



Culturally Responsive, Targeted Social Media Marketing to Facilitate Engagement with a Digital Parenting Program

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Abstract

Latinx families who have experienced immigration are often exposed to traumatic experiences before, during, and after migration. Exposure to trauma is associated with health challenges, however responsive and supportive parenting can strengthen adjustment of children who have experienced adversity. Systemic barriers in the U.S. make accessing parenting interventions difficult for immigrant Latinx families. This study investigated the feasibility and cost-effectiveness of a culturally tailored, direct-to-consumer (DTC) social media marketing campaign to engage Latinx parents who have resettled in the U.S with a digital parenting program, Parenting in the Moment. Video and graphic advertisements were delivered on a prominent social media platform in English and Spanish, with each advertisement employing varying messaging tactics. The campaign reached a total of 2,902,440 viewers and engaged 41,835 people who clicked on the link to the parenting program's webpage. Each link click cost an average of \$0.71. Advertisement type and language was associated with advertisement link click, with videos and advertisements in Spanish receiving more engagement compared with English and graphic advertisements. When analyzed separately, the engagement with each video theme differed within English and Spanish advertisements. The current study serves as the first step to understanding the use of digital DTC marketing to engage parents who have experienced immigration with parenting services. Findings support culturally tailored, social media marketing as a cost-effective strategy for increasing access to and engagement with parenting programs for immigrant families.

Keywords Immigration · Dissemination · Marketing · Parenting · Intervention · Prevention

Highlights

- Social media marketing is a feasible and cost-effective strategy for engaging immigrant parents in digital parenting programs.
- Dissemination strategies should dually consider language and messaging when designing culturally tailored messaging content.
- Service providers should work directly with immigrant communities when designing dissemination strategies to maximize cultural relevance and engagement with programs.
- Policy makers should prioritize culturally informed and digital resources to create equitable access to prevention and intervention programs for immigrant families.

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The number of children of immigrants living in the U.S. is rapidly expanding – accounting for almost 25% of all youth (Federal Interagency Form on Child & Family Statistics, 2011). While these families are typically resilient, their experiences before, during and after migration can include high levels of stress and trauma (Betancourt et al., 2017). Stressful experiences encountered by children of immigrant families can have negative impacts on mental health including high rates of posttraumatic stress disorder

(Betancourt et al., 2017). While empirically based interventions designed to support these families exist, identifying appropriate and culturally relevant programs and engaging families in services remains challenging (Simenec & Reid, 2020; Fazel & Betancourt, 2018). To further compound this problem for families resettled in the U.S., accessing mental health prevention interventions remains a challenge for many immigrant families due to systemic barriers such as language, stigma, time, and fear of negative repercussions (Salami et al., 2018). For example, immigrant and refugee groups are more likely than nonimmigrant groups to work in demanding, in-person essential service jobs (Kerwin & Warren, 2020). These systemic barriers are compounded for many resettled families in the U.S. since racial and ethnic minority populations are less likely than majority populations to make contact with a mental health professional (Wang et al., 2005). This study, then, aims to investigate the use of a culturally tailored dissemination plan as a strategy to engage immigrant Latinx families in the U.S. with Parenting in the Moment (PIM), a digital, trauma-informed and evidence-based parenting program that is contextually adapted for families in the United States who have experienced immigration.

Latinx/o/a Parents

Latinx immigrants have historically been, and are today, the largest group of immigrants in the United States with the Spanish language being the second most prevalent language spoken in the U.S. (Israel & Batalova, 2020; PEW Research Center 2020). Migration to the U.S. from Latin America throughout the last century is intertwined with the ever-changing status of major U.S. legislation in immigration, which is important for understanding the current context of Latinx immigrants (See Tienda & Sánchez, (2013) for a brief outline of this history). While not all Latinx families in the U.S. are first generation immigrants, those with migration histories often experience traumatic events before, during, and after migration making trauma-informed parenting programs an important resource to support resilience in immigrant children (Perreira & Ornelas, 2013).

Parenting and Children's Resilience

Positive parenting is one of the most effective ways to promote resilience for school-aged children who have experienced adversity (Masten 2001; Gewirtz et al., 2008). Parenting programs have been shown to improve parenting skills in both the short- and long-term, reducing childhood emotional and behavioral problems, and ultimately strengthening parental mental health (e.g., DeGarmo &

Gewirtz, 2018; Gewirtz et al., 2018). For families who have experienced immigration related stressors such as traumatic exposure, acculturative stress, resettlement stress, and isolation (Davis et al., 2021), parenting support may be especially beneficial given that family stress models document how stressful events impair children's adjustment by increasing parental stress and negative parent-child interactions (e.g., White et al., 2015). Further, immigrant parents may be uniquely positioned to support their children's adjustment and wellbeing post-migration. For example, perceived family resilience was shown to buffer against the negative effects of discrimination on psychological distress for rural Latinx adolescents (Ramos et al., 2021). Further, mental health prevention programs for families who have experienced immigration that include a parenting component have been shown to improve mental health for resettled children (Simenec & Reid, 2020).

