregiver		χ^2
		Never, Sometimes	Usually, Always		Never, Sometimes	Usually, Always	
N	87,133	14,301	72,832		6,935	80,198	
Male, %	51.4	16.9	83.1	17.2**	8.1	91.9	4.0*
Ethnicity, %				4,712.8**			1,294.5**
Non-Hisp. White	66.8	10.7	89.3		5.7	94.3	
Hispanic	13.1	32.8	67.2		14.3	85.7	
Non-Hisp. Black	9.3	28.8	71.2		11.9	88.1	
Multi-Race/Other	10.9	21.5	78.5		10.8	89.2	
Relation of respondent, %				204.8**			193.7**
Maternal	69.7	15.7	84.3		7.7	92.3	
Paternal	23.7	16.7	83.3		7.5	92.5	
Other	6.5	23.0	77.0		12.8	87.2	
Number of Adults in Household, %				568.3**			251.1**
1	10.2	21.5	78.5		10.7	89.3	
2	67.2	14.3	85.7		7.0	93.0	
≥ 3	22.6	20.3	79.7		9.7	90.3	
Household Language not English, %	6.9	47.5	52.5	4,570.1**	20.0	79.8	1,323.1**
Health care, %	96.5	15.5	84.5	1,525.2**	7.4	92.6	1,161.3**
Private	68.0	11.4	88.6	2,582.5**	5.5	94.5	1,038.0**
Public	28.3	25.3	74.7		11.8	88.2	
Children in a working poor household, %	8.7	32.2	67.8	1,500.4**	14.4	85.6	466.8**
Not employed, %	11.6	27.0	73.0	930.2**	14.1	85.9	590.8**

* $p < 0.05$, ** $p < 0.001$

Table 2.

Socio-Demographic Characteristics of Children Overall and by Communication Variables Regarding Providers' Sensitivity, Caregivers Getting Needed Information, and Caregiver Feeling Like a Partner in the Child's Care, n=87,133

Demographic Characteristic	Health care providers are sensitive to the family's values and customs		χ^2	Caregivers get information needed from health care providers		χ^2	Child's health care providers help the caregiver feel like a partner in the child's care		χ^2
	Never, Sometimes	Usually, Always		Never, Some-times	Usually Always		Never, Some-times	Usually, Always	
N	6,488	80,645		10,486	76,647		8,157	78,976	
Male, %	7.7	92.3	10.5**	12.4	87.6	12.1***	9.5	90.5	3.4*
Ethnicity, %			2,218***			1,281.0***			1,117.0***
Non-Hispanic White	4.6	95.4		9.3	90.7		7.1	92.9	
Hispanic	15.7	84.3		18.7	81.3		14.9	85.1	
Non-Hispanic Black	12.4	87.6		16.6	83.4		13.5	86.5	
Multi- Racial/Other	10.6	89.4		17.1	82.9		13.4	86.6	
Relation of respondent, %			267.6***			187.4***			140.7**
Maternal	7.2	92.8		12.2	87.8		8.9	91.1	
Paternal	6.8	93.2		10.2	89.8		9.7	90.3	
Other	12.9	87.1		16.8	83.2		13.6	86.4	
Number of Adults in Households, %			382.5**			305.5***			265.3**
1	10.2	89.8		15.4	84.6		12.1	87.9	
2	6.2	93.8		10.7	89.3		8.2	91.8	
≥3	9.8	90.2		14.5	85.5		11.4	88.6	
Household Language is other than English, %	24.2	75.8	2,649.4***	27.6	72.4	1,487.8***	21.9	78.1	1,205.9***
Health care	7.0	93.0	776.3***	11.4	88.6	937.1***	8.8	91.2	826.6**
Private, %	4.7	95.3	1,512.5***	9.5	90.5	681.5***	7.2	92.8	676.7***
Public, %	12.2	87.8		15.8	84.2		12.7	87.3	
Children in a working poor household, %	15.4	84.6	768.4***	19.3	80.7	412.7***	14.9	85.1	299.3***
Not employed, %	14.5	85.5	820.4***	18.4	81.6	446.0***	15.0	85.0	426.6***

*p< 0.05, **p< 0.01, ***p< 0.001

Results Related to Hypothesis 2

In univariate analyses, a higher percentage of children whose provider reportedly did not communicate well had poor/fair health and activity limitations compared to excellent/good/very good health or no activity limitations, respectively (Tables 3 and 4). These health status and activity limitations differences

in reported communication were statistically significant. For example, 30.8% of all children whose provider reportedly never/sometimes “spent enough time” with them had poor/health status compared to 16.1% who had excellent/very good/good health status (p<0.001) (Table 3).

