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Use of Web-based Parent-adolescent Health Promotion Program among Puerto Ricans

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Abstract

Background: Despite positive attitudes of Latinos using the Internet and the increased availability of health information resources, few studies have been conducted that examine actual use and barriers to web-based health information.

Objective: To examine whether select sociodemographic factors and technology factors (e.g., computer and Internet access) predicted use of a web-based, parent–adolescent sexual communication program or a physical activity program, entitled *Cúidalos*, among Puerto Rican parents.

Methods: This study uses data from a randomized controlled trial designed to examine the long-term effectiveness of *Cúidalos*. Parents were recruited from community-based and school sites throughout Puerto Rico, and randomly assigned to a web-based, parent–adolescent sexual communication ($n = 245$) or a physical activity ($n = 247$) program. Parents were instructed to complete the two session program within one week and had access to the program for a period of three months. Outcomes in this secondary analysis were the number of logins and self-reported

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access during the three-month period. Reasons for not accessing the program after the three-month period were assessed.

Results: Self-reported access after completion of the *Cuidalos* program and the actual number of logins over the intervention period were low. There were no statistically significant differences in the number of logins between parents who accessed *Cuidalos* during the three-month timeframe and those who did not ($p = .28$). Logistic regression analyses demonstrated that the odds of accessing *Cuidalos* during the three-month period was 72% higher ($OR = 1.72$, 95% CI 1.08 – 2.75) among parents with a high school education or less, as compared to parents with a college education ($p = .02$). Similarly, Poisson regression model results indicated that with every year increase in age, the expected number of logins increased by 1% ($RR = 1.01$, 95% CI 1.00–1.02); compared to those who accessed the program at home, the expected number of logins ranged from 10%–27% lower for parents accessing elsewhere. Reasons for not accessing the program during the three-month period included not having easy access to a computer ($n = 134$, 48.6%), or they did not know how to access the program again ($n = 56$, 20.3%).

Discussion: Despite the availability of web-based and e-health resources, further research is needed to identify how to facilitate greater access and actual use of digital health resources by Latinos. This is an important effort in order to prevent a widening health equity gap caused by a lack of access and use of digital health resources.

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Keywords

Health promotion; Hispanic Americans; Internet use; Puerto Rican

Persistent and significant health disparities exist among Puerto Rican adolescents compared to other racial and ethnic adolescents related to sexual health. For example, Puerto Rican girls between the ages of 15 and 19 years had a teen birth rate of 33.9%, compared to the mainland U.S. average rate of 22.3% (KFF, 2015). HIV/AIDS also disproportionately affects Latinos. The overall HIV prevalence in Puerto Rico by yearend 2015 had a rate of 564 per 100,000 people ($n = 16,783$ reported cases), as compared to the mainland U.S. prevalence rate of 362.3 per 100,000 people ($n = 971,524$ reported cases) (Centers for Disease Control and Prevention, 2016)

Web-based and mobile technologies are important sources of health information and have the potential for decreasing health disparities. Although the digital divide was once a concern for access among racial/ethnic minorities, a recent national survey indicates that Internet use among Latinos is high (84%) and similar to that of Whites (89%). Immigrant and Spanish-dominant Latinos are driving down the gap of Internet use even though broadband adoption rates have stabilized since 2010 (Brown, López, & Lopez, 2016). For mobile technologies, Latinos (75%) are similar to Whites in their ownership of mobile phones (77%) with African Americans only a few percentage points behind (72%) (Perrin, 2017). Use of mobile devices to access the Internet was higher among Hispanic (94%) and Black (94%) Internet users than among White Internet users (85%) (Brown et al., 2016).

Several factors affect access and use of the Internet by Latinos. Notably, the Pew Survey (Pew Research Center, 2014) showed wide gaps in Internet use among Latino subgroups. Latinos who were less than 50 years of age, had some college experience, and had an annual income of \$50,000 or more had high Internet use (90–95%) as compared to those who were over 50 years of age, had less than a high school education, and an annual income of less than \$30,000 (67–79%) (Brown et al., 2016). Similarly, in several studies, subjects who were younger, had at least a high school education, and higher income were found to have a higher use of Internet and digital technologies (Kontos, Blake, Chou, & Prestin, 2014; Lee, Boden-Albala, Jia, Wilcox, & Bakken, 2015; Manganello, Gerstner, Pergolino, Graham, & Strogatz, 2016). In related studies, subjects who were younger, more educated, and with higher health literacy were found to have higher Internet use and online health information-seeking behaviors (Bjarnadottir, Millery, Fleck, & Bakken, 2016; Lockwood, Saunders, Josephson, Becker, & Lee, 2015).

The higher Internet use and health-seeking behaviors may be explained by factors such as Latino families' perceptions of technology risks and rewards (Katz & Gonzalez, 2016; Powe, 2015), lack of confidence and trust issues by the user (Gonzalez, Sanders-Jackson, & Emory, 2016; Knapp, Madden, Wang, Sloyer, & Skenkman, 2011), less availability of print materials (Massey, 2016), and connectivity issues (Cohall et al., 2011). Specific to Puerto Rico, two studies using the Health Information National Trends Survey (HINTS) Puerto Rico 2009 data indicate that confidence and trust issues in sources of health and medical information, along with higher education and younger age, are indicators of health-seeking behaviors on the Internet (Tortolero-Luna et al., 2010; Finney Rutten et al., 2012). Respondents who were younger, had at least a high school education, and higher income had a higher Internet use and also use of the Internet as a source of health information. This study builds on scant research with Puerto Ricans regarding Internet use for health information by examining Puerto Rican parents' use of a web-based program, *Cúdalos*, designed to increase adolescent–parent sexual communication and physical activity communication.

Latino Web-Based Behavioral Interventions

Culturally and linguistically appropriate websites, programs, and materials that consider and test how Latinos access, use, and engage with resources have the potential to positively influence health outcomes. However, few web-based health promotion interventions have been tested with Latino populations. In our review of literature, we found only three randomized controlled trials. Results were promising, providing evidence of decreased substance use, reductions in unsafe sex among adolescents aged 15 years or less, and increased physical activity as measured in minutes per week of moderate to vigorous physical activity (Estrada et al., 2015; Marcus et al., 2016; Marcus et al., 2015; Marsiglia, Ayers, Baldwin-White, & Booth, 2016).

