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The role of health information sources in decision-making among Hispanic mothers during their children's first 1000 days of life

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Abstract

Objective—This qualitative research aimed to explore how health information sources inform decision-making among Hispanic mothers during their children's first 1000 days of life (conception-age 24 months), and to generate appropriate health information sources and communication strategies for future interventions.

Methods—We conducted 7 focus groups with 49 Hispanic women who were pregnant or had children < 2 years old. Domains included interpersonal and media sources, source trustworthiness, dealing with contradictory information, and how information affects decision-making. We used immersion/crystallization process for analysis.

Results—Trusted health information sources included health care providers, female and male family members, BabyCenter.com and other Internet sources, selected social media, and television. Some immigrant women reported preferring the Internet citing less established local support networks. Women highlighted the importance of validating health information through checking multiple sources for consistency and resolving contradictory information. Mothers expressed interest in receiving reliable website links from healthcare professionals and outreach to extended family.

Conclusion—Cultural factors, including immigration status, are important in understanding the use of health information sources and their role in decision-making about pregnancy and child health among Hispanic mothers. Healthcare providers and public health professionals should

consider Hispanic mothers health information environment and provide culturally-relevant communication strategies and interventions during this high information-seeking time period.

Introduction

Childhood obesity has origins in the earliest stages of life with 8.1% of infants and toddlers having high weight for recumbent length.¹ Hispanic children are disproportionately burdened with obesity and related risk factors by early childhood,¹ with non-exclusive breastfeeding, early introduction to solid foods, insufficient sleep, increased screen time, and higher intake of sugar-sweetened beverages contributing to racial/ethnic differences in childhood obesity prevalence.²⁻⁴ The first 1000 days of life-conception through age 24 months, is a crucial window for mothers to receive accurate health information because it is a critical developmental period for the child.⁵ Although health information seeking plays an important role in formation of health behaviors, little information exists regarding trusted sources of health information that contributes to the formation – and thus, prevention of childhood obesity risk factors among Hispanic parents during the first 1000 days of life.

Clinicians are a principal trusted resource for health information and support.⁶ Yet, individuals tend to use other sources like Internet, television, and family/friends to supplement their health information.⁷ Health information seeking can be associated with positive outcomes such as knowledge of medical options, treatment adherence, and discussion of results with the physician.⁸ In contrast, it is also associated with self-diagnosis,⁸ with over one-third of U.S. adults using the Internet as a diagnostic tool.⁶ The top 10 most trusted sources of information among all mothers in a 2008 study were pediatricians (58%), friends and family (55%), evening news (39%), Internet searches (38%), physician office (37%), web sites (33%), parenting books (32%), morning TV talk shows (31%), newspaper articles (28%), and magazines (25%).⁹ These participants indicated that they ask their parents and the pediatrician about parenting advice, and seek the doctor first for health issues, nutrition, and diet information.⁹ The top two trusted sources (pediatricians and friends/family) have been consistent since the 1980s.^{10,11} Concerning the Internet, pregnant women and mothers seek information about childhood illnesses, parenting, and development from clinical and parenting websites.¹²

Among Hispanic adults, common health information sources are doctors (71%), television (68%), family and friends (63%), newspapers and magazines (51%), and radio (40%).¹³ In 2013, 73% of Hispanics used the Internet¹⁴ with 66% searching for health information.⁶ Many Hispanics (79%) reported that they acted on information from media sources; 41% reported that media influenced decisions on how to treat medical conditions; and almost two-thirds reported that Internet, broadcast, and/or print media changed their views about diet or exercise.¹³ Understanding how Hispanic mothers seek health information to inform decision-making about pregnancy and child health will inform future efforts to reduce disparities in childhood obesity.

The overall objective of this qualitative study was to explore how health information sources inform decision-making among Hispanic mothers for their children's first 1000 days of life. Using focus groups, we examined common health information sources, identified how

health information sources impact decision-making in the context of pregnancy and child health, and generated appropriate health information sources and communication strategies for future interventions.

Methods

Study Setting and Participants

We conducted seven focus groups with Hispanic women at three life stages: two pregnancy groups, three infancy groups (children aged birth-6.9 months), and two early childhood groups (children aged 7–24 months). Criterion-based sampling¹⁵ was employed to recruit participants. Eligibility criteria included participants who identified themselves as Hispanic, ability to speak Spanish or English, having a singleton pregnancy or having at least one child <2 with no major medical conditions, and at least 18 years of age.