Table 3.

Health and Limitations among Children by the Communication Variables Regarding Providers' Time Spent and Listening Carefully, n=87,133

	Health care providers spend enough time with the child		χ^2	Doctors and other health care providers listen carefully to the caregiver		χ^2
	Never, Sometimes	Usually, Always		Never, Sometimes	Usually, Always	
N	14,301	71,363		6,935	80,198	
Parent-reported child's health, %			328.6*			438.8*
Excellent, Very Good, Good, %	16.1	83.9		7.7	92.3	
Fair, Poor	30.8	69.2		20.1	79.9	
Child is limited in doing the things most children of the same age can do, %			253.2*			454.0*
Yes	15.9	84.1		7.4	92.6	
No	16.4	83.6		8.0	92.0	

*p< 0.001

Table 4.

Health and Limitations among Youth by Communication Variables Regarding Providers' Sensitivity, Caregivers Getting Needed Information, and Caregiver Feeling Like a Partner in the Child's Care, n=87,133

	Health care providers are sensitive to the family's values and customs		χ^2	Caregivers get information needed from health care providers		χ^2	Child's health care providers help the caregiver feel like a partner in the child's care		χ^2
	Never, Sometimes	Usually, Always		Never, Sometimes	Usually, Always		Never, Sometimes	Usually, Always	
N	6,488	80,645		10,486	76,647		8,157	78,976	
Parent-reported child's health			430.6*			451.1*			338.4*
Excellent, Very Good, Good, %	7.2	92.8		11.7	88.3		9.1	90.9	
Fair, Poor, %	19.1	80.9		26.8	73.2		21.7	78.3	
Child is limited in doing the things most children of the same age can do			304.4*			529.6*			437.0*
Yes, %	7.0	93.0		21.8	78.2		17.3	82.7	
No, %	13.4	86.6		11.4	88.6		8.8	91.2	

*p< 0.001

All communication variables were associated with both health and activity limitations when adjusting for race/ethnicity, gender, number of adults in household, language spoken at home, and living in a working poor household (Table 5). For example, in the multivariate adjusted weighted analyses, children whose provider

reportedly never/sometimes "spent enough time" with them were more likely to have poor/fair health (OR=1.5, CI: 1.2-1.9) and to have limitations (OR=1.7, CI: 1.4-2.0) compared to those whose provider reportedly usually/always spent enough time (Table 5).

Table 5.

Relationships of provider-family communication variables on having fair/poor health and limitations among Youth, n=87,133

Independent variables	Odds Ratio ^a	
	Likelihood of having fair or poor health	Likelihood of being limited or prevented
Doctors and other health care providers sometimes/never spend enough time with the child (vs. usually/always)	1.5* 1.2-1.9	1.7* 1.4-2.0
Doctors and other health care providers sometimes/never listen carefully to the caregiver (vs. usually/always)	1.8* 1.4-2.4	2.1* 1.7-2.5
Doctors or other health care providers sometimes/never are sensitive to the family's values and customs (vs. usually/always)	1.8* 1.4-2.4	2.0* 1.6-2.4
Caregivers sometimes/never receive the specific health information needed from the child's doctors and other health care providers (vs. usually/always)	1.8* 1.4-2.3	2.0* 1.7-2.4
Doctors or other health care providers sometimes/never help the caregiver feel as a partner in the child's care (vs. usually/always)	2.0* 1.5-2.5	2.4* 2.0-2.8

^aWeighted logistic regression adjusted for age, race/ethnicity, gender, total number of adults in household, language, and poverty.

