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The Association of Health Literacy, Social Support, Self-Efficacy and Interpersonal Interactions with Health Care Providers in Low-Income Latina Mothers

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Introduction

A majority of children experience low rates of morbidity and mortality and pediatric health outcomes are skewed toward the higher ends of the health continuum (Mangione-Smith & McGlynn, 1998). Thus, preventive care in pediatrics, including the communication of anticipatory guidance recommendations, is emphasized and plays a substantial role in determining the quality of pediatric care received. Unfortunately, problems with timeliness, accessibility, effectiveness, efficiency and equity of children's healthcare are well documented (Agency for Healthcare Research and Quality, 2002). In fact, children seen in

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¹WIC is a federally funded health and nutrition program for pregnant women, infants, and children under age five who are at or below 185 percent of the federal poverty level (FPL). Income eligibility for this region was set at 185% of the FPL at the time of this study.

ambulatory care settings often receive less than 50% of recommended care (Mangione-Smith et al., 2007), and high quality pediatric primary care is not the norm for many low-income children, especially Latino children in households with a non-English primary language (Coker, Rodriquez, & Flores, 2010; DeCamp, Choi, & Davis, 2011).

Interpersonal processes of pediatric health care include the social-psychological aspects of parent-provider interaction such as communication, friendliness, explanations, and being caring and sensitive to parent's/child's needs (Stewart, Nápoles-Springer, & Pérez-Stable, 1999). Effective interpersonal processes are associated with parental satisfaction with care, adherence to treatment recommendations, trust in the therapeutic relationship and improved discussion of psychosocial concerns (DiMatteo, 2004; Nobile & Drotar, 2003). During a pediatric health care encounter, parents must provide information, respond to questions, and make inquiries associated with health or illness concerns regarding their child. Inadequate interpersonal processes coupled with conflicting beliefs, perceptions and expectations regarding care, low parental health literacy (HL) and language or cultural discordance however, can negatively impact parent-provider information exchange (DeCamp et al., 2011; Hart, Drotar, Gori, & Lewin, 2006; Ishikawa et al., 2009; Nobile & Drotar, 2003). Indeed, parent-provider communication, particularly within the context of pediatric ambulatory care, is not ideal and parents with limited education and economic means, members of racial or ethnic minority groups, and non-English speakers are especially at risk for poor communication with health care providers (HCP). In particular, Latino parents consistently report poorer communication, lower parent satisfaction, and perceive lower quality of care (Flores & Lin, 2013), and those who primarily speak Spanish are less likely to report culturally sensitive care (DeCamp et al., 2011).

Health literacy, or literacy within the context of the health care system, includes communication or information processing skills that extend beyond functional reading abilities (Nutbeam, 2000, 2008). Accordingly, low HL may influence the participatory dimensions of the patient-provider relationship, shape patient decision-making and affect involvement in care (Schillinger, Bindman, Wang, Stewart, & Piette, 2004; Schillinger et al., 2003). Importantly, low HL is strongly associated with low educational attainment, low income, race, ethnicity, age, and limited English-speaking ability (Kutner, Greenberg, Jin, & Paulsen, 2006; Paasche-Orlow, Parker, Gazmararian, Nielsen-Bohlman, & Rudd, 2005), and may contribute to exacerbation of health inequity among populations possessing these attributes.

Substantial evidence links low HL to poor health outcomes in adult populations (DeWalt, Berkman, Sheridan, Lohr, & Pignone, 2004). Recent studies also connect low parental HL to suboptimal pediatric health outcomes (DeWalt, Dilling, Rosenthal, & Pignone, 2007; Gandhi et al., 2013; Hassan & Heptulla, 2010; Pugarón et al., 2013; Ross, Frier, Kelnar, & Deary, 2001; Shone, Conn, Sanders, & Halterman, 2009; Yin, Dreyer, Foltin, Van Schaick, & Mendelsohn, 2007; Yin et al., 2012). Other evidence however, finds no relationship between these factors (Gandhi et al., 2013; Hironaka, Paasche-Orlow, Young, Bauchner, & Geltman, 2009; Moon, Cheng, Patel, Baumhaft, & Scheidt, 1998; Pati et al., 2011; Sanders, Thompson, & Wilkinson, 2007). One possible explanation for these equivocal findings may result from social support offered to parents of children by grandparents, siblings,

babysitters, teachers and family friends. Such social support may “blunt” the negative effects of low parental HL in some populations. Indeed, many individuals report requiring assistance from family or friends when dealing with health related information (Lee, Arozullah, & Cho, 2004). Social support, especially in the form of familial role models, may be particularly important for low-income mothers with low HL and may play a special role for Latina mothers who often rely on family members for support during a child's illness or in seeking health care services (Lara et al., 2003). These social networks may improve their ability to understand health-related information and navigate the health system.