Reaching Immigrant Families with Parenting Programs

Reaching immigrant families with parenting programs can be challenging for the reasons noted above and despite the use of dissemination strategies including implementation through existing organizations, use of community networks, and outreach campaigns (Gillespie et al., 2022). While those who desire face-to-face social services may reach out through a trusted 'gateway' provider, many immigrant families face privacy, stigma, and practical barriers to reaching out through another person (e.g., Ellis et al., 2010). Reaching families directly eliminates the need for a provider to broker services. Direct-to-consumer (DTC) marketing strategies deliver information about a service directly to the consumer to increase awareness and demand (Friedberg & Bayar, 2017). Media campaigns have been used to increase engagement in health services for decades by delivering information directly to a target audience (Noar 2006). These types of DTC strategies for delivering parenting programs can increase access and awareness by directly engaging parents with information about the program. This digital strategy, also called virtual, remote, or web-based interventions, may be especially useful for immigrant families as it is inherently anonymous which minimizes barriers associated with stigma and fear of repercussions, can be designed in multiple languages, and allows the individual to access resources when it is most convenient; thereby overcoming important barriers to care (Salami et al., 2018).

A recent systematic review of engagement strategies – such as monetary incentives, individual/group delivery options, testimonials, advertisements, and engagement packages including a combination of strategies – found

that advertising campaigns, incentives, and engagement packages significantly increased engagement in parenting programs (Gonzalez et al., 2018). While advertising can serve as an effective strategy to increase parent involvement in parenting programs, specific tactics such as method of delivery, messaging strategies, and advertisement content are not well understood. The few studies investigating this topic provide pivotal insights to identifying advertising factors that increase engagement in parenting programs.

Tully & colleagues (2018) implemented an expansive campaign rolled out through social media, digital display advertising, television, and radio aimed at increasing paternal engagement in the 'Parent Works' online, evidence-based parenting program. The campaign not only increased engagement in the program compared to a control period when no advertisements were released, but the advertisement messaging successfully captured the attention of their target audience of fathers, with more fathers than mothers indicating that they saw one of the ads. For each of the advertising delivery methods used, parents were most likely to report learning about the program either from their partner or from social media suggesting both word-of-mouth and social media marketing are useful messaging tactics. Additionally, parents who reported viewing one of the program's video advertisements endorsed high satisfaction (4.15 out of 5 with 5 being 'excellent') with the videos.

One study investigated whether promotion-focused or prevention-focused messaging themes facilitated more engagement with the evidence-based ABC parenting program offered free of charge to parents in a DTC digital advertisement campaign (Salari & Backman, 2016). Interestingly, while the prevention-focused campaign facilitated more clicks on the webpage, there were no differences in the number of parents who signed up for the program after seeing each ad. In a follow-up study, parents rated the promotion-focused advertisement as more effective at increasing their interest in participating in the program (Salari & Backman, 2016).

A subsequent decision to be made when designing an advertisement includes design components (e.g., music, language, visuals). It is important that these decisions align with the advertisement's theme as well as the program's target audience to ensure that the content resonates with parents. For example, Barnett & colleagues (2019) investigated the impact of differences in language (English or Spanish) and messenger (therapist or parent) on the help-seeking intentions of parents to engage in Parent-Child Interaction Therapy. Both design factors were found to be important for increasing the likelihood of seeking parenting services for Spanish-speaking, but not English-speaking parents (Barnett et al., 2019). These findings emphasize cultural

considerations as essential ingredients when designing effective parenting program advertisements.

Finally, current findings suggest that parenting interventions are cost-effective and show societal economic benefits by preventing childhood behavioral problems with long-term consequences (Nystrand et al., 2019). However, these evidence-based parenting programs are only effective at reducing childhood behavioral problems if they engage parents who may benefit most from the services. As such, while research on the use of marketing strategies to disseminate evidence-based parenting programs is beginning to emerge, it is essential to investigate the cost-effectiveness of such strategies including current social media costs. Past research on recruitment strategies suggests media (i.e., television, radio, and newspapers) is a successful and cost-effective recruitment strategy to engage participants in an RCT compared to flyers, word-of-mouth referral incentives, worksite recruitment, and direct mail (Bjorson-Benson et al., 1993).

Culturally Tailored Marketing

Cultural adaptation is an important strategy for addressing immigrants' experiences of systemic racism and reducing ethnic and racial intervention gaps (Nicolas et al., 2009). Messages matched to an individual's ethnic or cultural background have been found to be more persuasive and effective in changing a target behavior (Teeny et al., 2021). However, few studies implement culturally informed frameworks in the design of their marketing materials. The Ecological Validity Model (EVM) (Bernal et al., 1995), is a commonly used framework for the cultural adaptation of prevention and intervention programs. The goal of the EVM is to enhance a program's ecological validity, retention, and impact by tailoring the contents of a program to a specific cultural audience (Bernal et al., 2009). The model provides a useful framework for guiding important cultural considerations specific to a population of interest. The framework approaches adaptation according to eight dimensions: language, persons, metaphors, content, concepts, goals, and method. These eight dimensions help to guide and structure both the culturally specific content used to tailor programs and the methods used in the process of cultural adaptation. For example, when considering persons, it is essential for both the adapted program material as well as select members of the team involved in the adaptation process to match the native language of the target audience. Given its utility in adapting prevention and intervention programs (Domenech Rodríguez et al., 2010) this framework can be used to guide the design of culturally tailored DTC advertisements by accounting for specific

cultural and contextual considerations relevant to the target audience.