In a similar study, Villarruel, Loveland-Cherry, and Ronis (2010) modified an efficacious small group intervention to a computer-based format. *Cúdalos* (take care of them) was modified from a six-hour, six session, face-to-face format to a two-hour, six session, interactive, computer-based format (with audio). A computer format was initially developed

to examine efficacy, feasibility, and acceptability with Latino parents with limited education, literacy, and computer skills. Results from this randomized controlled study found that parents who participated in the computer-based program had higher general communication and sexual risk communication than those parents in the wait-list control group. Results of the process evaluation indicated that parents (90–100%) liked the program activities and using the computer, felt comfortable, thought it was easy to use, would recommend the program to other parents, and wanted access to the program to share with their spouses, adolescents, and other family members.

Building on this previous work, and given the paucity of Internet-based health promotion interventions designed specifically for Latinos, we tested a web-based intervention, *Cuídalos*, in Puerto Rico to increase sexual risk communication between parents and adolescents. Importantly, we also wanted to learn about how parents would use web-based health information if given unrestricted access to the program. Findings would identify uses and potential barriers related to the use of Internet health information that would be useful in implementing the *Cuídalos* program as well as other web-based health information among this population.

Methods

The purpose of this study was to examine the use of the web-based sexual communication (experimental) and health promotion (control) *Cuídalos* programs, as measured by total number of logins over the three-month intervention period and self-reported access during the three-month period. We also examined whether select sociodemographic factors and Internet/technology factors (e.g., access to a computer and Internet service) predicted use of the web-based programs.

Procedure

To recruit participating parent/adolescent dyads, we established collaborations with community-serving entities throughout the metropolitan San Juan area. Study recruitment sites met the following criteria: (a) provided services to youth between the ages of 13–17 years and/or their parents; (b) had available computers where participants could go to engage in the study; (c) when computers were not available, they could provide space for our team to deploy laptop computers for participants' use; and (d) had flexible schedules in order to facilitate participation in the study. For sites where computers were not available, our project staff supplied laptop computers, tablets, and Wi-Fi hotspots to facilitate access to the intervention.

The institutional review boards at the University of Puerto Rico, University of Michigan, and University of Pennsylvania approved the study. Dyads who agreed to participate signed a consent (parents) and assent (youth) form before completing a pretest questionnaire. We provided each parent with a unique identifier code that allowed them to log into the *Cuídalos* website. Project assistants worked with parents to ensure they could access the program and felt comfortable doing so. We also provided them with written instructions to log into the site, troubleshooting tips, and the phone numbers/emails of our project team in case they encountered problems.

Participants could access the website from our recruitment sites, their homes, or any other convenient location. At the first login, the system randomly assigned participants to either a sexual risk communication intervention (experimental group) or a health promotion intervention addressing exercise and eating habits (control group). Both programs consisted of six modules delivered at two different times, given that there were interactive activities to complete with their sons or daughters after the third module. We asked parents to complete the entire program within one week, either by accessing the remaining program remotely or by returning to the site where they began the study. Our team made phone calls and sent text messages on a weekly basis to encourage completion of the entire program.

Parents in both the experimental and control conditions had unlimited access to the *Cuidalos* website for three months, and we monitored access to the program (e.g., number of logins). We also visited the sites regularly to meet with parents who had restricted Internet access. Parents completed follow-up assessments at 3, 6, and 12 months. Parents and adolescents received economic incentives for time invested in the study. Specifically, parents received a total of \$80 throughout the one-year period of participation (\$10 at pretest; \$10 upon meeting completing the intervention module; and \$20 at the 3, 6, and 12-month follow-ups).

Sample

The sample was composed of 660 parents/adolescent dyads. However, the tracking system to monitor program logins and other tracking data began five months after the study started. The sample used for this analysis comprised pretest and three-month follow-up assessments of 492 parents.

Outcome Variables

The outcome variables of interest were self-reported access to *Cuidalos* during the three-month intervention period and the actual number of logins over the three-month period. At the three-month follow-up, parents were asked to report whether they had accessed *Cuidalos* once it was completed (Yes/No). Reasons for not accessing *Cuidalos* after completion were also obtained and analyzed. Reasons included: not knowing how to access the program again; not having easy access to a computer; learning everything they needed to know; no interest in viewing again; not liking the program; or other (no write-in option was given). A tracking system was developed to monitor program logins for each participant over the three-month intervention period.

Demographic Variables

Demographic variables were obtained through a self-report, web-based questionnaire at baseline. Many of the items were used in a previous study with Latino parents. Parents were asked to provide information about their age (in years), ethnicity (Yes, Puerto Rican/Yes, Other Hispanic, Latino or Spanish Origin/Not Hispanic, Latino or Spanish Origin), race (White, Black, American Indian, Asian/Pacific Islander, More than one race, Other race), sex (Male, Female), the sex of their child participating in *Cuidalos* (Male, Female), marital status (Single, Married, Separated, Divorced, Widowed, Live-in-Partner), whether they had a partner (Yes/ No), education level (High School or Less, College), whether they held employment outside of their homes (Yes/No), number of hours worked per week, average

monthly income (< \$300, \$300–799, \$800–1699, \$1700, Unknown), whether they received government assistance (Yes/ No), monthly government assistance income (in U.S. \$), number of children in their household, and location where the *Cuidalos* program was completed (Community Agency, School, Home, Other Location [Library, Other, House of family/friend]).

Internet/Technology Variables

Internet and technology variables were also obtained through a self-report, web-based questionnaire at baseline. In relation to computer and Internet access, participants were asked to provide information about their comfort with a computer (Very comfortable, Somewhat comfortable, Somewhat uncomfortable, Very uncomfortable), ease/difficulty in computer access (Very easy, Easy, Difficult, Very difficult), whether they had access to a desktop, laptop or tablet (Yes, No), and whether these devices had Internet access (Yes/ No). Subjects with a desktop, laptop, or tablet were assumed to have computer access. Subjects with no computer access with missing values for Internet access were assumed to have no Internet access. No assumptions were made for the few subjects who reported having computer access with missing values for Internet access, as there were some subjects who had computers but no Internet access. A categorical variable was created to determine whether subjects had both computer and Internet access, computer access but no Internet access, or neither.