We recruited participants in a community health center clinic waiting room and by telephone, selecting patients who had an outpatient visit for routine prenatal care or parents presenting for pediatric care. The eastern Massachusetts community health center is federally-qualified with a multispecialty provider group and serves a racial/ethnic and socioeconomic diverse population. We provided an incentive of \$40 for participation and \$20 to reimburse for childcare and travel.

Focus Group Guide Development

This study was a component of the Family Experiences in Early Life (FEEL) Study, which focused on the role of socioeconomic status and race/ethnicity in disparities of early life risk factors for childhood obesity.¹⁶ Therefore, mothers discussed health information sources within this context.

For our study, we used the Health Information Acquisition Model¹⁷ to guide focus group question development and analysis. This model focuses on the health information seeking process, including cost/benefit analysis of searching and evaluation and adequacy of information.¹⁷ Interview guides for each life stage were developed using an iterative process during several meetings with a research team. The topics pertaining to health information were: interpersonal and media sources, source trustworthiness, dealing with contradictory information, and how information affects decision-making. Selected questions are provided in Table 1.

Data Collection

We conducted all 90-minute focus groups at the recruitment site between July 2013 and January 2014. Focus groups were conducted until saturation was reached for topic areas. At recruitment, each participant completed a brief survey asking demographic questions such as age, education, and number of children in household. For each focus group, a Hispanic bilingual moderator facilitated the discussions. Focus groups were primarily in Spanish with some English interpretation at times. Two study staff members took notes during the discussion, and team members debriefed after each focus group to summarize particularly salient themes. Discussions were audio-recorded and transcribed verbatim in Spanish, and

then professionally translated to English. The institutional review board at [redacted for blind review] approved the study protocol. All participants provided informed, written consent prior to participation.

Analytic Approach

The research team used the immersion/crystallization process involving immersion into the data through detailed examination, reflection on the analysis, and identification of themes.¹⁸ We read the transcripts independently and then discussed the data as a group repeatedly to determine topical content and emerging themes. Team members took notes during meetings. We then developed and refined a codebook through iterative discussions. We used NVivo 10,¹⁹ to import transcripts, code the data, and organize codes. Two research team members coded one transcript to guide discussion to ensure consensus on categorization of the data. One member of the team coded all remaining transcripts. We then analyzed code reports to complete content analysis and interpretation of themes²⁰ with the Health Information Acquisition Model¹⁷ as a guide. We continued analysis until no new major themes emerged and resolved discrepancies at research team meetings.

Results

Participant Characteristics

Table 2 shows characteristics of the 49 women in the focus groups. Mean maternal age was 26.4 (SD 6.6) years. Mean gestational age in pregnancy groups was 5.1 (SD 1.8) months. Mean child age was 2.8 (SD 2.0) months in infancy groups and 14.3 (5.3) months in early childhood groups. More than half of women were born outside the United States, and most spoke both Spanish and English.

Sources of information and its relationship to decision-making—We describe each health information source in the sections below. The following themes were consistent among all groups, unless otherwise indicated.

Health Care Providers—Need an alternative for immediate information

Many participants cited their healthcare provider (e.g., doctor, nurse, WIC nutritionist) as their trusted information source. Participants mentioned that healthcare providers were helpful with nutrition information, such as safe and healthy foods in the pregnancy group, and breastfeeding and introducing solid foods in the other groups. However, in all groups, women mentioned the need to use other resources like the Internet and family members for immediate information: “I have to be there for a long time to talk with the [doctor], so I can talk with my aunt or my mom quickly, and she tells me quickly the things that the doctor will eventually tell me” (Pregnancy Group).

Interpersonal—Listen to advice from female and male family members with children

Most women in all groups reported that family members are a vital source for information about healthy pregnancy and children. Many women stated that they trust their mothers, along with other female family members including grandmothers, sisters, aunts, and mother-in-laws. Some women stated that they receive health information from male relatives,

including their fathers, stepfathers, grandfathers, and brothers: “I [ask] my father because... he raised six kids, so he has good advice” (Early Childhood Group). A few pregnant women noted that they seek advice from their boyfriend: “My boyfriend, who has four girls, he is an expert.” Overall, there was a general sentiment that trusting family and friends who have experience as parents is important.

Self-Following intuition

Only participants in the infancy and early childhood groups indicated that they rely on their own intuition instead of following others’ advice when caring for their children: “I have so many different opinions; I’ll just go with my gut feeling” (Infancy Group). Some women reported that it was called “mother’s instinct,” and came from the context of having some experience with their own child(ren), was essential in decision-making for child health, and trumped the advice of doctors and family members.

