Prescription for Play Research Report:

A dual investigation of longitudinal program outcomes and caregiver variability in play

Weitzman Institute

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Introduction

Play is natural, intrinsically rewarding, and a scaffold to widespread developmental outcomes, ranging from communication to confidence and resilience. The importance of play for infants and toddlers on early development, as well as caregiver-child relationships, is well-documented, with research showing that developmentally appropriate play with caregivers and peers is one of the primary ways that children develop the social, cognitive, language and self-regulation skills necessary for executive function.[1,2,3]

Despite the established benefits of play, there are few, if any, formal networks or venues to systematically promote learning through play among infants and toddlers. Children under the age of three do not yet attend school, and child care practices take many forms. The one place virtually all children go multiple times during this period of rapid brain development is routine well-child care. Thus, play-promotion interventions delivered during well-child checks have the potential to reach a substantial portion of young children regardless of factors like socioeconomic status, family structure, or geographic region.

Prescription for Play (P4P) was developed in response to the need for scalable, cost-effective play-promotion interventions for toddler-aged children and is designed for healthcare providers seeing 18- to 36-month-old patients for well-child checks. The P4P program offers free LEGO® DUPLO® bricks for primary care provider teams who have completed the required online training, which provides an overview of the program and outlines the importance of play for child development. Primary care teams are then able to distribute these brick kits to pediatric patients and their caregivers. The play kit provides young children with fun experiences that support learning and development, including shapes and colors, fine motor skills, numbers and counting, imagination and creativity, and language development. Healthcare providers use the bricks and related educational materials as prompts to engage caregivers on the benefits of play for the development of emotional, cognitive, creative, social, sensory, and physical skills. In line with recommendations from the American Academy of Pediatrics (AAP),[1] providers are further prompted to encourage caregivers to play daily with their child.

The LEGO Group partnered with the Weitzman Institute to bring P4P to primary care practices across the United States, with a particular focus on federally qualified health centers (FQHC). FQHCs were seen as important health care settings to target because they serve medically underserved areas and populations who are likely to face increased barriers

[1] Yogman, Michael, et al. "The Power of Play: A Pediatric Role in Enhancing Development in Young Children." Pediatrics (Evanston), vol. 142, no. 3, 2018, pp. 1.

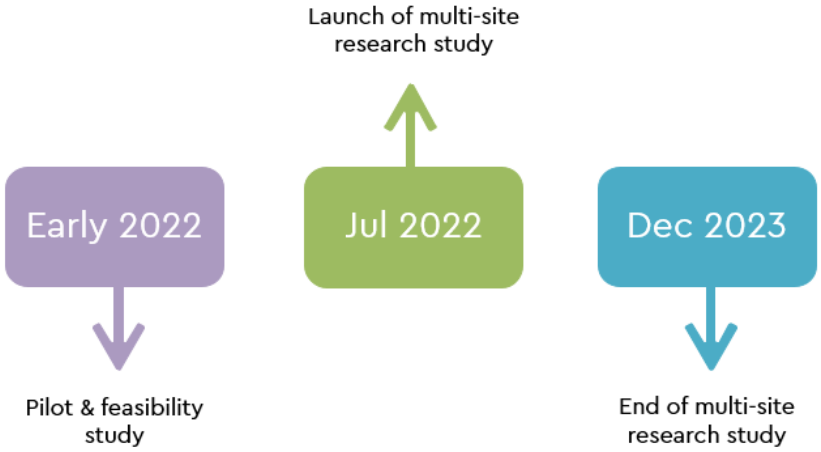
[2] Barnett, La. "Developmental Benefits of Play for Children." Journal of Leisure Research, vol. 22, no. 2, 1990, pp. 138-153.

[3] Ginsburg KR, Shifrin DL, Broughton DD, Dreyer BP, Milteer RM, Mulligan DA, et al. The Importance of Play in Promoting Healthy Child Development and Maintaining Strong Parent-Child Bonds. Pediatrics. 2007; 119: 182–191. https://doi.org/10.1542/peds.2006-2697 PMID: 17200287

to play.[4] The partnership between The LEGO Group and the Weitzman Institute has since grown to encompass scaling the P4P program for implementation and conducting research on the process and outcomes of the program regarding the importance of play in early childhood.

As depicted in Figure 1, the initial research phase of the partnership between Weitzman Institute and The LEGO Group was conducted in 2022 and included a pilot study to evaluate the feasibility of delivering the P4P program during 18- to 36-month well-child checks within a single FQHC. Results from this pilot study showed that the P4P program was acceptable to both providers and caregivers and feasible to implement in a safety-net setting, though several barriers were identified, including a need for additional provider training and more structured recommendations on how best to integrate the P4P program into clinic workflows.[5] Following completion of this pilot study, a larger, multi-site research study was initiated to evaluate the feasibility of implementing P4P on a larger scale across six FQHCs while also gathering evidence on the impact of P4P on caregiver attitudes, beliefs, and behaviors towards play. The results of this multi-site research study demonstrated that the P4P program can be implemented as designed within safety-net settings and aligns with caregivers' already positive views on play.[6]

Figure 1. Timeline of previous P4P research



[4] Milteer RM, Ginsburg KR; Council on Communications and Media; Committee on Psychosocial Aspects of Child and Family Health. The importance of play in promoting healthy child development and maintaining strong parent-child bond: focus on children in poverty. Pediatrics. 2012;129(1):e204e213.