Importantly, parental self-efficacy in patient-provider interactions may also play a key role in health-related communication, especially in parents with limited HL. Self-efficacy, defined as a belief in one's own ability to perform specific behaviors (Bandura, 1977), influences information exchange, recall of health information, satisfaction with care, self-management and patient outcomes (Heisler, Boulknight, Haywood, Smith, & Kerr, 2002; Katz, Jacobsen, Veledar, & Kripalani, 2007; Sarkar, Fisher, & Schillinger, 2006). Low self-efficacy in patient-provider interactions results in decreased satisfaction with care, diminished confidence in HCPs and worse symptom distress (Maliski et al., 2004). One's level of HL has been identified as a predictor of self-efficacy in the context of diabetes, HIV-self care and colorectal screening (Ishikawa, Takeuchi, & Yano, 2008; von Wagner, Semmler, Good, & Wardle, 2009; Wolf et al., 2007), although in adults with heart failure HL was not associated with self-efficacy (Chen et al., 2013), and among parents of children with type 1 diabetes, no association between numeracy, a component of HL, and self-efficacy was found (Pugarón et al., 2013).

Low income and socially marginalized individuals often possess lower self-esteem, lower self-efficacy and a lower sense of self-mastery, and frequently experience worse health outcomes than those who possess higher levels of these characteristics (Baker et al., 1996; Blacksher, 2002). Moreover, low-income women and those individuals specifically at risk for low HL, frequently report dissatisfaction with patient-provider communication (Hawley et al., 2008; Perez, Sribney, & Rodriuez, 2009; Smith, Dixon, Trevena, Nutbeam, & McCaffery, 2009). As already noted above, Latino parents are less likely than other parents to report that their children's HCP always listens carefully to them or their children, that their child's HCP always explains things in a way they can understand, or that the HCP spends enough time with them.

Only one study to date has examined the relationships between HL, and perceived self-efficacy in communication with providers. Gandhi and colleagues (2013) found no statistical significant association between HL and perceived self-efficacy in a sample of mostly African-American and white parents. We have noted no study that addresses these concepts among Latino parents. The quality of the relationship between parent and their child's HCP can influence the character of information exchange and subsequent care. However, little is known about the process of parent-provider interaction among low-income Latina mothers, especially those with low HL. More importantly, even less is known about how this process influences pediatric health outcomes.

Theoretical Foundation

Donabedian's structure-process-outcome model (1966b, 1980) as interpreted by Coyle and Battles (1999a), served as the theoretical foundation for this study. Donabedian asserts that quality of care may be measured by assessing the structure, process or outcomes of care. Structural characteristics have historically been defined as features of the health system characteristics and types of health insurance but more recently population or client characteristics have also been included, either as antecedents to structure or as structural variables (Coyle & Battles, 1999b; McGlynn, 2007; Mitchell, Ferketich, & Jennings, 1998; Yen & Lo, 2004). Based on this reconceptualization, we considered HL as antecedent as it may influence one's ability to access the structural components of health care. In fact, Nutbeam (2000, 2008) suggests that HL is a multileveled concept that incorporates cognitive development and personal abilities which substantially influence communication skills. Social support, an additional antecedent, may assuage these negative effects of low HL in some populations and many individuals report requiring assistance from family or friends when dealing with health related information or services (Lee et al., 2004).

Process is what happens during a patient/parent-HCP encounter and outcomes validate the effectiveness and quality of care (Donabedian, 1966a). Significantly, Donabedian (1988) argues that the most direct route to assessing quality of care is through examining processes of care. Informational processes, such as communication, are at the heart of these processes (Stewart et al., 1999) and are influenced by individual characteristics, including self-efficacy. Outcomes are changes in health status that can be attributed to care and include clinical endpoints, functional status, improvement in patient knowledge, beneficial changes in patient behavior, general well-being and satisfaction with care (Donabedian, 1988).

Thus, guided by these theoretical concepts, this exploratory, cross-sectional study focused explicitly associations among antecedents and processes of care and examined the relationships between maternal HL, access to / helpfulness of social support, and self-efficacy in interpersonal interactions with HCP among low-income Latina mothers of young children. Further, we considered the association of these factors with interpersonal processes of care between these mothers and their HCPs. Identifying relationships between these variables, especially for a low-income minority maternal population, is an important precursor to improving understanding of how these factors impact maternal interaction with the health care system or influence pediatric health outcomes, including quality of care and health disparities.

Methods

Study Design, Population Sample and Setting

A descriptive, cross-sectional design using convenience sampling and validated survey instruments was used to examine the relationships between maternal HL, maternal self-efficacy in communication with providers, and maternal perception of interpersonal interactions with health care providers, among a low-income, Latina population. The sample size for this study was 124 participants and exceeded the targeted sample size of 118 by six participants. The target sample size was based on an *a priori* analysis based upon literature

review (Field, 2009; Green, 1991; Tabachnick & Fidell, 2007), and calculations using G*Power version 3.1.0.