Internet-Trust websites with medical professionals and mothers’ advice

In all groups, women indicated their use of the Internet as a health source. Many cited Google as their main search engine and BabyCenter.com as a regularly utilized website. Women reported that they searched the Internet for information (mainly English language sites) about healthy fetus, baby, and child development, nutrition and feeding practices (e.g., breastfeeding, introduction of solid foods), and safety information (e.g., co-sleeping). Most women in the focus groups were born in another country, and one mother in the early childhood group noted that she preferred the Internet because, “I am new in this country, so I haven’t had the opportunity to meet many people.”

BabyCenter.com, a commercial information website, was popular among all groups. The participants stated that they visited the webpage, signed up for weekly e-mails, downloaded and used the application (app), and valued comments from parents with similarly-aged children. In pregnancy groups, women reported enjoying viewing weekly information about the development of their baby, and they learned about diet and exercise during pregnancy on the website. The participants reported trusting the site: “all the information from BabyCenter...it’s similar to what you see in the book, the doctor” (Pregnancy Group).

WebMD, another commercial website, was not mentioned in the pregnancy groups, but was consistently cited in the other groups for providing good child health advice. Other websites mentioned for health information were: WhatToExpect.com, BabyGaga.com, Parenting.com, Gerber.com, and Enfamil.com.

Participants talked about two forms of social media: YouTube and Facebook. Women looked for videos on the topics of pregnancy nutrition, baby development, breastfeeding, swaddling, and gas relief for babies. One pregnant woman who experienced a previous miscarriage used YouTube to corroborate her abnormal pains before the miscarriage and as a form of social support afterwards with other women who had a similar experience. Many participants across groups reported that they use Facebook for social networking. When the moderator asked the participants if they would trust Facebook for pregnancy and child health information, all participants except two said “No.” Across groups, participants reported that people “post any information [they] want, whether it’s true or not,” (Pregnancy

Group) and that “Facebook is too personal [and it is] not the space for [discussing personal health information]” (Early Childhood Group).

Television-Can increase awareness and initiate change

Participants in each life stage reported that they received pregnancy and/or child health advice from television shows. Several women indicated that they watched “A Baby Story” on The Learning Channel (TLC) and The Discovery Channel. In one pregnancy group and one infancy group, women highlighted the Spanish-speaking channels of Univision and Telemundo. One woman reported that she learned about the amount of sleep that babies should get on “Despierta América (Wake Up America)” on Univision. Another woman reported that she learned that a baby can “weigh too much” on the tabloid talk show, “Maury,” which featured a “really big” toddler on an episode.

Some participants in the infancy group made decisions based on the information that they received from television: “They say on television that if you give him breast milk they are more intelligent. I said I am going to give him a lot of breast milk because I want him to be very intelligent” (Infancy Group). One mother described that she used to put an iPad in her child’s crib, but then saw a “pediatrician on the show” who discouraged the use of a baby seat with an iPad holder, which led the mother to stop putting an iPad in the crib.

Importance of Validation-Use multiple sources for consistency and resolving contradictory information

Women in all groups expressed a desire for accurate information about their pregnancy and child health. They reported reviewing various sources to confirm information and address discrepancies: “I listen to multiple sources and look for the common denominator... if there’s a majority that goes with the same reply, then, well, I follow more” (Infancy Group). One major aspect of validation for the mothers was including the doctor’s advice as an obligatory part of their compendium of health sources. In the infancy group, many women indicated that they ask their baby’s pediatrician for clarifying guidance when they heard conflicting health information from other sources, including family members. Some mothers compartmentalized which health source is appropriate concerning child health: “I pay more attention to the doctor when it’s about my son’s health...so television and activities are more for the grandmother and nutrition things for the doctor” (Early Childhood Group).

Health information sources and communication strategies for future interventions

Participants in all groups suggested ways to reach them with the appropriate information. Table 3 shows health information sources, the perceived appropriate sender of the message, and communication strategies for future interventions highlighted by the mothers. The participants provided an array of health sources, and some women stated that they would want the fathers to be involved as well. The participants indicated that a health professional and/or experienced parent should deliver the messages.

Discussion

In this qualitative study of Hispanic mothers with children in the first 1000 days of life, we identified the relevance and nuances of each health information source along with how the sources influenced decision-making. Mothers trusted advice from doctors through in-person and online interactions and experienced male and female parents. We found that Hispanic mothers desired communication strategies and interventions that included their extended family and approved websites from their healthcare providers especially for immigrants with no or little family in the area.