[5] Panjwani S, Anderson-Badbade S, Oo M, Velez I, Beckham J. Play Promotion for Pediatric Patients: A Feasibility and Pilot Study of Embedding 'Prescription for Play' in Well-Child Visits, Phase 1 Evaluation Report. Weitzman Institute, Community Health Center, Inc.; 2022.

[6] Emery Tavernier, R. L., Oo, M., Anderson-Badbade S, Grzejszczak, L., Rogers, P. Prescription for Play Research Report: A Multi-Site Case Study of the Process and Outcome Measures of P4P. Weitzman Institute, Moses Weitzman Health System; 2024.

Current Research

Building on the work conducted during the earlier phases of P4P research, the current research focused on (1) assessing the longitudinal impact of P4P on child socioemotional outcomes and their home play environment, and (2) conducting a mixed-methods investigation to understand variability in play across families. The results of this next phase of research are described herein and aim to build support for the P4P evidence-base while strengthening data collection efforts for future research.

Longitudinal Assessment of P4P Outcomes

Study Rationale and Research Questions

Given that no prior research has examined the longitudinal impact of P4P on play-related outcomes, **this pilot study sought to gather preliminary evidence on the relationship between P4P and child socioemotional development over time as well as changes in their home play environment.** As part of this pilot study, caregivers who did and did not receive P4P during their child's well-child check were surveyed at two separate time points to document group differences in socioemotional development and the home play environment over a 3-month period. The primary research questions included:

1. Does exposure to P4P relate to higher socioemotional competence in children over time?
2. Is P4P participation associated with changes in the number and types of play material available to children in their home environment?

In preparation for future longitudinal research, this pilot study further sought to determine the feasibility of retaining families receiving well-child care at FQHCs in longitudinal survey research.

Participants and Procedures

This pilot study was conducted at two FQHCs located in Florida and New York from May 2024 to December 2024. The participating clinics predominantly serve uninsured and low-income populations and were deemed appropriate sites to promote learning through play for vulnerable pediatric patients. A longitudinal study design was used to assess changes in socioemotional development and the home play environment over a 3-month period between children who did and did not receive P4P during their well-child checks. In line with this approach, baseline groups of caregivers were recruited from each organization. Because randomization was not feasible in the clinic setting, we relied on collecting natural groups of caregivers who either did (intervention group) or did not (control group) receive P4P. To facilitate separate groups, both participating organizations had certain clinics or providers administer P4P while others refrained from doing so during the study period. Both baseline groups of caregivers received a handout during their child's 18- to 36-month

well-child check asking them to complete an initial phone or email survey on their child's socioemotional functioning and the availability of play materials in their home. Within several weeks of receiving the research handout, caregivers were contacted by a third-party survey vendor (Crossroads Group, Inc.) to complete the baseline survey. All caregivers were required to (1) be at least 18 years old, (2) be the responsible party for the pediatric patient, and (3) have phone or email access to complete the survey. Surveys were conducted in English, Spanish, and Haitian Creole. Caregivers were initially contacted by phone to complete the survey and later provided the opportunity to complete the survey by email if they could not be reached. After collecting baseline surveys, caregivers were contacted again 3 months later for a follow-up phone or email survey and were asked to complete the same assessments. Prior to both surveys, all caregivers provided verbal or written consent to participate. Caregivers were compensated with a $15 Amazon gift card for the baseline survey and a $20 Amazon gift card for the follow-up survey. The Community Health Center, Inc. Institutional Review Board approved the protocol and materials prior to data collection.

Measures

Demographics

Participants reported their demographic characteristics, including questions on their age, sex, race, ethnicity, relationship to the pediatric patient, and preferred language.

P4P Participation

Participants were dichotomized according to whether they did (1) or did not (0) receive the P4P program during their child's well-child check.

Brief Infant-Toddler Social and Emotional Assessment (BITSEA)

Socioemotional development was assessed using the Competence subscale of the validated BITSEA tool.[7] The Competence subscale consists of 11 items related to internalizing and externalizing behaviors, emotion dysregulation, socioemotional competence, and social relatedness (e.g., "*[My child] is affectionate with loved ones*" and "*[My child] follows rules*"). All items are rated using a 3-point Likert scale, with response options ranging from 0 (not true/rarely) to 2 (very true/often). The Competence subscale yields a total sumscore, ranging from 0-22, with lower scores indicating higher risk of deficits or delays in socioemotional competence. Two additional items assess caregiver concerns about their child's language and social development using a 4-point Likert scale ranging from 1 (not at all worried) to 4 (very worried). Caregivers were categorized as having high worry if they answered 3 or more on at least one of the two questions.[8]

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[7] Briggs-Gowan MJ, Carter AS, Irwin JR, Wachtel K, Cicchetti DV. The Brief Infant-Toddler Social and Emotional Assessment: screening for social-emotional problems and delays in competence. J Pediatr Psychol. 2004 Mar;29(2):143-55. doi: 10.1093/jpepsy/jsh017. PMID: 15096535.