Participants

Low-income Latina English- or Spanish-speaking mothers or female primary care givers of children aged 3 months to 4 years, who had utilized health care services for their child within the previous six months, were recruited from five different WIC¹ clinics in a densely populated urban area during August and September 2011 to participate in this cross-sectional study. Receipt of WIC benefits served as the proxy measure for low-income status. Mothers or female primary care givers who were not low-income English-or Spanish-speaking Latinas were excluded from this study. Further exclusion criteria included no use of health care services in the past six months since it has been reported that an optimal recall period for self-reported surveys occurs at 6 months or less (Ritter et al., 2001), if the child did not meet age criteria, or if the child had chronic illness, defined as a having a health problem lasting over three months, which affected the child's normal activities, and required hospitalizations, home health care and/or extensive medical care (Cohen et al., 2011). Fathers and male caregivers were also excluded given the possibility that culturally defined gender differences in parenting roles might influence interpersonal processes. An appropriate university institutional review board approved this study.

Procedure

Flyers posted in the waiting areas of five different WIC clinics, as well as verbal communication by clinic staff, notified potential participants of the pending study. Study personnel, an English-speaking principal investigator (EFB) and two bicultural, bilingual research assistants, interviewed interested mothers and caregivers in their preferred language in a private area of each respective clinic to determine eligibility. If eligible, the participant was informed of her rights as a human subject and her consent to participate was obtained. Study personnel administered a brief test of the participant's level of HL and then requested that the participant complete surveys as described below, to assess demographic, self-efficacy, social support and interpersonal interaction variables. Study personnel offered to read surveys to accommodate limited literacy; two participants requested such assistance (1.6%). Their responses were blinded to the PI who conducted the statistical analysis. A \$20 gift card to a local grocery-retail store was given to each participant upon completion of the study.

Measures

Demographics—Demographic data included participant's age, level of education, number of children and adults in home, child health insurance status, whether the child received care from a regular place and regular HCP, and family living arrangements. Given the influence of native language on communicative interaction (Fernandez et al., 2004), and the association between Latinos and reports of poor parent-provider communication (Flores, 2010), acculturation and language use was assessed with the valid and reliable *Short Acculturation Scale for Hispanics* (SASH) (Cronbach α = 0.92) (Edelman, Christian, & Mosca, 2009; Marin, Sabogal, Marin, Oter-Sabogal, & Perez-Stable, 1987), which includes

the following questions: “what language(s) do you read and speak?”, “what language(s) do you usually speak at home?”, “in which language(s) do you usually think?”, “what language(s) do you usually speak with your friends.” We added a fifth question due to the high number of immigrants in our region: “what language(s) did you use as a child?” The SASH was scored using a 5-point Likert scale (1=only Spanish, 2=Spanish more than English, 3=both equally, 4=English more than Spanish, 5= only English). Mean scores of less than 3 indicate a lower level of acculturation based on language use (Edelman et al., 2009; Marin et al., 1987).

Maternal health literacy—We assessed maternal HL using the *Newest Vital Sign* (NVS) (Pfizer, 2012), available in English (NVS-E) or Spanish (NVS-S), which assesses an individual's prose literacy, numeracy and document literacy using six questions about information on a nutrition label from an ice-cream container. Each correct answer is given one point. According to the NVS, a score of 0 to 1 suggests a “high likelihood of low HL,” 2 to 3 suggests the “possibility of low HL,” while 4 to 6 generally indicates “adequate HL” (Weiss et al., 2005). Here, we used HL as a continuous variable and calculated a mean score for the purposes of our analyses. The NVS-E has good internal consistency (Cronbach's $\alpha = 0.76$) and criterion validity ($r = 0.59, p < .001$) as does the NVS-S (Cronbach's $\alpha = 0.69$; criterion validity $r = 0.49, p < .001$). Further, the NVS has been used successfully in populations similar to the present study population (Hassan & Heptulla, 2010; Wood, Price, Dake, Telljohann, & Khuder, 2009; Yin et al., 2011).

Maternal social support—Social support was examined using the *Family Support Scale* (FSS) (Dunst, Jenkins, & Trivette, 1984), a 19 item scale, available in both English and Spanish, that reflects various sources of support from individuals and groups to families rearing a young child and measures the helpfulness of each on a 5-point scale ranging from “not at all helpful” (1) to “extremely helpful” (5) (Dunst et al., 1984). The instrument demonstrates good reliability, internal consistency and test-retest reliability (Cronbach's $\alpha = .77$ split-half reliability = .75, and test-retest reliability = .41 to .75 across subscales) (Dunst et al., 1984) and has been used successfully in several studies and with English- and Spanish-speaking Latino, and low-income populations (Bailey et al., 1999; Hanley, Tasse, Aman, & Pace, 1998).