The majority of our participants reported that they seek health information from a medical professional, which aligns with national survey findings that 77% of Hispanic women¹³ and the majority of White and African American parents seek information from medical professionals.²¹ One study found that some Hispanic women follow clinician advice without question;²² whereas, our participants conferred with other sources but typically followed the doctor's advice. A segment of our participants revealed that they perceive barriers with attending health care visits, so they seek information from the Internet or family first. Disagreement with information provided by health professionals and lack of time to ask questions could explain some of the Internet use by participants in our study.²³

Many women in our focus groups reported that they rely on their own "mother's instinct," particularly when confronted with various recommendations from different sources. Comparably, a similar study found that pregnant women from the southeastern U.S. elucidated a similar concept to "mother's instinct" that researchers labeled "it just came natural."¹¹ This concept seems to translate across race/ethnicity and could be used for empowerment concerning decision-making.

In our focus groups, interpersonal relationships were a common health information source, which is customary,¹³ but it may be differentially utilized by immigration status. Immigrants are less likely to seek advice from family and friends than Hispanics born in the U.S., 59% versus 71% respectively, potentially based on having smaller networks in the U.S.¹³ Most of our participants were immigrants (61%), and our findings suggest that recent immigration affects utilization of local interpersonal support.

Collectivist values often pervade Hispanic life leading to individuals seeking others to help guide decisions and opinions.²⁴ Therefore, the U.S. Centers for Disease Control recommended using social networks for health promotion because they facilitate collective sharing of information and communication.²⁴ The top three social media sites for Hispanics are Facebook (73%), Instagram (34%), and Twitter (25%).²⁵ Even though most of our participants reported that they use Facebook, they claimed that it was not a trusted source for pregnancy and child health information because anyone could post information. Our participants did not mention Twitter and Instagram; therefore, it may not have been perceived as a source for health information, or they may not be active users of these modalities. If social media like Facebook was to be utilized for this audience, the health promotion source would have to adequately notify the women of its credentials, specifically presenting advice from a health professional or experienced parent. In addition, our findings

elucidated that YouTube is a resource for demonstration and emotional support, including coping support during problematic pregnancies.²⁶ It seems that a participant's ability to search for the desired video topic (e.g., how to breastfeed) from someone outside her personal social network increased the usefulness of YouTube compared to Facebook.

Our participants cited Internet websites as regularly-used tools for health information seeking, which is common among all U.S. online health information seekers.⁶ The Health on the Net Foundation Code of Conduct (HONcode) provides guidelines for certification of medical and health websites to bolster the reliability and credibility of information through the HONcode principles, including citing author qualifications and sources.²⁷ Specifically, our participants highly utilized BabyCenter.com. They emphasized that information from the Internet should be valid in order to use it in decision-making, which has been shown to increase behavioral intentions,²⁸ but this site is not HONcode certified, even though BabyCentre.co.uk has the certification.

Some of our participants noted that Spanish-language television played a role as a health information source. Among Hispanics who receive health information from television, 40% get that information from only Spanish-language television stations, 32% from a mix of Spanish and English-language stations, and 28% from only English-language stations.¹³ Educational partnerships between Spanish language stations and health care professionals are important to disseminate accurate health information.

Several participants indicated that they watched birth and baby shows from Discovery Health and The Learning Channel. A content analysis of birth television shows found these programs are not aligned with evidence-based maternity practices.²⁹ In addition, there was underrepresentation of Hispanic women in general and an overrepresentation of Hispanic single women in the television shows compared to national demographics.²⁹ Practitioners should assess the television programs that Hispanic families view during pregnancy and early life to correct misinformation, and identify opportunities for intervention through PSAs, storylines, and representation in order to promote correct information about pregnancy and child health.

Our findings revealed the importance of maternal validation of pregnancy and child health information, mostly through Internet use. In one study, many Swedish pregnant women (84%) used the Internet to retrieve pregnancy-related topics and most considered it reliable if the information was consistent with other sources and included references, but rarely discussed the information with their clinician.³⁰ Pregnant women from various countries use the Internet to help validate information from other sources, share experiences within online forum communities, and assist in decision-making by providing details about available choices.³¹ Internet is a convenient resource that mothers use to verify or resolve varied information.

Most existing qualitative research around health information for mothers focuses on pregnancy or a specific child development stage. Our study, in contrast, included mothers with children on the continuum of the first 1000 days of life. Some limitations should be noted. The discussion topic of obesity risk factors within this life stage was novel, yet

perhaps mothers would have considered other health information sources if we discussed another topic. Similar to most qualitative studies, researchers should not generalize our findings to all Hispanic pregnant women or mothers of young children. Finally, some groups needed interpretation between English and Spanish within the discussion at times, and it is possible that some communication was hindered.

