

Technology Use and Interest Among Low-Income Parents of Young Children: Differences by Age Group and Ethnicity

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ABSTRACT

Objective: To examine demographic differences in frequency of use of technologies and interest in receiving nutrition information via technology by low-income parents and caregivers.

Design: Descriptive, cross-sectional study.

Setting: Head Start and state-funded child care programs.

Participants: A total of 806 parents and caregivers from low-income families.

Variables Measured: A 20-item survey assessed frequency of use and interest in technologies (dependent variables) and collected participant age and ethnicity (independent variables).

Analysis: Multivariate ANOVA analysis investigated whether age, ethnicity, and their interactions were related to frequency of use and interest in technology types.

Results: Daily rates of usage for Internet, text messaging, and cell phone use were over 60%. However, Twitter and blogs were accessed daily by < 13% of respondents. The omnibus 2-way interaction of ethnicity and age was nonsignificant. However, main effects for ethnicity (Wilks' $\lambda = .85$; $F = 3.13$; $P < .001$) and age (Wilks' $\lambda = .89$; $F = 2.29$; $P < .001$) were observed.

Conclusions and Implications: Facebook, e-mail, texting, and smartphone applications may be innovative modalities to engage with low-income parents and caregivers aged ≤ 45 . However, some strategies may be ineffective for reaching Hispanic families as they reported less use of the Internet, Facebook, and e-mail as well as less interest in e-mail.

Key Words: technology, child nutrition sciences, electronic e-mail, social media, low-income population (*J Nutr Educ Behav.* 2014;46:484-490.)

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INTRODUCTION

Early nutrition predicts long-term cognitive, social, and physical health outcomes.¹⁻³ However, many children aged < 5 are not meeting daily recommendations for minimum nutrition, particularly those in low-income families.⁴ Parents are the gatekeepers for the food that is purchased and prepared for their children but may need support to gain the knowledge and skills necessary to make changes. Thus, interventions aiming to improve nutrition for young

children must target parents also. In accordance with the Health Belief Model,⁵ parents will be more likely to follow recommendations when they understand the benefits of the recommendation and perceive the seriousness of failing to follow recommendations. Thus, intervention programs can have an important role in increasing adherence to dietary recommendations for children by raising parents' awareness of the associated health risks of a poor diet for children and advocating the health benefits of a quality diet.

Despite the potential positive outcomes, low-income parents and caregivers face many barriers to enrolling and attending intervention programs.^{6,7} Time constraints, child care needs, transportation issues, and work conflicts are among the challenges parents report regarding enrolling and remaining engaged in a parent education program. Recruitment rates for families of low socioeconomic status are below 31%⁸ and attrition rates are high even if parents are enrolled successfully and provided with transportation and child care.⁹ Innovative intervention delivery and engagement modalities are needed to overcome barriers to participation and connect with parents despite their limiting circumstances. In the current digital age, technology holds potential to address this need.

Nutritionists seeking to reach low-income parents and caregivers must know whether and how families use technology if it is to be a feasible intervention modality. By 2009, 35% of US

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families making < \$20,000 reported broadband Internet connections in their homes.¹⁰ Another recent report showed that 44% of all age groups and 61% of young Americans (aged 14–24 years) living in poverty used the public library for computer and Internet access.¹¹ In addition to Internet access on computers, modern technology allows for the access and delivery of information via cell phones. In 2009, 32% of American adults reported accessing the Internet with a cell phone or other mobile device.¹² Over 70% of American adults indicated that they used their cell phone to text.¹³ These studies suggest that many low-income families access information via technology, but these studies do not indicate how often low-income families use various technologies or their preferences for receiving information.

Effective efforts to reach low-income families need to be informed by the types of Internet sites (eg, blogs, e-mail, social media) most typically visited by these families as well as the rate at which they are viewed (eg, daily, weekly). For example, data suggest that 47% of US adults and 72% of young adults (aged 18–29 years) use Facebook for social networking.¹⁴ Another social media site, Twitter, is used by 13% of adults, with the highest rates of use by younger adults (18%) and African Americans (25%).¹⁵ The Pew Research group reported that 74.3% of US adults use e-mail and 25.3% read blogs.¹⁶ Yet results from these studies do not consider patterns of use within low-income families.