The scale is organized into five subscales: kinship (e.g., parents, relatives), spouse/partner support, social organizations (e.g., parent groups, social clubs), informal support (e.g., friends, neighbors, other parents, church) and professional services. Mean scores for each of the subscales allow for comparison between sources of support. The unadjusted score, ranging from 0 to 20, for the professional services subscale represents the Formal Social Support Score, while the unadjusted scores for the remaining four subscales are summed to achieve the Informal Social Support Score, which can span from 0 to 75. The Total Family Social Support Score is achieved by adding these two scores for a total score ranging from 0 to 95. Higher scores connote greater availability of helpful support.

Maternal self-efficacy—Maternal self-efficacy or confidence in their interaction with providers was measured using the English or Spanish version of the Perceived Efficacy in Patient-Physician Interactions (PEPPI), a ten item test reported as a mean score that

measures the subjective sense of patients' confidence when meeting with their HCPs (Maly, Frank, Marshall, DiMatteo, & Reuben, 1998). Ten Likert-style questions assess a patient's confidence in communicating, eliciting and understanding information from their HCPs, as well as confidence in their ability to get HCPs to address and act on their main health related concerns (Maly et al., 1998). Each item begins with "How confident are you in your ability to..." with participants responding to each question on a scale from 1 ("not at all confident") to 5 ("very confident"). Total score ranges from 10 to 50 with higher scores denoting higher self-efficacy. The PEPPI demonstrates good internal reliability (Cronbach's $\alpha = .91$) and convergent and discriminant validity (Gandhi et al., 2013; Maly et al., 1998)

Interpersonal processes of care—We measured maternal perception of interpersonal interactions with HCPs using the English or Spanish version of the short form of the Interpersonal Processes of Care in Diverse Populations (IPC) survey, a 18-item survey that incorporates specific issues of interaction significant to minority and low income groups (Stewart et al., 1999). The IPC addresses three domains of interpersonal interaction: communication, decision making, and interpersonal style, each with one or more subscales (Stewart et al., 1999). The communication domain subscales measure lack of clarity in communication, whether the provider elicited and responded to parent concerns and whether the provider explained results. The decision-making domain asks whether the parent and provider worked together to decide a plan of care. Finally, the interpersonal style domain measures whether the parent perceives the provider to be compassionate and respectful in their care, whether they feel discriminated against due to their race or ethnicity, and whether the office staff is disrespectful. Participants answer questions about their experiences in talking with their HCP and mostly begin with "How often did your provider ..." with possible responses ranging from "1" (never) to "5" (always). A mean score is obtained for each subscale. A higher frequency of the labeled interpersonal process results in a higher score. In some cases, higher scores indicate better processes and in others, worse processes (Stewart, Nápoles-Springer, Gregorich, & Santoyo-Olsson, 2007). For example, high scores for the domain subscales "lack of clarity," "discriminated due to race/ethnicity," and "disrespectful office staff" indicate poor interpersonal process. The survey demonstrates good internal consistency reliability with coefficients ranging from 0.65 to 0.90 and the correlation between each of the scales within the three dimensions of the IPC indicates sufficient independence to consider them unique constructs (Stewart et al., 1999).

Data Analyses

We calculated descriptive statistics for all demographic data, the maternal HL score, the maternal self-efficacy score and the maternal interpersonal processes of care scores. Individual demographic variables and social support scores were examined as possible correlates of maternal HL using Pearson's correlation coefficient. In addition, we examined relationships between level of HL and social support, maternal self-efficacy and maternal interpersonal processes of care. Regression analyses were conducted to further evaluate the strength of the relationships noted between the variables of interest, controlling for statistically relevant demographic variables and correlates. Child health insurance, and usual provider and place of care were not included in any of the models due to the lack of variability within our sample. Finally, because education and literacy are causally related,

we did not include education level in the models (DeWalt & Pignone, 2005; Rosenthal et al., 2007; von Wagner et al., 2009). All analyses were conducted using the Statistical Package for the Social Sciences (SPSS), version 19.0 (SPSS Inc., Chicago, IL).

Results

Demographics

Table 1 shows the characteristics of our sample of 124 Latina mothers and female caregivers. Slightly more than 61% had completed high school education. The vast majority of the sample reported that their child had some form of health insurance ($n = 120$, 96.8%), access to a regular place for care ($n = 116$, 93.5%), and regular provider of care ($n = 112$, 90.3%) for their child. The insurance coverage data is consistent with regional estimates for Latino children, less than 6 months to 4 years of age (Flores, 2010) but does not reflect whether such coverage was uninterrupted throughout the year. Mean maternal acculturation score (2.57, $SD = 1.39$) indicated a moderately low level of acculturation based upon preferred use of language. Additional demographic information is reported elsewhere (Fry-Bowers, Maliski, Lewis, Macabasco-O'Connell, & DiMatteo, 2013).