Our study highlights intricacies of health information source use and their role in decision-making of Hispanic mothers with children in the first 1000 days of life. Healthcare providers and public health professionals should consider the health information environment of their patients and provide culturally-relevant communication strategies and interventions. Practically, healthcare providers can ask patients about information they have found⁸ and/or provide an easy-to-read, bulleted printed handout or email that also lists trustworthy Internet sites^{32,33} that have been HONcode certified. The sites can also provide a platform to discuss health information with patients, especially among immigrants who may not have a strong support system established yet. Practitioners can provide classes for parents that include ways to validate health information and communication skills with family members. In addition, practitioners can distribute information through Internet discussion forums and mobile phones for parents and their family members (e.g., parents, in-laws, siblings) to increase accurate information about pregnancy and child health. Intervening during this high information period could help improve Hispanic children's health outcomes.

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Table 1

Focus group sample questions for health information sources and decision-making.

Pregnancy Focus Group Guide Questions:	
1	Who do you get advice from about how to keep you and your baby healthy during pregnancy? Probes: <ul style="list-style-type: none"> • Do you get advice from family members or friends? • What about your health care providers? • If you get different advice from different people, how do you decide what you are going to do? • If they answer “I listen to the source I trust most”: <ul style="list-style-type: none"> – Probe: Who do you trust the most and why?
2	Please share some examples of advice you received that you disagreed with, and how you dealt with that.
3	Some people look for advice about pregnancy by looking through the media – for example TV, Internet, magazines, newspapers, Facebook, mobile apps and other types. What information do you get from the media about how to keep you and your baby healthy during pregnancy? (<i>be specific with details</i>) <ul style="list-style-type: none"> a. What type of media do you trust for information about health during pregnancy? Why? b. What specific TV shows, magazines, websites, or advertisements or other media that you trust? Why?
Infancy & Early Childhood Focus Group Guide Questions:	
Same as pregnancy section above with slight modifications referring to baby/child instead of pregnancy	

Table 2

Hispanic mother and child characteristics according to focus group participation (n=49).

	All Groups (N=49)	Pregnancy Groups (N=17)	Infancy Groups (N= 15)	Early Childhood Groups (N= 17)
Parent/Family Characteristic		N=17	N=15	N=17
Maternal age, years, mean (SD)	26.4 (6.6)	25.6 (6.4)	25.6 (7.5)	27.9 (6.1)
Education, college graduate, n (%)	6 (12%)	2 (12%)	1 (7%)	3 (18%)
Education, high school graduate, n (%)	34 (69%)	13 (76%)	9 (60%)	12 (71%)
First Child, n (%)	30 (61%)	14 (82%)	10 (67%)	6 (35%)
Married/cohabiting, n (%)	30 (61%)	11 (65%)	9 (60%)	10 (59%)
US-born, n (%)	19 (39%)	6 (35%)	7 (47%)	6 (35%)
Language Comfort				
Spanish-only	16 (33%)	9 (53%)	4 (27%)	3 (18%)
English-only	1 (2%)	0	0	1 (6%)
Either	32 (65%)	8 (47%)	11 (73%)	13 (76%)
Gestational Age (months)	n/a	5.1 (1.8)	n/a	n/a
Child characteristics				
Age (months)	n/a	n/a	2.8 (2.0)	14.3 (5.3)

Table 3

Health information sources, sender, and communication strategies for future interventions. Data from 49 Hispanic women participating in focus group discussions.

Health information source	Sender	Communication strategy
Email	Healthcare provider	Emails should include health tips and pertinent links to informative websites, along with space to hear other mothers' experiences online.
Mobile-Text messages and Smartphone apps	Healthcare provider/Public health professional	Text health messages <ul style="list-style-type: none"> • "A text message is better than a call because sometimes you forget what you were supposed to do, and you go back and read it again." (Infancy Group)
Telephone Hotline/Support	Healthcare provider/Health advisor	Receive calls from a health care professional with the ability to call in with questions/concerns <ul style="list-style-type: none"> • "Even though I'm not seeing them face to face, I know that there's somebody I can trust." (Early Childhood Group)
Mail-brochures/pamphlets	Healthcare provider/Public health professional	Health education materials
Class	Healthcare provider/Public health professional / Other parents (mothers and fathers)	Provide in-person classes as a stand-alone program or in the waiting room, as well as, video classes; include mothers and fathers in the classes