To our knowledge, there is no literature addressing the utility of DTC advertisements to engage immigrant families with parenting programs. Furthermore, no research on the use of the EVM as a framework for creating culturally tailored advertisements has been conducted. Although cultural adaptation improves recruitment, retention, and effectiveness of interventions (Reese & Vera, 2007), culturally tailored social media marketing of parenting services has not yet been described in the published literature. As proposed by Kazdin (2017), “messages could be better targeted [tailored] to consumers most likely to profit from them.” Using a tailored approach to dissemination may serve as a strategy for increasing engagement with a parenting program for immigrant families.

The Current Study

The current study served to test the feasibility of DTC marketing as a dissemination strategy for a proof-of-concept of a digital parenting program, “Parenting in the Moment” (PIM) with Latinx/o/a families. The program is designed for families who have experienced immigration and forced migration. PIM is a contextual adaptation of the After Deployment, Adaptive Parenting Tools (ADAPT) program, a trauma-informed Parent Management Training Oregon model (PMTO) program. Like ADAPT online, the PIM online program addresses six core parenting skills: teaching through encouragement, discipline, problem solving, monitoring, positive involvement with children, and emotion socialization in stressful family contexts (Gewirtz et al., 2018). The ADAPT online program has shown effectiveness in strengthening parenting with populations of military parents who have experienced war trauma (Gewirtz et al., 2018; Gewirtz 2020). The current study tested four digital, contextually adapted modules including family resources and supportive activities. In the current study, the following modules were available for families: introduction, values and goals, effective directions, and teaching positive behavior through encouragement. The videos are hosted on the Vimeo platform, available free of charge, offered in English or Spanish, and on average each module takes 4.75 min to review. The current program can be viewed at this link: <https://www.parentinginthemoment.org/>.

While modern marketing strategies have included targeted digital marketing for years, the use of social media platforms for the marketing of digital mental health prevention interventions is not well documented. Facebook provides targeted marketing tools which allow marketers to reach specific Facebook users by filtering the audience by pre-specified characteristics like age and gender. The platform collects data

on views, engagement (calculated by the number of clicks on an advertisement divided by the number of the advertisement views), and paths to the ad. The average rate of engagement with targeted advertisements in the health industry on Facebook is 0.83 percent (Irvine 2021).

The primary aim of this research was to assess the feasibility and monetary cost of reaching and engaging immigrant parents in a parenting program. We hypothesized that culturally tailored, targeted social media marketing of a digital parenting program for parents who have immigrated would result in above-average engagement rates and would cost less than other traditional media marketing recruitment strategies (Bjornson-Benson et al., 1993). Using the EVM framework to create culturally informed and tailored advertisements, we centered marketing products on themes intended to engage parents who experienced immigration. Building on prior work on messaging themes and communication strategies (Gonzalez et al., 2018), the secondary aim of this study was to explore *which* marketing products and themes motivate immigrant parents to engage with an online parenting program. We hypothesized that the culturally informed video advertisements presented in the audience’s native language would facilitate higher rates of engagement with the digital parenting program relative to the other tested advertisements.

Methods

Designing the Advertisements

The messaging strategies used in each of the video advertisements were selected by including culturally salient information for immigrant parents in the U.S. as the target audience with the goal of motivating parents to engage with the online parenting program. We relied on a variety of information gathering strategies to develop the messaging of the campaign advertisements including literature searches, and solicitation of stakeholder feedback including consultation with cultural experts from immigrant communities and Latinx community members. In all video advertisements, we aimed to include strength-based messages to encourage engaging with the program given that parents reported higher satisfaction and interest in engaging with a parenting program after viewing promotion-focused marketing products (Salari & Backman, 2016). While this feasibility study aimed to reach Latinx parents, the features of the marketing materials included diverse representation from broader populations of families with the common experiences of migrating to the U.S. following hardship given that the parenting program, once completed, will be available in multiple languages (not only Spanish and

English). To minimize confounding factors that may explain differences in ad performance, all adds were approximately one-minute in length, used similar pacing, images, and ethno-racial background of families in the scenes, and included the same narrator. Below, we describe the rationale for selecting each of the three advertisement themes used in the campaign: 1) *Credibility*, 2) *Community Endorsement*, and 3) *Hopes and Dreams*. The three video advertisements can be viewed in the supplementary materials or by using the links under each video description.