Descriptive Statistics

Health literacy scores for our sample were distributed as follows: high likelihood of low HL ($n = 53$, 42.7%), possibility of low HL ($n = 43$, 34.6%) and adequate HL ($n = 28$, 22.6%), with a sample mean score of 2.19 ($SD = 1.73$). Thus, adding together those with a high likelihood of low HL and those with a possibility of low HL, a majority of our participants ($n = 96$, 77.4%) were at risk for encountering substantial challenges when interacting with the health care system, which is consistent with national estimates of HL in this population (Kirsch, Jungeblut, Jenkins, & Kolstad, 2002). There was a statistically significant difference between the HL groups for means for maternal age ($p = .008$), number of children in home ($p = .012$), and level of maternal acculturation ($p < .001$). As a result, we controlled for these variables in subsequent regression analyses. Table 2 reports scores for social support, including each of the five FSS subscales and scores for formal and informal support; self-efficacy scores; and scores for each of the subscales for interpersonal communication.

Inferential Statistics

Guided by our conceptual foundation, we examined bivariate correlations for key demographic variables, maternal HL, and social support. Pearson's correlation coefficient analyses revealed a statistically significant positive correlation between maternal HL and level of maternal acculturation ($r = .312$, $p < .001$), indicating that as the level of maternal acculturation increased, maternal HL scores also rose. Thus, we controlled for the influence of acculturation in later analyses. Table 3 reports the correlations between maternal HL, social support, maternal self-efficacy and maternal interpersonal processes of care.

Of the composite social support measures, while not statistically significant, the Formal Support Score trended toward a negative relationship with HL ($r = -.167$, $p = .063$), possibly reflecting less reliance on professional support services by mothers with higher

levels of HL. Maternal HL was not significantly associated with self-efficacy ($r = .160, p = .076$), or the IPC communication domains of “lack of clarity,” ($r = -.151, p = .095$) and “elicits concerns,” ($r = .154, p = .088$). Maternal HL however, was significantly correlated with the IPC subscale, “discriminated due to race/ethnicity,” ($r = -.207, p = .021$).

Maternal self-efficacy was positively correlated with the Informal Support Score ($r = .180, p = .046$) and the Total Support Score ($r = .187, p = .037$). As support scores increased, so did maternal self-efficacy scores. Notably, the Informal Support Score is a subscale of the Total Support Score, thus, informal support contributed substantially to the relationship between total support and maternal self-efficacy. Maternal self-efficacy also correlated with the IPC subscale, “elicits concerns,” ($r = .245, p = .006$) suggesting that self-efficacy is associated with the process by which HCPs ask and answer questions of concern to the mother. The association between self-efficacy and “explain results,” ($r = .154, p = .087$) or “lack of clarity,” ($r = -.149, p = .099$) did not reach statistical significance. Finally, we noted multiple significant associations among the various IPC subscales for these participants. In particular, the IPC communication domain subscales of “elicits concerns” and “explains results” were significantly associated with each of the other IPC domains, suggesting that while originally defined as separate constructs, there may be substantial interdependence among them, at least for this population.

We then conducted multiple regression analyses to assess the strength of the statistically significant relationships identified between maternal HL and “discriminated due to race/ethnicity,” self-efficacy and the support variables, and self-efficacy and “elicits concerns” (Table 4). After adjusting for statistically significant demographic variables, as well as maternal acculturation due to important and well-documented relationships between language, culture and communication, we found that maternal HL did not significantly predict “discrimination due to race/ethnicity,” $b = -.026, t(101) = -.603, p = .548$. Moreover, the model did not explain a statistically significant proportion of the variance in scores for “discrimination due to race/ethnicity,” $R^2 = .019, F(4, 101) = .476, p = .753$ (Table 3a).

Given the significant relationship between Informal Support and Formal Support Scores, we regressed informal support on self-efficacy while controlling for formal support, demographic variables and acculturation. The Informal Support Score significantly predicted maternal self-efficacy, $b = .192, t(101) = 2.041, p = .044$. In addition, the model also explained 13.9% of the variance in self-efficacy scores, $R^2 = .139, F(5, 101) = 3.262, p = .009$. Formal Support was not a significant predictor of self-efficacy in the model (Table 4b). Finally, when controlling for demographic variables, acculturation, and informal support, self-efficacy significantly predicted maternal perception of her child's HCP's ability to elicit and respond to her concerns, $b = .020, t(101) = 2.524, p = .013$. Further, the model also explained a statistically significant portion of the variance in the scores for “elicits concerns,” $R^2 = .145, F(5, 101) = 3.437, p = .007$ (Table 3c).