Despite widespread technology use, there are documented digital discrepancies in the general population. Whites in the US are more likely to be daily Internet users, but this effect is confounded with a higher average income. However, African Americans are the most likely group to use mobile Internet, offsetting the inequity in traditional modes of access.¹² African Americans and English-speaking Hispanic adults are more likely (7%) than whites to own a cell phone and are more intense users of their cell phones, making calls and texting more frequently.¹³ Adults aged > 65 are the least likely to have cell phones,¹³ and age is negatively related to having a computer in the home and use

of the Internet in any location.¹⁷ Demographic differences in access and use of technology within a sample of low-income families are unknown.

Two exceptions are noted.^{18,19} Among Supplemental Nutrition Assistance Program recipients in Indiana, whites and younger adults (aged ≤ 50) were the most likely to have a computer and Internet access in the home.¹⁹ In another study, usage of the Internet by Supplemental Nutrition Assistance Program recipients in New Jersey was related to age but not ethnicity.¹⁸ However, the Indiana sample was overwhelmingly white (85%) and the New Jersey sample, although more racially balanced than the Indiana sample, was modest in size ($n = 93$). Replication and extension of these findings are needed in additional locations and among large and diverse samples of low-income families. It is possible that participant characteristics could interact in unique ways to influence use of technologies. For example, the impact of age may vary across ethnicity. No studies were identified exploring such possibilities.

A final consideration is warranted if technology is to be a viable option for intervention and information delivery for low-income families. Access and use of technology do not necessarily overlap with interest in receipt of information from intervention and education programs. However, a few studies suggest families may be open to using technology in this way. For example, a Pew survey of US adults found that 46% of respondents agreed that mobile Internet was important for “getting information on the go.”¹² Hesse and colleagues²⁰ reported that the Internet is already the most used resource for health information for US adults. Before designing technology-based nutrition programs for low-income parents, research is warranted to determine whether these interests in technology extend to parents for learning information on nutrition.

In light of this gap, the current study sought to determine whether technology is a viable and preferred avenue of information delivery among low-income parents and caregivers. Specifically, this study examined the following questions: (1) How often are various technologies (eg, cell phones, Facebook) accessed by low-income families? (2) Do low-income families

express interest in technology as a mode of information delivery? (3) How do frequency of use and interest differ by age and ethnicity within a low-income sample? (4) Do demographic factors interact to have a unique impact on frequency of or interest in technology use?

METHODS

Study Design

The researchers recruited sites for this descriptive, cross-sectional study in a Southern state from early childhood programs targeting low-income families in 2013. Recruitment sought to reflect the geographic region (urban vs rural) and ethnic composition of children typically served by these programs in the state. Urban was defined using the US Census Bureau classification of an urbanized area of $\geq 50,000$ people.²¹ Of 20 total sites, 11 were in urbanized areas (population range: 65,934–195,314) and 9 were in rural areas (population range: 1,745–36,295).²² A total of 806 parents and caregivers were surveyed with 65.5% from urban and 34.5% from rural sites.

Data collectors completed standardized training to minimize procedural differences. To collect surveys, trained data collectors positioned themselves during drop-off and pickup times to request completion of a survey from parents and caregivers. Participants were paid a \$1 coin after completing the survey. Data collectors offered assistance to every individual and aided (ie, read aloud and recorded responses) any participant who indicated interest in help. Data collectors were trained to monitor for signs of confusion and repeat offers of assistance. The survey was approved and deemed as minimal risk by the University of Arkansas for Medical Sciences Institutional Review Board. Consent was not required.

Setting

Early child care programs included in this study were Head Start ($n = 5$ urban, 4 rural) or state-funded early child care programs ($n = 6$ urban, 5 rural). Head Start is a government-funded early child care program that serves low-income families ($\leq 100\%$ of poverty) with children birth to age 5. As a part of this state's efforts to

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