Ad #1 – Credibility

Given that credibility and cultural relevance of programs were noted as important factors by our cultural consultants and in the literature (Burchert et al., 2019) one advertisement emphasizes the theme of credibility by delivering information about the program from a parenting expert who works with Latinx immigrants and who is also a member of the Latinx community. This *racial-ethnic match between the featured expert and the target audience* was important given that clients report higher preference and more positive perceptions of service providers who share their own racial/ethnic background (Cabral & Smith, 2011). The featured parenting expert emphasizes the strength and cultural values of immigrant families while normalizing the need for parenting support and encouraging parents to engage in the program. Additionally, the advertisement includes narration centering on the efficacy of the program. <https://tinyurl.com/Ad1Credibility>

Ad #2 – Community Endorsement/Testimonials

Community-engaged dissemination has been successful for engaging underserved communities, including immigrant and refugee populations in evidence-based interventions (Measham et al., 2014; Salami et al., 2019). Using this strategy, service providers partner with community stakeholders to learn from their expertise, experiences, and perspectives on their community to develop implementation strategies best suited for their community's context (Schlechter et al., 2021). This strategy is often successful in building a sense of mutual trust with the community resulting in a “word-of-mouth” effect as those who engage with a program communicate their experiences to others in their community (Sankaré et al., 2015). Modeled on this community engagement strategy, the second advertisement focused on community endorsement. This ad presents *testimonials by a range of immigrant parents representing several countries of origin, including a Latinx mother, with clips discussing their experiences and endorsing the parenting program*. <https://tinyurl.com/Ad2CommunityEndorsement>.

Ad #3 – Hopes and Dreams

In the only other study investigating the performance of messaging themes in digital ads as a strategy to engage parents in a parenting program, promotion-focused messaging was shown to effectively engage parents in a parenting program (Salari & Backman, 2016). As such, we conferred with cultural insiders including Latinx community members to identify common values and goals parents who have experienced immigration have for their children. Themes that emerged from stakeholder feedback included valuing education, success or a good job, the importance of family cohesion, respect, and honesty, forming the theme of the final marketing video. This video presents testimonials by parents who experienced immigration that acknowledge the challenges inherent to migration and their goals for their children during resettlement. The narrator of the advertisement *emphasizes how the parenting program can support the hopes and dreams these parents have for their children*. <https://tinyurl.com/Ad3HopesandDreams>.

After identifying and forming the three video themes, each of the videos were drafted by the program's video producer and director into approximately one-minute video advertisements focused on communicating the utility of the parenting program through the lens of each theme. The EVM served as the essential framework in the design of each video advertisement to ensure that they were adequately culturally and contextually tailored to our target audience (See Table 1 for specific EVM considerations in each ad). Once the first video drafts were completed, we collected feedback and consultation from cultural experts on the content of the advertisements. For a second round of feedback, we met with 3 Latinx parent advisors. Parents were sent the advertising videos along with a worksheet that asked for their feedback on each of the videos across the eight dimensions of the EVM. Each parent viewed, completed the worksheets independently, and met with a study team member to provide video edit recommendations. For example, parent advisors recommended including content depicting a wider range of SES depicted in the ads (i.e., showing more urban and apartment living situations) to be more representative of their community, which was added to the final version of the ads. Once finalized, all video advertisements were professionally dubbed into Spanish and back translated to ensure they conveyed the intended meaning of the messages. All videos were disseminated in both English and Spanish.

Graphic Ads

In partnership with a local advertisement agency specializing in reaching immigrant audiences, four additional advertisements were created for this campaign. These ads

Table 1 Cultural Considerations Addressed within Each of the Video Advertisement Themes Across the EVM Dimensions

EVM ^a Dimension	Credibility	Community Endorsement	Hopes and Dreams
Language	English, Spanish <i>Actors:</i> immigrant parents from various cultural backgrounds <i>Speaker:</i> Faculty member and parenting expert from Latinx immigrant community	English, Spanish <i>Actors:</i> immigrant parents from various cultural backgrounds <i>Speaker:</i> Dad from Iraq and Mom from South America	English, Spanish <i>Actors:</i> immigrant parents from various cultural backgrounds <i>Speaker:</i> Mom from Democratic Republic of the Congo, Dad from Iraq, and Mom from El Salvador.
Content	Acknowledges migration difficulties while focusing on resilience and strong cultural values including sense of family, respect, education, persistence	Focuses on strengthening parent-child relationships and reducing familial stress by improving parenting practices	Acknowledges migration difficulties while focusing on parent's hopes for their children including cultural values like safety, education, upward mobility
Concepts	Cultural insider and parenting expert delivers information about the program while reinforcing cultural values and normalizing the need for parenting support	Testimonials from immigrant parents who used the program deliver information about the program while discussing how they benefited from the program and normalizing the need for parenting support. Parents emphasize feeling more confident in their parenting	Testimonials from immigrant parents highlight their goals for their children after resettlement. Parents emphasize different cultural goals
Goals	Presents benefits of participating in the program including "More Respect", "More Cooperation" and "More Success"	Presents benefits of participating in the program including "More Respect", "More Cooperation" and "More Success"	Presents benefits of participating in the program supporting parent's personal goals for their children
Context	Disseminated digitally through social media to increase reach and accessibility in a U.S., post-migration immigrant context	Disseminated digitally through social media to increase reach and accessibility in a U.S., post-migration immigrant context	Disseminated digitally through social media to increase reach and accessibility in a U.S., post-migration immigrant context

^aEcological Validity Model (Bernal et al., 1995)

were designed in line with the agency's expertise in messaging to diverse immigrant groups rather than relying on the EVM framework and literature used in the design of the video advertisements described above. The agency designed all four advertisements as graphic images depicting animated families from a range of diverse ethnic backgrounds and family compositions engaging in activities together. These ads communicated the theme "Make Every Moment Count" and encouraged parents to engage in the program. All graphic advertisements were disseminated in both English and Spanish. The graphic advertisements can be found in the supplementary materials.