Discussion

Given the paucity of studies investigating HL and communicative interaction, especially in low-income parents, and guided by our theoretical conceptualization of Donabedian's model,

we explored the relationships between maternal HL, social support, self-efficacy and interpersonal processes of care in the low-income Latina population. Contrary to findings in adult patients with chronic illness (Schillinger et al., 2004), we did not find statistically significant relationships between maternal HL and the interpersonal process variables of interest. Further, the marginal relationship between maternal HL and self-efficacy for communicating with HCP did not reach statistical significance, which is consistent with a recent study that also examined the relationship between HL and self-efficacy in communication (Gandhi et al., 2013). Other studies in pediatric settings have noted positive associations between maternal HL and self-efficacy for care (DeWalt et al., 2007; Wood et al., 2009). Here however, we examined self-efficacy within the context of a mother's ability to communicate with HCPs rather than efficacy in performing specific care related functions, which likely accounts for differences noted. Self-efficacy in performing tasks related to a child's care might be more dependent on specific knowledge acquired through some form of education or parent instruction. As such, the functional aspects of HL, such as reading, likely exert a substantial influence, whereas self-efficacy in communication may be more dependent on social behaviors, culturally defined roles and expectations, especially among ethnic and racial minority populations, or other unknown factors related to life experiences and opportunities to develop self-efficacy. Specifically, for Latinas, developing self-efficacy in health care communication may be related to culturally defined expectations and prior experience with the health care system. While Latinas are a heterogeneous population, they frequently share a common language and a specific set of values (Wasserman, Bender, & Lee, 2007). Thus, although language is often a barrier to effective interaction in health care settings, cultural discordance also acts as an obstacle. For example, evidence indicates that when seeking health care services for their children, Latina mothers expect intervention, explanation and *personalismo*, or personalized sustained interaction with HCPs (Clark, 2002). When these expectations are not met, maternal confidence in their provider and the health system erodes (Clark & Redman, 2007), which may also impede their ability to develop self-efficacy in health care related communication, regardless of their level of HL.

Finally, maternal HL trended toward a negative relationship with formal support. A paucity of research examines the role of social support within the context of HL and because the relationship did not reach statistical significance, we did not examine it further. It is plausible however, that mothers with lower levels of HL rely on the formal support provided by professional services in ways that mothers with higher levels of HL do not. Further investigation is needed to better understand this dynamic.

In this study, informal support represented support received from family members, friends, other parents, faith-based communities and day-care or the child's school. We noted a clear relationship between maternal self-efficacy in communicating with HCPs and informal support. While this particular association has not been well examined, prior evidence suggests that such support plays an important role for mothers in regard to pediatric health care related behaviors (Christakis, Feudtner, Pihoker, & Connell, 2001; Lara et al., 2003), and as a result, may also influence how a mother interacts with her child's HCP (Hennessy, Leonard, Palumbo, Newcombe, & Bilker, 2007). For example, among Mexican-origin

families, family members play a substantial role in determining a health- or illness-related course of action, which may include the use of health services for children (Clark, 2002). It could be that mothers learn from family members, friends or each other, what questions to ask of or what information to seek from their child's HCP and as a result, feel more prepared for or confident in their interactions with them.

Most significantly, we found an important relationship between maternal self-efficacy and the IPC communication domain, "elicits concerns." This domain reflects whether the mothers felt that the HCP took time to discover the mother's concerns or take those concerns seriously and, for this population, exemplifies the importance of demonstrating *personalismo* during the health care encounter (Clark, 2002). We found that higher levels of maternal self-efficacy in communication predicted better processes for eliciting concerns. Evidence indicates that "active" patients can freely express their concerns to their providers and simply listening to the patient may be "enough" (Stewart et al., 1999). Others, particularly those from lower socioeconomic classes or who are non-white may have difficulty with "relationship-building utterances" (Cox et al., 2012), or knowing how to express their health related questions. Moreover, cultural expectations may also play a role, as previously noted. In these circumstances, the challenges of eliciting concerns falls more heavily on the HCP (Stewart et al., 1999; Street, Gordon, & Haidet, 2007), with parental self-efficacy playing some role in the "back and forth" that facilitates such communication. This could be especially important for detecting psychosocial issues, which are increasingly relevant in pediatric ambulatory care settings. Such "elicitation-type communication" provides essential information needed for shared decision-making and is critical to patient-centered care (Sykes & Bencio, 2012, p. 173). Our findings suggest that self-efficacy may be a key component of "elicitation-type communication" in this population. Thus, training in communication techniques for HCP, as well as education for mothers that encourage and enable them to be more active participants in their child's health visits, may improve interaction and pediatric health outcomes. Importantly, HCPs need to be aware of and competently and sensitively inquire about social factors that may influence a mother's care of her child, particularly among populations that face multiple barriers to care.