*p<0.001

Discussion

One of our hypotheses was that reported ineffective healthcare communication experiences were more common in non-Hispanic Black and Hispanic families and families of lower socioeconomic status compared to non-Hispanic White and families of higher socioeconomic status, respectively. Indeed, children who were non-Hispanic Black or Hispanic, had unemployed parents, and received public health coverage tended to have healthcare providers who did not communicate effectively. Differences in the quality of perceived communication were especially stark between Hispanics and non-Hispanic Whites. For instance, 5.7% of children whose provider reportedly never/sometimes carefully listened were non-Hispanic White compared to 14.3% who were Hispanic. Hispanics reported worse communication experiences than non-Hispanic Blacks. Specifically, 32.8% of all children whose provider never/sometimes spent enough time with them were Hispanic compared to

28.8% who were non-Hispanic Black. One potential explanation for the worse reported healthcare communication experiences among

Hispanic compared to non-Hispanic Black families may be the smaller percentage of Hispanic compared to African American physicians and surgeons in the U.S. (Bureau of Labor Statistics, 2016).

We also hypothesized that reported ineffective healthcare communication was related to poor/fair health and activity limitations among children. We found that a higher percentage of children whose provider reportedly did not communicate effectively had poor/fair health and activity limitations compared to excellent/good/very good health or no activity limitations, correspondingly. Having healthcare providers who were perceived as never or sometimes “spending enough time with the child,” never or sometimes “being sensitive to the family’s values and customs,” and never or sometimes “helping the caregiver feel as a partner” were associated with fair or poor health and activity limitations among children. Poor listening was associated with both poor/fair health and activity limitations. Thus, even by just carefully listening, a healthcare provider may help promote the health of children. The odds ratios for the associations of having providers who never or sometimes “helped the caregiver feel as a partner” to poor/fair health

and activity limitations among children were among the highest in Table 3. Strategies that seek to build partnerships between families and healthcare providers may be essential in improving children's health.

Limitations

Causal relationships could not be assessed in this cross-sectional study. The opposite association where poor health leads to worse communication may also be true. Another limitation is that parental perceptions were not verified through clinical observation or evaluation. Concerned parents of children with health conditions may have had an increased likelihood of responding to the survey thus overestimating the effects of the study. While the survey response rate was low, it was within the range of many other surveys (Holbrook et al., 2007). In this study, we did not investigate the mechanisms of influence in the relationship between ineffective communication and poor health. One mechanism is that ineffective healthcare communication may lead to family mistrust, treatment non-adherence, and subsequently poor health. Another limitation is that the survey did not ask questions on how caregivers perceived the communication of different types of providers such as physicians, residents, and nurses.

Future Research

One area of future research is the influence of the child's inclusion in the communication process on health outcomes. Having the child participate in developing the plan may improve adherence to treatment recommendations (Kodjebacheva, Sabo, & Xiong, 2016). Future research may also examine the influence of parental communication training on health outcomes. Prior interventions that targeted parents involved role-playing to encourage questions, family-centered rounds, informational booklets prior to a consultation, and videos highlighting the importance of children taking an active role in communicating with their physicians (Alder, Trunnell, White, Lyon, Reading, Samore, & Magill, 2005; Ladak, Premji, Amanullah, Haque, Ajani, & Siddiqui, 2012; Kodjebacheva, Sabo, & Xiong,

2016). They helped enhance parental satisfaction and communication.

Future investigations may focus on the interactions between health literacy and patient mistrust on communication and between health literacy and communication on health outcomes. A prior investigation found that adult patients with higher mistrust and lower literacy reported more ineffective communication compared to mistrustful patients with higher literacy (White et al., 2016). Interventions to promote health literacy may be valuable in improving medical communication and subsequently health outcomes.

The finding that ineffective healthcare communication is associated with poor/health and activity limitations among children implies the need for research on communication training among clinicians. Strategies that were used to train pediatricians in published interventions included educational seminars and role-playing (Kemper et al., 2008; Brown et al., 2013; Kodjebacheva, Sabo, & Xiong, 2016). Providers became less verbally dominating during patient encounters and encouraged children and parents to be part of a team. Research should investigate if such communication training interventions may subsequently improve health outcomes among children. Researching the influence of increasing the numbers of medical providers of different racial/ethnic groups, especially Hispanics, on health outcomes will be valuable.

Conclusion

Ineffective communication between healthcare providers and families is more commonly reported by non-Hispanic Black and Hispanic families and families of lower socioeconomic status compared to non-Hispanic White families and those of higher socioeconomic status, respectively. Ineffective reported healthcare communication is associated with reported poor/fair health and activity limitations among children. Tailored interventions are needed to promote effective communication, increase adherence to treatment recommendations, and subsequently promote health. To achieve effective communication, we may need to train

not only healthcare providers, but also, parents and children.

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