Participants

Participants included over nine-million Facebook users whose user profiles suggested they were parents who were from a Latinx background and were resettled in the U.S. These target demographics were achieved by implementing Facebook's audience filters, which restrict the advertisements to appear only for people who meet the specified requirements. Filters were selected in coordination with a digital marketing firm specializing in marketing to Latinx audiences. Filters were identical for English and Spanish advertisements except for the language filter which was set to English for the English advertisements and Spanish for the Spanish advertisements. Facebook audience filters used in the study can be found in the supplementary materials.

Procedure

The campaign was facilitated by a professional digital marketing firm. Over the 71-day campaign, each of the 14 (3 videos and 4 images, each in English and Spanish) advertisements was allocated a portion of the overall advertisement budget. Each ad's budget was adjusted throughout the campaign based on its performance and click-rate to optimize results of the campaign. For example, if one ad was demonstrating low engagement rates at day 14, funds allocated to that advertisement were shifted to increase the budget of an ad demonstrating high engagement rates (and thereby the number of people viewing an advertisement) to maximize the potential of high-performing ads. This procedure is common practice in social media advertising campaigns. All ads were distributed according to Facebook's bidding and budget strategies which deliver the advertisements to the specified target audience – charging the advertiser for clicks and views – designed to optimize engagement evenly over time (Facebook, n.d.). According to this process, parents in the target audience may have seen any (or multiple) of the advertisements depending on Facebook's bidding process. All advertisements included a link to the parenting

program's webpage and a call-to-action for viewers to follow the link to the parenting program's webpage. The video modules were hosted on the program's webpage and were available in either English or Spanish. To increase flexibility of the program, parents could explore the page and view the videos at any time and in any order.

Measures

Organic data provided by Facebook analytics, the program's webpage host (Plausible), and the platform hosting the program's video modules (Vimeo) were collected. While these pages collect myriad variables to assess performance of paid advertisements, page visitors, and video views, the following key variables were used to assess performance of the campaign.

Facebook

Results include the number of clicks on the program website link each advertisement received. These results may include multiple clicks by one individual. We refer to this variable as "link clicks". *Reach* is the number of unique individuals who saw each advertisement. *Cost per result* calculates the cost of each click on the programs webpage based on the total amount spent on each ad.

Plausible

Unique visitors indicates how many distinct viewers visited the program's webpage. *Total page views* include the total number of visitors to the webpage including multiple visits by the same person. The platform also provides data on the country from which a user accesses the webpage and the source that brought them to the page, which are used as descriptive variables.

Vimeo

Unique viewers indicates the number of distinct viewers who played a video. *Plays* is the total number of plays including multiple views by the same person. *Finishes* is the total number of times a video was played from start to finish.

Data Analysis

All data used in the analysis of this study were collected by the platforms used in the campaign (Facebook, Plausible, and Vimeo). Data from each platform was downloaded at the completion of the campaign.

We used a series of multiple linear regression equations to predict the number of link clicks on the advertisements,

controlling for reach over the 71 days of the campaign, to assess the effects of advertisement type and language. Pairwise comparisons were conducted for the English and Spanish video advertisements separately to assess the effect of each video advertisement theme within each language. Analyses were adjusted for multiple comparisons using the Benjamini-Hochberg (Williams et al., 1999) technique. Budget for each advertisement was highly correlated with reach ($r = 0.91$) which led to high collinearity thus budget was removed from the model. Further, results did not differ when conducting the analyses using mixed effects models with a time component including advertisements nested within days. Therefore, analyses were conducted using the more parsimonious model.

Results

Feasibility and Cost of the DTC Marketing Campaign

The study implemented three video and four graphic advertisements each in English and Spanish for a total of 14 advertisements. Advertisements were run between 13 and 71 days depending on their performance according to advertisement optimization. The campaign reached a total of 2,902,440 viewers which resulted in 41,835 link clicks and engagement with the program's webpage resulting in an average engagement rate of 1.44% across the campaign. Descriptive statistics on the number of days run, reach, and engagement, and cost-per-click of each advertisement can be found in Table 2. Figure 1 shows the cost analysis of engagement with the Parenting in the Moment program at each tier of the dissemination plan.

During the campaign, the parenting program's webpage received a total of 28,210 unique visitors. The average duration of time a person remained active on the page was 10.79 min. Over 94% the page visits were sourced from Facebook advertisements. Most of the webpage visitors were located in the continental U.S. However, other locations with over 50 visitors included Puerto Rico (273), Mexico (243), Colombia (83), and the Dominican Republic (69).

The parenting program video modules were offered in English and Spanish. The video modules received 12,811 (2.7% Spanish, 97.3% English) plays during the 71-day campaign. Six hundred and eighty-five (44% Spanish, 55% English) of these views were from unique viewers and the videos were viewed in their entirety 404 times (53% Spanish, 47% English).