Self-efficacy was not associated with "explain results," and "lack of clarity." While not statistically significant for our sample, others have linked this "explanatory-type communication" to knowledge of one's condition and plan for care (Schillinger et al., 2004; Sykes & Bencio, 2012, p. 174). Mothers cannot manage their child's care, adhere to treatment or avoid poor child health outcomes if they have a poor understanding of their child's health status or condition. Self-efficacy in communication likely influences this process. Certainly, adequate explanatory communication is needed so that a mother can achieve the necessary skills to adhere to well-child guidelines or manage acute childhood illness. Our study suggests that maternal self-efficacy in communication may play a role in the elucidative and explanatory interactions between low-income Latina mothers and their child's HCP.

Maternal self-efficacy in health care interactions may well be an important factor in pediatric health outcomes, but to facilitate and improve patient- and family-centered care, pediatric HCPs must enhance their interpersonal interaction skills, especially those skill sets

that are most useful for communicating appropriately with parents of low education or socio-economic status, those at risk for low HL, and those for whom English is not their first language (Fry-Bowers et al., 2013). Using plain language, sitting down to achieve eye-level with a parent, breaking information into sentences, using visual models and pictures when possible, and promoting a safe environment where parents can ask questions are simple steps that will foster self-efficacy, improve communication, and support cultural expectations. In addition, the Health Literacy Universal Precautions Toolkit (Agency for Healthcare Research and Quality, 2013) can be used by pediatric primary care practices and health systems to design and implement strategies to minimize the impacts of low HL and support the delivery of culturally and linguistically sensitive pediatric health care.

Limitations

Although our study adds important findings to the literature regarding the relationships between maternal HL, self-efficacy and mother-provider interpersonal interaction, the study has a number of limitations. We used a cross-sectional study design and as a result, we cannot draw definitive conclusions regarding causal relationships among the variables examined. Further, these findings may not be generalizable to all low-income Latina mothers of young children. Our sample population comprises mothers receiving WIC benefits, which is a form of social support, which may or may not have been captured in our data. Further, that these mothers received WIC benefits at the time of this study could indicate they possess greater knowledge about available resources and more confidence about obtaining those resources. Thus, our data may not reflect those who do not receive this benefit. Our data may also be subject to recall bias as we used self-reported information. In addition, our findings do not reflect the duration of the maternal relationship with the HCP or specific attributes of the HCP such as cultural concordance, which can influence parent-provider communicative interaction (Gordon, Street, Sharf, & Soucek, 2006). Finally, HL remains a somewhat amorphous concept, and encompasses functional reading, writing and mathematic skills, as well as communication and information processing skills, and is influenced by language and culture. Our measurement of maternal HL here, may simply not have captured those aspects of HL that are most important to developing self-efficacy for communication with HCPs. Nonetheless, our study serves as a starting point for further exploration of the relationships between maternal HL, self-efficacy, social support and interpersonal process of care in low-income Latina mothers, heretofore, previously unexamined. Importantly, additional research is needed to better understand these relationships, particularly those between the specific dimensions of the interpersonal processes of care. Understanding how “elicitation-type communication” and “explanatory-type communication” interact with and influence other interpersonal processes of care is essential for improving information exchange between a mother and her child’s HCP. Moreover, interventions that focus on improving maternal self-efficacy in interacting with HCPs and the health care system, while building on maternal HL and existing sources of social support, may have a better impact on pediatric health outcomes than interventions that focus solely on improving functional HL skills.

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Table 1Participant Characteristics, $n = 124$

	Mean / n	(Percentage or \pm SD)
Maternal Age (years)	30.25	(7.51)
24	25	(20.2%)
25 to 34	61	(49.2%)
35	22	(17.7%)
Child Age (months)	25.99	(13.92)
3 to 9	18	(14.5%)
10 to 18	28	(22.6%)
19 to 48	78	(14.5%)
Child Gender ^a		
Male	67	(54%)
Female	54	(43.5%)
Number of children	2.62	(1.36)
Child Health Insurance		
Yes	120	(96.8%)
No	4	(3.2%)
Education ^a		
Completed high school	76	(61.3%)
Less than high school	46	(37.1%)
Language Use/Acculturation ^b	2.57	(1.39)
Maternal HL	2.19	(1.73)

^aParticipant did not answer: child gender, $n = 3$ (2.4%); education, $n = 2$ (1.6%); type of health insurance