Statistical Analysis

The outcomes of interest in this study were whether parents had accessed *Cuidalos* during the three-month intervention period (self-report), and the actual number of logins over the three-month period. Independent variables of interest included baseline demographic and Internet/technology variables. Descriptive statistics were used to characterize all variables. Chi-square or Fisher's exact tests were used to examine differences in demographic and Internet/technology variables for participants who accessed *Cuidalos* once they completed it versus those who did not; two-sample *t*-tests were used to compare continuous variables across the two groups.

Univariate logistic regression models were used to quantify the individual effect of each predictor of interest on the odds of looking at *Cuidalos* after completion. Using traditional, predictive, model-building methods, predictors with *p*-values significant at the .20 level in the univariate models were included into a single multivariable model, as some variables may become significant at the .05 level in the presence of other variables. Then, variables were removed one at a time based on the largest *p*-value until all of those remaining in the model were significant at the .05 level.

Additionally, a similar modeling approach was used for number of logins over the intervention period. Specifically, univariate Poisson regression models were used to regress number of logins on each predictor of interest. A final multivariable Poisson regression model was generated using the predictive model building methods described above. All analyses were accomplished using SAS V9.4 (Copyright © [2013] SAS Institute Inc. SAS

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Results

Demographic and Internet/technology characteristics of the sample at baseline, overall and by intervention group, are presented in Table 1. The mean parent age was 42.89 years ($SD = 8.47$). Parents were mostly female (89.6%), married (39.2%; $n = 193$) or with a partner (63.0%; $n = 310$), of White race (37.4%; $n = 174$), unemployed (60.0%), and had a college education (60.2%). In relation to technology variables, the majority of parents reported feeling “very comfortable” using a computer (69.7%; $n = 343$) and had access to a computer (75.0%; $n = 369$) and the Internet (65.5%; $n = 322$).

In comparing baseline characteristics between parents in the control and experimental groups, parents in the experimental group were significantly more likely to have a higher average monthly income (\$1,700 [10.2% vs. 6.1%, $p = .03$]). There were no statistically significant differences between intervention groups on all other demographic and Internet/technology characteristics at baseline.

Accessing the *Cuidalos* Program

Table 2 provides descriptive statistics for randomized group, baseline demographic and Internet/technology variables by self-reported program access postintervention, along with univariate logistic regression model results. There were no statistically significant differences by intervention group, which supported the use of both groups combined for the analytic sample. As seen in Table 2, a small percentage (27.1%; $n = 101$) of parents accessed *Cuidalos* once it was completed. Parents with a high school education or less were more likely to access the program as compared to those with a college education (33.6% vs. 22.7%). The mean number of logins for those who reported viewing the program after completion versus those who did not was 3.95 ($SD = 1.84$) versus 3.71 ($SD = 1.98$).

Univariate logistic regression model results for program access postintervention demonstrated that parents’ education ($p = .02$), sex ($p = .12$), and partner status ($p = .15$) were statistically significant at the .20 level and were included in a full multivariable logistic regression model (Table 2). After backwards elimination, only education remained as a significant predictor of program access; thus, the final model is represented by the univariate model for education. The odds of accessing the program postintervention among parents with a high school education or less is 72% higher than those with a college education ($OR = 1.72$, 95% CI [1.08 – 2.75], $p = .02$).

Univariate Poisson regression model results for the objectively measured number of logins over the intervention period demonstrated that parent age ($p < .01$), child sex ($p = .16$), parent education ($p = .10$), ethnicity ($p = .17$), and program location ($p = .01$) were all statistically significant at the .20 level and were included in a full multivariable Poisson regression model (data not shown). Results demonstrated that older age, male child, college-educated parent, non-Hispanic origin, and home program location were significantly associated with an increased relative rate for the number of logins.

Table 3 provides the final multivariable Poisson regression model results for total number of logins over the intervention period. After backwards elimination, parent age ($p < .01$) and program location ($p = .02$) were the only statistically significant predictors of number of logins in the final Poisson model at the .05 level. Results demonstrated that with every year increase in age, the expected number of logins increased by 1% ($RR = 1.01$, 95% CI [1.00–1.02]). Compared to those who accessed the program at home, the expected number of logins ranged from 10%–27% lower for parents accessing elsewhere (other community agency) (Table 4).

Reasons for Not Accessing *Cuidalos* after the Three-Month Intervention Period

Responses to why parents did not access the *Cuidalos* site after program completion are presented in Table 4. The major response to this question was that parents did not have easy access to a computer ($n = 134$, 48.6%), or they didn't know how to access *Cuidalos* again ($n = 56$, 20.3%). Not liking the program or having no interest in viewing the program again were not major reasons for not accessing the program after completion (both $n = 2$, 0.7%).

Discussion

Results from this study provide important insight about Latinos in general and Puerto Ricans' use of web-based health information. Factors related to use can be attributed to both the user and computer access. Despite self-reported computer and Internet access, and the availability of both at study sites, parents did not frequently access the *Cuidalos* website. This was confirmed by both self-report and by the objective measure of actual logins. Interestingly, when participants were asked reasons for not accessing the program, the majority responded that lack of computer access was a major barrier. This was similarly confirmed in that those who accessed the program at home had a higher percentage of actual logins. In addition, with the exception of level of education and age, our findings showed that no demographic, technology, or study (experimental vs. control) variables predicted accessing the program.

In relation to education, parents with a high school education or less were significantly more likely to report accessing the program than those with a college education. Similarly, parents who were older had a higher number of actual logins. Baseline parent–adolescent communication factors (general, sexual risk, comfort) were also considered as predictors, but resulted in the same final models.