The cost of paid advertisements to run the campaign totaled \$29,918. On average, each click on the advertisement cost \$0.71 – calculated by dividing the total budget by the number of link clicks (\$0.67 Spanish advertisements,

Table 2 Number of Days Run and Means and Standard Deviations of Reach, Link Clicks, and Cost Per Result for Each Advertisement by Language

Advertisement	Language	Number of Days Run	Reach M(SD)	Link Clicks M(SD)	Cost per Result M(SD)
Credibility Video	English	65	1890 (1160)	34 (18.6)	0.7 (0.32)
	Spanish	64	9236 (7140)	122 (83.2)	0.59 (0.26)
Community Endorsement Video	English	71	1617 (664)	45.4 (20.3)	0.69 (0.2)
	Spanish	64	5487 (3855)	147 (99.8)	0.49 (0.23)
Hopes and Dreams Video	English	30	1600 (3751)	22.9 (50.3)	0.37 (0.5)
	Spanish	71	8454 (5187)	103 (51.8)	0.66 (0.16)
Make Every Moment Count Graphic 1	English	13	744 (3611)	5.58 (23.9)	0.23 (0.6)
	Spanish	22	532 (1111)	21.6 (21.1)	0.22 (0.37)
Make Every Moment Count Graphic 2	English	64	1927 (1931)	21.6 (21.1)	0.72 (0.56)
	Spanish	60	4655 (3970)	33.2 (24.9)	0.68 (0.46)
Make Every Moment Count Graphic 3	English	19	247 (513)	3.25 (7.22)	0.25 (0.48)
	Spanish	28	695 (1049)	10.4 (16.9)	0.29 (0.39)
Make Every Moment Count Graphic 4	English	65	3425 (2287)	31.6 (20.4)	0.76 (0.4)
	Spanish	19	369 (808)	3.34 (7.54)	0.26 (0.51)

Note. Due to campaign optimization, the number of days each advertisement was ran differed based on performance. Means and standard deviations reflect advertisement data per-day over the 71-day campaign. U.S. Dollars is used to calculate Cost per Result

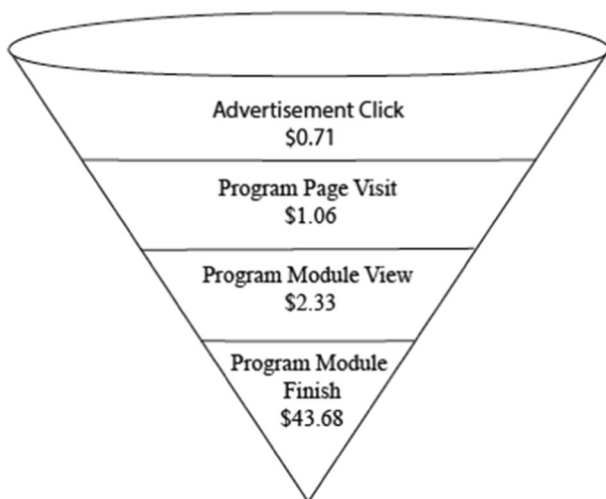


Fig. 1 Cost analysis of engagement tiers. The figure depicts the cost analysis of engagement with the Parenting in the Moment program at each tier of the dissemination plan. Advertisement click was calculated by dividing the total budget by the number of link clicks. Program page visit was calculated by dividing the total budget by the total number of individual people who visited the landing page during the campaign. Program module view (not accounting for duplicate views by one person) was calculated by dividing the total budget by the total number of video module views during the campaign. Finally, program module finish (accounting for duplicate views by one person) was calculated by dividing the total budget by the total number of individual people who viewed a video module during the campaign

\$0.83 English advertisements, \$0.68 video advertisements, \$0.83 graphic advertisements). Each unique program webpage visit cost \$1.06 – calculated by dividing the total budget by the total number of individual people who visited

the landing page during the campaign. Each parenting program video module view (not accounting for duplicate views by one person) cost \$2.33 – calculated by dividing the total budget by the total number of video module views during the campaign. Finally, each unique parenting program video module view (accounting for duplicate views by one person) cost \$43.68 – calculated by dividing the total budget by the total number of individual people who viewed a video module during the campaign.

Association of Language, Advertisement Type, and Theme on Engagement

Multiple linear regression was used to predict link clicks per day based on advertisement type and language while controlling for reach. Results indicated that the overall regression was statistically significant ($R^2 = 0.8$, $F(3, 990) = 1314$, $p < 0.001$). Both language ($\beta = -9.51$, $p < 0.001$, $b = -0.07$) and advertisement type (video or graphic) ($\beta = -30.9$, $p < 0.001$, $b = -0.25$) significantly predicted link clicks with video advertisements and advertisements in Spanish receiving more link clicks while controlling for reach, though standardized effect sizes were small.