^bA mean score of < 3 generally indicates participant is less acculturated

Table 2

Social Support, Self-Efficacy and Interpersonal Communication

	Mean	(Percentage or \pm SD)
Total Family Social Support	34.26	(17.99)
Informal Support	27.88	(14.46)
Formal Support	6.38	(5.12)
FSS Subscales:		
Kinship Support	3.03	(1.61)
Spouse/Partner Support	2.79	(1.52)
Informal Support	1.68	(1.12)
Social Organizations	0.88	(1.08)
Professional Services	1.63	(1.29)
Self-Efficacy	39.12	(11.16)
IPC Domain Subscales:		
Communication		
lack of clarity	2.47	(0.77)
elicited concerns, responded	4.04	(0.94)
explained results	4.02	(1.16)
Decision Making		
worked together	3.55	(1.17)
Interpersonal Style		
compassionate, respectful	4.14	(0.79)
discriminated due to race/ethnicity	1.50	(0.84)
disrespectful office staff	1.64	(0.93)

Table 3

Correlations among Maternal HL, Social Support, Self-Efficacy, and Interpersonal Processes of Care

	Maternal HL	Self-Efficacy	Informal Support ^a	Formal Support ^a	Total Support	Lack of Clarity ^b	Elicits Concerns	Explains Results	Work Together	Compass./Respect	Discrim. Race/Ethn. ^b	Disrespect. Staff ^b
Maternal HL	1											
Self-Efficacy	.160 (.076)	1										
Informal Support^a	-.040 (.659)	.180* (.046)	1									
Formal Support^a	-.167 (.063)	.151 (.094)	.597** (<.001)	1								
Total Support	-.080 (.379)	.187* (.037)	.974** (<.001)	.764** (<.001)	1							
Lack of Clarity^b	-.151 (.095)	-.149 (.099)	.083 (.358)	.009 (.919)	.069 (.443)	1						
Elicits Concerns	.154 (.088)	.245** (.006)	.142 (.117)	.026 (.773)	.121 (.180)	-.181* (.044)	1					
Explains Results	.109 (.227)	.154 (.087)	.086 (.342)	-.014 (.880)	.065 (.472)	-.213* (.018)	.569** (<.001)	1				
Work Together	.089 (.328)	.076 (.400)	.021 (.815)	.048 (.595)	.031 (.734)	-.067 (.463)	.444** (<.001)	.629** (<.001)	1			
Compassion/Respect	.073 (.420)	.083 (.362)	.116 (.199)	.075 (.409)	.115 (.205)	-.156 (.084)	.635** (<.001)	.530** (<.001)	.657** (<.001)	1		
Discriminates Race/Ethnicity^b	-.207* (.021)	-.032 (.728)	.112 (.217)	-.077 (.400)	.068 (.452)	.230* (.010)	-.249** (<.001)	-.216* (.016)	-.100 (.273)	-.246** (.006)	1	
Disrespectful Office Staff^b	-.008 (.926)	-.124 (.175)	.093 (.308)	.082 (.369)	.098 (.282)	.205* (.023)	-.259** (<.001)	-.235** (.009)	-.169 (.063)	-.161 (.077)	.455** (<.001)	1

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

^a Subscale of Total Support;

^b High scores indicate worse process for this domain

Table 4

Regression Analyses

4a. Maternal HL and “Discriminated Race/Ethnicity”							
	<i>B</i>	<i>SE</i>	β	<i>t</i>	Sig.	95% CI	
Constant	1.452	.394	3.684	3.684	.000	.670	2.234
Maternal Age	.0007	.012	.062	.006	.995	-.023	.023
No. of children	.033	.060	.062	.542	.589	-.087	.153
Acculturation	-.034	.058	-.067	-.594	.554	-.148	.080
Maternal HL	-.026	.044	-.065	-.603	.548	-.113	.061
Model: $R^2 = .019, p = .753$							
4b. Maternal Self-Efficacy and Informal Support							
	<i>B</i>	<i>SE</i>	β	<i>t</i>	Sig.	95% CI	
Constant	25.576	6.180		4.139	.000	13.317	37.835
Maternal Age	.346	.178	.225	1.949	.054	-.006	.699
No. of children	-2.482	.920	-.294	-2.699	.008	-4.306	-.658
Acculturation	1.563	.823	.191	1.900	.060	-.069	3.195
Informal Support	.192	.094	.235	2.041	.044	.005	.379
Formal Support	-.009	.266	-.004	-.036	.972	-.536	.517
Model: $R^2 = .139, p = .009$							
4c. Maternal Self-Efficacy and “Elicits Concerns”							
	<i>B</i>	<i>SE</i>	β	<i>t</i>	Sig.	95% CI	
Constant	3.741	.530		7.064	.000	2.690	4.792
Maternal Age	-.019	.014	-.154	-1.355	.178	-.047	.009
No. of children	-.054	.073	-.080	-.734	.465	-.198	.091
Acculturation	.046	.066	.071	.695	.489	-.086	.178
Self-Efficacy	.020	.008	.250	2.524	.013	.004	.036
Formal Support	.005	.006	.083	.866	.389	-.007	.018
Model: $R^2 = .145, p = .007$							