This finding is in contrast to previous studies, where Latinos with more education had higher odds of accessing general health information on the Internet (Kontos et al., 2014; Lee et al., 2015; Lockwood et al., 2015; Manganello et al., 2016). This is an important finding in the context of Puerto Rico, where sexual education in public schools is limited, and many parents and schools express traditional views of sexuality and social mores (Pew Research Center, 2014). Parents with lower education levels could have less information and skills to provide sexual health information to their children, but be motivated to continue accessing *Cuidalos* as an important resource. Motivation, a positive prior experience with the website, and a desire to change behavior have been found to be factors in revisiting open Internet interventions (Brouwer et al., 2008; Brouwer et al., 2009).

In designing this study, we considered factors that would facilitate use of the Internet and access of the program. The program was designed to be culturally sensitive and utilized the Latino value of familialism similar to other studies that addressed the need to be culturally relevant to the participants (Estrada et al., 2015; Marsiglia et al., 2016; Marcus et al., 2015). In addition to cultural components, the program provided supports to encourage participation and accessing of the program during the three-month period. These supports included meeting with project staff to complete the program and troubleshoot issues in addition to a toll-free number to talk with staff during the study; providing a web address to facilitate accessing the program; providing computer access at community sites; and reminders to parents to access the program. Providing access to the program after completion was done at the suggestion of parents who participated in a computer-based version of *Cuidalos* (Villarruel et al., 2010). Parents requested access so they could share with their spouses, as well as friends and others. Despite these efforts, accessing the program was low—in both the sexual communication program and the health promotion exercise-related program.

Given the amount of digital health information available on the Internet and through mobile technologies, further studies are needed to assess factors that affect accessing health information in this format. Elements of this intervention, such as project staff support and a toll-free number for guidance, were incorporated to support a people first and technology second approach (National Academies of Sciences, Engineering, and Medicine, 2016). However, the use of these were not sufficient in this study to increase use of the program—either the health-promotion program or the sexual communication program. This indicates that the issue was not the content, but the use of the technology.

Given findings of this study and the lack of data regarding testing of web-based interventions for this population, additional studies are needed and should include data about actual use, preferences for receiving health information (technology- or nontechnology-based), and barriers and facilitators to access and actual use. In addition, the need and use of “connectors” including peers, trusted sources, health and/or community providers to facilitate use of technology are warranted. Such findings are critical to understand how and when digital technologies are used to support health and positive health behaviors and how to design health promotion programs and policies for maximum learning and behavior change in general—specifically among Latino and Puerto Rican populations.

Limitations

Limitations of this study should be considered. First, we chose a web-based platform because of the interactivity and complexity of the program. Additional studies should be considered to see if similar access issues exist and whether this results in increased use when using a mobile platform—which may be more available, but still does not address issues of trust or use of mobile platforms for health information. Second, the population and sample in Puerto Rico may limit generalizability to other mainland Puerto Rican and Latino populations, as well as to fathers. We also recognize the need of a more extensive list of possible reasons (e.g., shortage of time) for not accessing the *Cuidalos* program during the three-month intervention period as a limitation of this study, along with not including a

write-in option for those with responses of “Other reason.” While the sample in this study had low economic resources, the majority had a college education. Further study is needed to see if patterns of utilizing web-based and other e-technologies exist among similar groups of Latinos in the mainland U.S. and among other Latino subgroups.

Conclusion

The Internet is a major platform for the dissemination of health information. More importantly, along with other information technologies, it has the potential to decrease health disparities and provide quality, culturally sensitive health information to disadvantaged populations. With increasing numbers of Latinos using the Internet and other mobile technologies, it is important to explore barriers related to the utilization of web-based health information by Latinos. This would be an important effort in bridging the digital divide to combat health disparities among Latinos.

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The research reported here was conducted within the guidelines for research ethics. The Institutional Review Boards at the University of Puerto Rico, University of Michigan, and University of Pennsylvania approved the study.

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Table 1
Demographic and Internet/technology Characteristics at Baseline, Overall and by Intervention Group

Variable	Total Sample (n = 492)				Experimental (n = 245)				Control (n = 247)				p-value
Demographic Variables													
	M	SD			M	SD			M	SD			
Parent's Age (years)	42.89	8.47			42.56	8.33			43.21	8.62			.40
Parent's Ethnicity	n	%	95% CI		n	%	95% CI		n	%	95% CI		.62
	341	69.3%	[65.1%, 73.2%]	Yes, Puerto Rican	171	69.8%	[63.8%, 75.2%]		170	68.8%	[62.8%, 74.3%]		
	22	4.5%	[3.0%, 6.7%]	Yes, other Hispanic, Latino or Spanish origin	8	3.3%	[1.7%, 6.3%]		14	5.7%	[3.4%, 9.3%]		
	11	2.2%	[1.3%, 4.0%]	Not of Hispanic, Latino or Spanish origin	6	2.5%	[1.1%, 5.2%]		5	2.0%	[0.9%, 4.6%]		
	118	24.0%	[20.4%, 28.0%]	Missing	60	24.5%	[19.5%, 30.2%]		58	23.5%	[18.6%, 29.2%]		
Parent's Race	n	%	95% CI		n	%	95% CI		n	%	95% CI		.91
	174	37.4%	[31.3%, 39.7%]	White	89	36.3%	[30.6%, 42.5%]		85	34.4%	[28.8%, 40.5%]		
	77	15.7%	[12.7%, 19.1%]	Black	35	14.3%	[10.5%, 19.2%]		42	17.0%	[12.8%, 22.2%]		
	16	3.3%	[2.0%, 5.2%]	American Indian	9	3.7%	[1.9%, 6.8%]		7	2.8%	[1.4%, 5.7%]		
	5	1.0%	[0.4%, 2.3%]	Asian/Pacific Islander	3	1.2%	[0.4%, 3.5%]		2	0.8%	[0.2%, 2.9%]		
	48	9.8%	[7.4%, 12.7%]	More than one race	24	9.8%	[6.7%, 14.2%]		24	9.7%	[6.6%, 14.1%]		
	29	5.9%	[4.1%, 8.3%]	Other race	12	4.9%	[2.8%, 8.4%]		17	6.9%	[4.3%, 10.7%]		
	143	29.1%	[25.2%, 33.2%]	Missing	73	29.8%	[24.4%, 35.8%]		70	28.3%	[23.1%, 34.3%]		
Parent's Sex	n	%	95% CI		n	%	95% CI		n	%	95% CI		.36
	441	89.6%	[86.6%, 92.0%]	Female	219	89.4%	[84.9%, 92.7%]		222	89.9%	[85.5%, 93.1%]		
	49	10.0%	[7.6%, 12.9%]	Male	24	9.8%	[6.7%, 14.2%]		25	10.1%	[7.0%, 14.5%]		
	2	0.4%	[0.1%, 1.5%]	Missing	2	0.8%	[0.2%, 2.9%]		0	0.0%	[0.0%, 1.5%]		
Child's Sex	n	%	95% CI		n	%	95% CI		n	%	95% CI		.35
	253	51.4%	[47.0%, 55.8%]	Female	127	51.8%	[45.6%, 58.0%]		126	51.0%	[44.8%, 57.2%]		
	237	48.2%	[43.8%, 52.6%]	Male	116	47.4%	[41.2%, 53.6%]		121	49.0%	[42.8%, 55.2%]		
	2	0.4%	[0.1%, 1.5%]	Missing	2	0.8%	[0.2%, 2.9%]		0	0.0%	[0.0%, 1.5%]		