Pairwise comparisons indicate significant differences in link clicks per day in video advertisements depending on the advertisement theme controlling for reach (Table 3). Adjusted means and p-values adjusted for multiple comparisons indicate that within the English video advertisements, the community endorsed theme received more link clicks than the hopes and dreams theme ($p < 0.001$) and credibility theme ($p < 0.001$). The credibility theme received

Table 3 Pairwise Comparisons of Link Clicks Per-Day Between the Three Video Advertisement Themes Controlling for Reach

Advertisement Comparisons	β	b	p	95% CI
English: HD/ CR *	7.24	0.1	$p < 0.001$	[3.49, 11]
English: HD/ CE *	22.3	0.31	$p < 0.001$	[18.58, 26.08]
English: CR/CE *	15.1	0.21	$p < 0.001$	[11.33, 18.84]
Spanish: HD/ CR	9.29	0.05	0.16	[-3.66, 22.24]
Spanish: HD/ CE *	81.1	0.47	$p < 0.001$	[67.86, 94.34]
Spanish: CR/CE *	71.8	0.41	$p < 0.001$	[58.39, 85.23]

Analyses for English and Spanish advertisements were run independently

Credibility (CR), Community Endorsed (CE), Hopes and Dreams (HD)

*Indicates significance at the $\alpha = 0.05$ level adjusted for multiple comparisons. The reference group is listed first in the advertisement comparisons with the advertisement receiving a higher mean number of clicks in bold

more link clicks than the hopes and dreams theme ($p < 0.001$). Within the Spanish video advertisements, the community endorsed theme received more link clicks than the hopes and dreams theme ($p < 0.001$) and credibility theme ($p < 0.001$). However, the credibility theme did not significantly differ from the hopes and dreams theme ($p = 0.16$). The community endorsed video advertisement received the most direct engagement in the form of shares, likes, and comments as viewers tagged other Facebook users to spread messaging about the program creating digital word-of-mouth circulation of the program.

Discussion

The central purpose of this study was to determine the feasibility and cost of engaging immigrant parents with a culturally adapted, DTC, targeted marketing campaign for a parenting program. In line with our hypothesis, the social media campaign was a successful strategy for engaging our target audience with the intervention – over 1 percent of the viewers clicked on the advertisement link to visit the parenting program webpage (compared with 0.83% of other ads in the health industry on Facebook; Irvine 2021). On average, across the advertisements delivered, the cost per click to view the program webpage was \$0.71. Each view of one of the program's video modules – not accounting for finishing the video or people viewing a video more than one time – cost \$2.33. Each unique video view cost – accounting for people viewing a video more than one time – cost \$43.68, which is more cost-effective than traditional media, like television, radio, and newspaper, shown to cost \$54.00/participant in prior research (Bjornson-Benson et al., 1993). These results suggest that DTC marketing may be a

feasible and economical strategy for engaging immigrant parents with digital parenting programs.

The findings supporting the feasibility of engaging parents in the parenting intervention using DTC marketing strategies are encouraging given the many obstacles these parents might face in accessing parenting services. While immigrant parents traditionally access resources through a gateway provider (Stiffman et al., 2004), DTC marketing hurdles this obstacle by delivering services directly and facilitating autonomous engagement with digital parenting material. Delivering information about the digital intervention directly to parents, especially for parents who do not have access to or feel comfortable disclosing information to a gateway provider, is a useful strategy for reaching large numbers of parents. DTC marketing may destigmatize help-seeking while empowering parents to take action toward supporting their children in the context of migration. The cost of \$43.68 for each unique parenting program video module view is encouraging and supports the economic considerations of using DTC social media marketing given the cost of recruiting participants can vary from \$54.00 to \$670.00/person using other dissemination strategies (Bjornson-Benson et al., 1993).

The secondary aim of this study was to determine which type and messaging theme facilitated the most engagement with the program materials. Consistent with our hypothesis, the video advertisements performed significantly better than the graphic advertisements. Comparing link clicks within the video advertisements, advertisements in Spanish performed significantly better than in English. Data indicated significant differences in the performance of each of the three video themes when the advertisements were presented in English (i.e. community engagement highest, then credibility, then hopes and dreams). Interestingly, when presented in Spanish, the community endorsement theme performed significantly better than the credibility and hopes and dreams video themes, both of which performed equally well.

These findings suggest that cultural, language and theme considerations for the target community are important when developing a DTC marketing campaign. The EVM is a widely used framework that supports the cultural adaptation of interventions to increase relevance, engagement, and accessibility (Bernal et al., 1995). Findings from this study suggest that the EVM may be a useful framework to guide dissemination strategies including DTC marketing materials by guiding cultural considerations across the eight EVM factors.

However, it is important to acknowledge that DTC may not be a useful strategy for engaging parents with services in all cultural contexts. Consideration of a group's access to digital resources and perception of digital messages is essential as digital inequality remains pervasive and is

perpetuated by geographic and income barriers (Robinson et al., 2020). Discussions with the study team's cultural advisors and insiders were essential in determining if DTC digital marketing was an appropriate dissemination strategy for engaging Latinx parents.

The finding that the Spanish video advertisements differed from English video advertisements in the themes that best predicted engagement with the parenting program emphasizes the importance of presenting DTC messaging in the primary language of the intended audience. This finding replicates previous research that found an interaction between language and the messenger delivering the information in the advertisement on help-seeking intentions (Barnett et al., 2019). As such, in the development of DTC advertisements, it is important to dually consider language and other cultural factors when designing messaging content. The community endorsed theme engaged significantly more parents with the intervention than the other two video advertisement themes. The higher engagement rates associated with this theme are in line with previous research indicating that community-based dissemination strategies are shown to be a successful strategy for engaging immigrant and refugee communities with services (Measham et al., 2014; Salami et al., 2018). We designed this advertisement to communicate themes of support from the community, simulating the same types of messages a parent might receive from trusted gateway providers in their community (Stiffman et al., 2004).