Variable	Total Sample (<i>n</i> = 492)				Experimental (<i>n</i> = 245)				Control (<i>n</i> = 247)				<i>p</i> -value
	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	
Marital Status													.46
Single	139	28.3%	[24.5%, 32.4%]	74	30.2%	[24.8%, 36.2%]	65	26.3%	[21.2%, 32.1%]	65	26.3%	[21.2%, 32.1%]	
Married	193	39.2%	[35.0%, 43.6%]	90	36.7%	[30.9%, 42.9%]	103	41.7%	[35.7%, 47.9%]	103	41.7%	[35.7%, 47.9%]	
Separated	17	3.5%	[2.2%, 5.5%]	7	2.9%	[1.4%, 5.8%]	10	4.1%	[2.2%, 7.3%]	10	4.1%	[2.2%, 7.3%]	
Divorced	67	13.6%	[10.9%, 16.9%]	35	14.3%	[10.5%, 19.2%]	32	13.0%	[9.3%, 17.7%]	32	13.0%	[9.3%, 17.7%]	
Widowed	12	2.4%	[1.4%, 4.2%]	4	1.6%	[0.6%, 4.1%]	8	3.2%	[1.7%, 6.3%]	8	3.2%	[1.7%, 6.3%]	
Live in Partner	62	12.6%	[10.0%, 15.8%]	33	13.5%	[9.8%, 18.3%]	29	11.7%	[8.3%, 16.4%]	29	11.7%	[8.3%, 16.4%]	
Missing	2	0.4%	[0.1%, 1.5%]	2	0.8%	[0.2%, 2.9%]	0	0.0%	[0.0%, 1.5%]	0	0.0%	[0.0%, 1.5%]	
Partner	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	.20
Yes	310	63.0%	[58.7%, 67.2%]	148	60.4%	[54.2%, 66.3%]	162	65.6%	[59.5%, 71.2%]	162	65.6%	[59.5%, 71.2%]	
No	180	36.6%	[32.5%, 40.9%]	95	38.8%	[32.9%, 45.0%]	85	34.4%	[28.8%, 40.5%]	85	34.4%	[28.8%, 40.5%]	
Missing	2	0.4%	[0.1%, 1.5%]	2	0.8%	[0.2%, 2.9%]	0	0.0%	[0.0%, 1.5%]	0	0.0%	[0.0%, 1.5%]	
Education	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	.82
High School or Less	192	39.0%	[34.8%, 43.4%]	99	40.4%	[34.5%, 46.7%]	93	37.7%	[31.8%, 43.8%]	93	37.7%	[31.8%, 43.8%]	
College	296	60.2%	[55.8%, 64.4%]	144	58.8%	[52.5%, 64.8%]	152	61.5%	[55.3%, 67.4%]	152	61.5%	[55.3%, 67.4%]	
Missing	4	0.8%	[0.3%, 2.1%]	2	0.8%	[0.2%, 2.9%]	2	0.8%	[0.2%, 2.9%]	2	0.8%	[0.2%, 2.9%]	
Employment Outside of Home	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	.13
Yes	195	39.6%	[35.4%, 44.0%]	89	36.3%	[30.6%, 42.5%]	106	42.9%	[36.9%, 49.1%]	106	42.9%	[36.9%, 49.1%]	
No	295	60.0%	[55.6%, 64.2%]	154	62.9%	[56.7%, 68.7%]	141	57.1%	[50.9%, 63.1%]	141	57.1%	[50.9%, 63.1%]	
Missing	2	0.4%	[0.1%, 1.5%]	2	0.8%	[0.2%, 2.9%]	0	0.0%	[0.0%, 1.5%]	0	0.0%	[0.0%, 1.5%]	
	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		
Number of Work Hours per Week	32.10	14.23		33.55	14.07		30.92	14.31		30.92	14.31		.23
Average Monthly Income (US\$)	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	<i>n</i>	%	95% CI	.03
< \$300	44	8.9%	[6.7%, 11.8%]	17	6.9%	[4.4%, 10.8%]	27	10.9%	[7.6%, 15.4%]	27	10.9%	[7.6%, 15.4%]	
\$300-\$799	38	7.7%	[5.7%, 10.4%]	15	6.1%	[3.7%, 9.9%]	23	9.3%	[6.3%, 13.6%]	23	9.3%	[6.3%, 13.6%]	
\$800-\$1699	44	8.9%	[6.7%, 11.8%]	16	6.5%	[4.1%, 10.3%]	28	11.3%	[8.0%, 15.9%]	28	11.3%	[8.0%, 15.9%]	
\$1700	40	8.1%	[6.0%, 10.9%]	25	10.2%	[7.0%, 14.6%]	15	6.1%	[3.7%, 9.8%]	15	6.1%	[3.7%, 9.8%]	

Variable	Total Sample (n = 492)				Experimental (n = 245)				Control (n = 247)				p-value
Government Assistance	Unknown	326	66.3%	[62.0%, 70.3%]	172	70.2%	[64.2%, 75.6%]	154	62.4%	[56.2%, 68.2%]			.18
		n	%	95% CI	n	%	95% CI	n	%	95% CI			
	Yes	316	64.2%	[59.9%, 68.3%]	163	66.5%	[60.4%, 72.1%]	153	61.9%	[55.8%, 67.8%]			
	No	174	37.4%	[31.3%, 39.7%]	80	32.7%	[27.1%, 38.8%]	94	38.1%	[32.2%, 44.3%]			
	Missing	2	0.4%	[0.1%, 1.5%]	2	0.8%	[0.2%, 2.9%]	0	0.0%	[0.0%, 1.5%]			
		M	SD		M	SD		M	SD				
Monthly Government Assistance Income (US\$)		553.25	723.07		594.38	891.17		508.86	479.00				.30
		M	SD		M	SD		M	SD				
Number of Children in House		1.56	0.75		1.53	0.77		1.58	0.73				.49
Program Location		n	%	95% CI	n	%	95% CI	n	%	95% CI			.61
Community Agency		58	11.8%	[9.2%, 14.9%]	31	12.7%	[9.1%, 17.4%]	27	10.9%	[7.6%, 15.4%]			
	School	290	58.9%	[54.5%, 63.2%]	149	60.8%	[54.6%, 66.7%]	141	57.1%	[50.9%, 63.1%]			
	Home	65	13.2%	[10.5%, 16.5%]	27	11.0%	[7.7%, 15.6%]	38	15.4%	[11.4%, 20.4%]			
	Other Location	72	14.6%	[11.8%, 18.0%]	34	13.9%	[10.1%, 18.8%]	38	15.4%	[11.4%, 20.4%]			
	Missing	7	1.4%	[0.7%, 2.9%]	4	1.6%	[0.6%, 4.1%]	3	1.2%	[0.4%, 3.5%]			
Internet/Technology Variables													
Computer Comfort		n	%	95% CI	n	%	95% CI	n	%	95% CI			.07
Very comfortable		343	69.7%	[65.5%, 73.6%]	160	65.3%	[59.2%, 71.0%]	183	74.1%	[68.3%, 79.2%]			
	Somewhat comfortable	114	23.2%	[19.7%, 27.1%]	64	26.1%	[21.0%, 32.0%]	50	20.2%	[15.7%, 25.7%]			
	Somewhat uncomfortable	22	4.5%	[3.0%, 6.7%]	16	6.5%	[4.1%, 10.3%]	6	2.4%	[1.1%, 5.2%]			
	Very uncomfortable	9	1.8%	[0.1%, 3.4%]	3	1.2%	[0.4%, 3.5%]	6	2.4%	[1.1%, 5.2%]			
	Missing	4	0.8%	[0.3%, 2.1%]	2	0.8%	[0.2%, 2.9%]	2	0.8%	[0.2%, 2.9%]			
		n	%	95% CI	n	%	95% CI	n	%	95% CI			.97
Ease/Difficulty Finding a Computer													
Very Easy		196	39.8%	[35.6%, 44.2%]	99	40.4%	[34.5%, 46.7%]	97	39.3%	[33.4%, 45.5%]			
	Easy	193	39.2%	[35.0%, 43.6%]	93	38.0%	[32.1%, 44.2%]	100	40.5%	[34.6%, 46.7%]			
	Difficult	75	15.2%	[12.3%, 18.7%]	38	15.5%	[11.5%, 20.6%]	37	15.0%	[11.1%, 20.0%]			

Variable	Total Sample (n = 492)			Experimental (n = 245)			Control (n = 247)			p-value
Computer Access	Very Difficult	23	4.7%	[3.1%, 6.9%]	12	4.9%	[2.8%, 8.4%]	11	4.5%	[2.5%, 7.8%]
	Missing	5	1.0%	[0.4%, 2.4%]	3	1.2%	[0.4%, 3.5%]	2	0.8%	[0.2%, 2.9%]
		n	%	95% CI	n	%	95% CI	n	%	95% CI
										.75
Internet Access	Yes	369	75.0%	[71.0%, 78.6%]	184	75.1%	[69.3%, 80.1%]	185	74.9%	[69.1%, 79.9%]
	No	115	23.4%	[19.9%, 27.3%]	56	22.9%	[18.0%, 28.5%]	59	23.9%	[19.0%, 29.6%]
	Missing	8	1.6%	[0.8%, 3.2%]	5	2.0%	[0.9%, 4.7%]	3	1.2%	[0.4%, 3.5%]
		n	%	95% CI	n	%	95% CI	n	%	95% CI
Computer and Internet Access	Yes	322	65.5%	[61.1%, 69.5%]	164	66.9%	[60.8%, 72.5%]	158	64.0%	[57.8%, 69.7%]
	No	159	32.3%	[28.3%, 36.6%]	75	30.6%	[25.2%, 36.6%]	84	34.0%	[28.4%, 40.1%]
	Missing	11	2.2%	[1.3%, 4.0%]	6	2.5%	[1.1%, 5.2%]	5	2.0%	[0.9%, 4.6%]
		n	%	95% CI	n	%	95% CI	n	%	95% CI
	Both	322	65.5%	[61.1%, 69.5%]	164	66.9%	[60.8%, 72.5%]	158	64.0%	[57.8%, 69.7%]
	Computer, but no internet	44	8.9%	[6.7%, 11.8%]	19	7.8%	[5.0%, 11.8%]	25	10.1%	[7.0%, 14.5%]
	Neither	115	23.4%	[19.9%, 27.3%]	56	22.9%	[18.0%, 28.5%]	59	23.9%	[19.0%, 29.6%]
	Missing	11	2.2%	[1.3%, 4.0%]	6	2.5%	[1.1%, 5.2%]	5	2.0%	[0.9%, 4.6%]

Note. CI=confidence interval.