Further, the program's video modules received 12,811 (2.7% Spanish, 97.3% English) plays, 685 (44% Spanish, 55% English) of these views were from unique viewers, and the videos were viewed in their entirety 404 times (53% Spanish, 47% English). The proportion of Spanish to English viewers suggests that the target audience of Latinx parents, initially clicked on the modules in English before clicking on them in Spanish. Given that 54% of the video module finishes were in Spanish suggests that the PIM program resonated with the advertisement's target audience of Latinx parents once they began viewing the videos.

Recommendations

Including members of the community in the DTC marketing design process is essential to ensure that the video advertisements were culturally responsive, relevant, respectful, and engaging for our target audience. DTC products designed to reach families who have experienced hardship and migration cannot be successful without collaboration with members of the community of interest. In designing the culturally informed video advertisement themes, the design team included cultural insiders from the Latinx community, and we received iterative feedback from our cultural experts and the community of interest before

finalizing the video products. Additionally, our marketing firm partners who implemented the social media campaign and played an important role in selecting the audience filters specialized in reaching Latinx audiences and were members of the Latinx community.

While DTC marketing and programming expands reach greatly compared with traditional programming, social media platforms can be unpredictable and sometimes inhospitable for marginalized communities. Disseminating culturally tailored products supporting immigrant communities may attract discriminatory and racist internet 'trolls.' Thus, planning for how to monitor and manage bad actors who might leave offensive and unwelcome comments on the advertisements prior to the implementation of a digital DTC social media campaign is important to maintain trust and engagement with the target audience.

Strengths, Limitations, and Future Directions

The current study has several strengths that lend to its contributions as the first step to understanding the use of digital DTC marketing to engage immigrant parents with parenting services. First, through culturally informed, transdisciplinary work combining psychological research and marketing, each stage of the research process was iterative as our team worked to merge relevant facets of each discipline while continuously seeking feedback from cultural experts, stakeholders (service providers), and community members (Latinx immigrant mothers) to recalibrate and refocus efforts in service of the community we sought to reach.

A second strength included the collaboration with a marketing firm to implement the social media marketing campaign. This partnership allowed our team to use current best practices in social media marketing to maximize reach and engagement with the marketing products. In this light, while we specifically focused on disseminating a digital parenting program to Latinx immigrant parents in the U.S., findings may translate to improving engagement with a range of services using culturally informed DTC marketing strategies.

However, it is important to recognize the limitations of this study. First, the study was implemented using methods focused on optimizing the performance of each advertisement (rather than randomizing the presentation of each ad). Although we attempted to account for marketing differences by controlling for reach, the budget and number of days each advertisement aired differed which potentially confounded results. Further, the advertisements were crafted with the primary goal of sustaining the attention of the viewer and motivating them to engage with the program. As such, each ad contained varying messaging content which could impact the interpretation of the findings. For example,

the narration across each advertisement differed in addition to the images, speakers, and text to communicate the intended theme and sustain the attention of the viewer. Future studies may benefit from replicating these findings using manipulation checks and an experimental/randomized controlled trial design including systematic testing of the EVM dimensions in messaging content. Next, we used organic data produced by Facebook, the program's landing page (Plausible), and Vimeo in the analysis thereby limiting our control of the variables collected. Using this deidentified data made it impossible to track the trajectory of any given advertisement viewer from initial contact to their actions viewing the program material. As such, future studies should implement strategies that allow analysis of engagement activity with a digital program after a parent has viewed a DTC advertisement including completion rates. Next, the study estimated the target audience using marketing best-practices that showed the advertisements only to parents who met predetermined criteria meant to reach Latinx immigrant families. However, using the data provided by Facebook, it is not possible to confirm that viewers reflected the intended audience. Finally, the marketing landscape is ever shifting making it important for future researchers to delve into best social media marketing practices prior to developing a DTC campaign.

Conclusion

There is an urgent need to increase equitable access to parenting programs for immigrant families. This study supports DTC targeted marketing as an effective strategy for reaching and engaging Latinx immigrant populations with digital parenting programs that can reduce the financial cost of traditional recruitment and engagement strategies (e.g., marketing through trusted healthcare providers). Further, the EVM is demonstrated as a useful framework for designing culturally relevant messaging content. We found that using culturally tailored messaging strategies, including language and other cultural considerations, may be most effective in engaging parents from historically marginalized and underserved communities to increase equity in accessing parenting support. Together, culturally informed, digital dissemination strategies are one promising option for practitioners aiming to increase reach and service to immigrant families. As researchers, practitioners, and policy makers continue to prioritize tailored and innovative strategies for engaging immigrant families in prevention and intervention programs, increased access and use of programs to support healthy family functioning is possible.

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data collection and analysis were performed by T.S.S. The first draft of the manuscript was written by T.S.S. and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Compliance with ethical standards

Conflict of interest The authors declare no competing interests.

Ethics approval Data used in this study are considered not Human Research according to HRP-310.

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