* p-values based on Chi-square or Fisher's Exact test for categorical variables, and two-sample t-tests for continuous variables

Table 2

Demographic and Internet/technology Characteristics by Program Access and Univariate Logistic Regression Model Results

Did you access the <i>Cuidalos</i> program once you completed it?										
Variable	Yes			No			OR	95% CI	p-value ^a	
	(N = 101; 27.1%)			(N=272, 72.9%)						
Group	n	%	95% CI	n	%	95% CI				
Experimental	46	25.7%	[19.9%, 32.6%]	133	74.3%	[67.4%, 80.1%]	0.87	[0.55, 1.38]	.56	
Control	55	28.4%	[22.5%, 35.1%]	139	71.6%	[64.9%, 77.5%]	REF	REF		
<i>Demographic Variables</i>										
	M	SD		M	SD					
Parent's Age (years)	43.02	8.03		43.04	8.36		1.00	[0.97, 1.03]	.99	
Parent's Ethnicity	n	%	95% CI	n	%	95% CI			.26	
Yes, Puerto Rican	68	26.5%	[21.4%, 32.2%]	189	73.5%	[67.8%, 78.6%]	0.36	[0.10, 1.28]	.11	
Yes, Other Hispanic, Latino or Spanish Origin	4	33.3%	[13.8%, 60.9%]	8	66.7%	[39.1%, 86.2%]	0.50	[0.09, 2.81]	.43	
Not of Hispanic, Latino or Spanish Origin	5	50.0%	[23.7%, 76.3%]	5	50.0%	[23.7%, 76.3%]	REF	REF		
Parent's Race	n	%	95% CI	n	%	95% CI			.70	
White	37	31.4%	[23.7%, 40.2%]	81	68.6%	[59.8%, 76.3%]	REF	REF		
Black	18	29.0%	[19.2%, 41.3%]	44	71.0%	[58.7%, 80.8%]	0.90	[0.46, 1.77]	.77	
American Indian	4	30.8%	[12.7%, 57.6%]	9	69.2%	[42.4%, 87.3%]	1.03	[0.30, 3.51]	.96	
Asian/Pacific Islander	0	0.0%	[0.0%, 56.2%]	3	100.0%	[43.9%, 100.0%]	0.31	[0.01, 9.72]	.51	
More Than One Race	6	16.7%	[7.9%, 31.9%]	30	83.3%	[68.1%, 92.1%]	0.46	[0.18, 1.19]	.11	
Other Race	7	28.0%	[14.3%, 47.6%]	18	72.0%	[52.4%, 85.7%]	0.88	[0.34, 2.28]	.79	
Parent's Sex	n	%	95% CI	n	%	95% CI				
Female	87	25.8%	[21.4%, 30.8%]	250	74.2%	[69.3%, 78.6%]	0.56	[0.27, 1.17]	.12	
Male	13	38.2%	[23.9%, 55.0%]	21	61.8%	[45.0%, 76.1%]	REF	REF		
Child's Sex	n	%	95% CI	n	%	95% CI				
Female	56	29.3%	[23.3%, 36.1%]	135	70.7%	[63.9%, 76.7%]	1.28	[0.81, 2.03]	.29	
Male	44	24.4%	[18.7%, 31.2%]	136	75.6%	[68.8%, 81.3%]	REF	REF		
Marital Status	n	%	95% CI	n	%	95% CI			.84	
Single	24	24.2%	[16.9%, 33.5%]	75	75.8%	[66.5%, 83.1%]	REF	REF		
Married	45	29.8%	[23.1%, 37.5%]	106	70.2%	[62.5%, 76.9%]	1.33	[0.75, 2.36]	.34	
Separated	4	26.7%	[10.9%, 52.0%]	11	73.3%	[48.1%, 89.1%]	1.14	[0.33, 3.90]	.84	
Divorced	11	21.2%	[12.2%, 34.0%]	41	78.9%	[66.0%, 87.8%]	0.84	[0.37, 1.88]	.67	
Widowed	3	30.0%	[10.8%, 60.3%]	7	70.0%	[39.7%, 89.2%]	1.34	[0.32, 5.59]	.69	
Live in Partner	13	29.6%	[18.2%, 44.2%]	31	70.5%	[55.8%, 81.8%]	1.31	[0.59, 2.90]	.50	
Partner	n	%	95% CI	n	%	95% CI				
Yes	70	29.4%	[24.0%, 35.5%]	168	70.6%	[64.5%, 76.0%]	1.43	[0.87, 2.34]	.15	
No	30	22.6%	[16.3%, 30.4%]	103	77.4%	[69.6%, 83.7%]	REF	REF		
Education	n	%	95% CI	n	%	95% CI				
High School or Less	47	33.6%	[26.3%, 41.7%]	93	66.4%	[58.3%, 73.7%]	1.72	[1.08, 2.75]	.02	

Did you access the <i>Cuidalos</i> program once you completed it?										
Variable	Yes (N = 101; 27.1%)				No (N=272, 72.9%)			OR	95% CI	p-value*
Group	n	%	95% CI		n	%	95% CI			
College	52	22.7%	[17.8%, 28.6%]		177	77.3%	[71.4%, 82.2%]		REF	REF
Employment Outside of Home	n	%	95% CI		n	%	95% CI			
	Yes	39	26.4%	[19.9%, 34.0%]	109	73.6%	[66.0%, 80.1%]		0.95	[0.59, 1.52]
	No	61	27.4%	[21.9%, 33.6%]	162	72.7%	[66.5%, 78.1%]		REF	REF
	M	SD			M	SD				
	Number of Work Hours per Week	30.15	15.11			32.69	14.54			0.99
Average Monthly Income (US\$)	n	%	95% CI		n	%	95% CI			
< \$300	12	35.3%	[21.5%, 52.1%]		22	64.7%	[47.9%, 78.5%]		REF	REF
\$300-\$799	8	28.6%	[15.3%, 47.1%]		20	71.4%	[52.9%, 84.8%]		0.73	[0.25, 2.16]
\$800-\$1699	9	28.1%	[15.6%, 45.4%]		23	71.9%	[54.6%, 84.4%]		0.72	[0.25, 2.04]
\$1700	5	16.1%	[7.1%, 32.6%]		26	83.9%	[67.4%, 92.9%]		0.35	[0.11, 1.16]
Unknown	67	27.0%	[21.9%, 32.9%]		181	73.0%	[67.1%, 78.1%]		0.68	[0.32, 1.45]
Government Assistance	n	%	95% CI		n	%	95% CI			
Yes	61	25.5%	[20.4%, 31.4%]		178	74.5%	[68.6%, 79.6%]		0.82	[0.51, 1.31]
No	39	29.6%	[22.4%, 37.8%]		93	70.5%	[62.2%, 77.6%]		REF	REF
	M	SD			M	SD				
Monthly Government Assistance Income (US\$)	549.85	658.77			586.33	852.84			1.00	[1.00, 1.00]
	M	SD			M	SD				
Number of Children in House	1.58	0.76			1.54	0.71			1.09	[0.80, 1.50]
Program Location	n	%	95% CI		n	%	95% CI			
Community Agency	12	28.6%	[17.2%, 43.6%]		30	71.4%	[56.4%, 82.8%]		0.78	[0.32, 1.87]
School	59	27.2%	[21.7%, 33.5%]		158	72.8%	[66.5%, 78.3%]		0.73	[0.38, 1.38]
Home	18	34.0%	[22.7%, 47.4%]		35	66.0%	[52.6%, 77.3%]		REF	REF
Other Location	11	19.6%	[11.3%, 31.8%]		45	80.4%	[68.2%, 88.7%]		0.48	[0.20, 1.14]
<i>Internet/Technology Variables</i>										
Computer Comfort	n	%	95% CI		n	%	95% CI			
Very Comfortable	75	28.2%	[23.1%, 33.9%]		191	71.8%	[66.1%, 76.9%]		5.91	[0.27, 127.45]
Somewhat Comfortable	23	28.4%	[19.7%, 39.0%]		58	71.6%	[61.0%, 80.3%]		6.02	[0.27, 133.29]
Somewhat Uncomfortable	2	13.3%	[3.7%, 37.9%]		13	86.7%	[62.1%, 96.3%]		2.78	[0.10, 80.08]
Very Uncomfortable	0	0.0%	[0.0%, 35.4%]		7	100.0%	[64.6%, 100.0%]		REF	REF
Ease/Difficulty Finding a Computer	n	%	95% CI		n	%	95% CI			
Very Easy	44	28.8%	[22.2%, 36.4%]		109	71.2%	[63.6%, 77.8%]		1.37	[0.48, 3.95]
Easy	38	25.9%	[19.5%, 33.5%]		109	74.2%	[66.5%, 80.6%]		1.19	[0.41, 3.43]

Did you access the <i>Cuidalos</i> program once you completed it?									
Variable	Yes (N = 101; 27.1%)			No (N=272, 72.9%)			OR	95% CI	p-value *
Group	n	%	95% CI	n	%	95% CI			
Difficult	14	29.2%	[18.2%, 43.2%]	34	70.8%	[56.8%, 81.8%]	1.40	[0.43, 4.54]	0.57
Very Difficult	5	22.7%	[10.1%, 43.4%]	17	77.3%	[56.6%, 89.9%]	REF	REF	
Computer Access	n	%	95% CI	n	%	95% CI			
Yes	77	26.4%	[21.7%, 31.7%]	215	73.6%	[68.3%, 78.4%]	0.78	[0.45, 1.34]	0.37
No	24	31.6%	[22.2%, 42.7%]	52	68.4%	[57.3%, 77.8%]	REF	REF	
Internet Access	n	%	95% CI	n	%	95% CI			
Yes	69	27.0%	[21.9%, 32.7%]	187	73.1%	[67.3%, 78.1%]	0.93	[0.56, 1.53]	0.77
No	31	28.4%	[20.8%, 37.5%]	78	71.6%	[62.5%, 79.2%]	REF	REF	
Computer and Internet Access	n	%	95% CI	n	%	95% CI			0.52
Both	69	27.0%	[21.9%, 32.7%]	187	73.1%	[67.3%, 78.1%]	0.80	[0.46, 1.40]	0.43
Computer, but No Internet	7	21.2%	[10.7%, 37.8%]	26	78.8%	[62.3%, 89.3%]	0.58	[0.22, 1.53]	0.27
Neither	24	31.6%	[22.2%, 42.7%]	52	68.4%	[57.3%, 77.8%]	REF	REF	
<i>Actual Access Variables over Intervention Period</i>									
	M	SD		M	SD				
Total Number of Logins	3.95	1.84		3.71	1.98		1.06	[0.95, 1.19]	0.28

Note: Event= "Yes", OR=odds ratio, CI=confidence interval, REF=reference category.

* p-values based on univariate logistic regression models.

Table 3

Multivariable Poisson Regression Model Results for Actual Number of Logins

Variable	RR	95% CI	p value
<i>Demographic Variables</i>			
Parent's Age (years)	1.01	[1.00, 1.02]	<.01
Program Location			.02
Community Agency	0.73	[0.59, 0.91]	<.01
School	0.84	[0.73, 0.98]	.02
Home	REF	REF	
Other Location	0.90	[0.75, 1.08]	.26

Note. RR = relative rate, CI = confidence interval, REF = reference category

Table 4Reasons for Not Accessing *Cuidalos* After the 3-month Intervention Period

Reason	<i>n</i>	%	95% CI
I didn't know how to access it again	56	20.3%	[16.0%, 25.4%]
I didn't have easy access to a computer	134	48.6%	[42.7%, 54.4%]
I learned everything I needed to know	33	12.0%	[8.6%, 16.3%]
I had no interest in viewing it again	2	0.7%	[0.2%, 2.6%]
I didn't like the program	2	0.7%	[0.2%, 2.6%]
Other reason	49	17.8%	[13.7%, 22.7%]

Note. CI=confidence interval.