[8] Ellingson KD, Briggs-Gowan MJ, Carter AS, Horwitz SM. Parent identification of early emerging child behavior problems: predictors of sharing parental concern with health providers. Arch Pediatr Adolesc Med. 2004 Aug;158(8):766-72. doi: 10.1001/archpedi.158.8.766. PMID: 15289249.

StimQ$_2$ Toddler

The home play environment was assessed using the Availability of Learning Materials (ALM) subscale from the validated StimQ$_2$ Toddler[2] measure.[9,10] The survey consists of an inventory of toys and materials related to various subdimensions, including symbolic play (e.g., puppets, costumes), art (e.g., crayons, coloring books), adaptive/fine motor skills (e.g., shape-sorter, stacking toys), language (e.g., toy letters and numbers), and the presence of life-size playthings (e.g., child-size table and chair, tricycle). Items are rated dichotomously according to whether these items are present (1) or absent (0). In line with the scoring guide,[11] subdimension scores are summed, and a numeric value ranging from 0-2 is assigned, with 2 indicating greater availability of toys and play material in the given dimension. The assigned subdimension scores are then summed to yield a total subscale score, ranging from 0-7, with higher scores again indicating greater availability of play material.

Analysis

The final analytic sample was restricted to caregivers who completed both the baseline and follow-up surveys. Demographic characteristics were compared between caregivers who were retained for follow-up versus those who were lost using Fisher's Exact tests. Descriptive statistics for the analytic sample were summarized for caregivers who did and did not receive P4P and demographic comparisons between groups were performed using Fisher's Exact tests to determine group differences. Independent-sample t-tests were performed to compare between-group differences in socioemotional development and the home environment at baseline and follow-up. Paired samples t-tests were also performed to compare within-group differences in socioemotional development and the home environment over time. Fisher's Exact tests were used to compare differences in the number of caregivers reporting a high degree of worry regarding their child's socioemotional competence between groups at each time point and within-groups over time. Separate repeated measures analysis of variance (ANOVA) models were conducted to document the overall differences between the group, time, and group by time interaction for the socioemotional competence and home environment outcomes. A repeated measures analysis of covariance (ANCOVA) was subsequently conducted to further control for demographic factors (caregiver age, caregiver sex, household type, caregiver race, and caregiver language). The caregiver relationship to the pediatric patient was not included as a covariate due to low variability. An alpha level of $p < 0.05$ was used to determine statistical significance for all analyses. All statistical procedures were conducted using SPSS Version 29.

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[9] Cates, C. B., Roby, E., Canfield, C. F., Johnson, M., Raak, C., Weisleder, A., ... & Mendelsohn, A. L. (2023). Validation of the StimQ2: A parent-report measure of cognitive stimulation in the home. *PloS one*, *18*(7), e0286708.

[10] Dreyer, B. P., Mendelsohn, A. L., & Tamis-LeMonda, C. S. (1996). Assessing the child's cognitive home environment through parental report; reliability and validity. *Early Development and Parenting: An International Journal of Research and Practice*, *5*(4), 271-287.

Results

Sample Characteristics

A total of 917 caregivers were contacted to participate in the study, of whom 240 (26.2%) completed the baseline survey. Among the 240 participating caregivers, 56 (23.3%) had received P4P (intervention group) and 164 (68.3%) had not (control group). A total of 148 participants completed the 3-month follow-up survey. In the intervention group, 38 (67.9%) caregivers were retained, while 110 (67.1%) caregivers were retained in the control group. There was a higher percentage of Hispanic/Latino(a) caregivers retained (90.0%) versus lost to follow-up (79.6%) in the control group ($p = .04$). No additional demographic differences were found among caregivers who were retained versus lost to follow-up in either the intervention (ps > .19) or control (ps > .16) group.

Sample characteristics for the analytic sample (N = 148) are displayed in Table 1. As shown, most caregivers were the parents of the pediatric patient (99.3%) and were raising their child in a dual-parent household (76.4%). A majority of caregivers were female (96.6%), were of Hispanic/Latino(a) origin (87.8%), and reported Spanish to be their preferred language (81.1%). There was a significant difference in race between the intervention and control groups, such that the control group had a higher percentage of Hispanic/Latino(a) caregivers (90.0%) compared to the intervention group (81.6%). No additional demographic differences between groups were identified, indicating that **the groups were largely similar with the exception of race.**

Table 1. Sample characteristics for the longitudinal assessment of P4P outcomes (N=148)

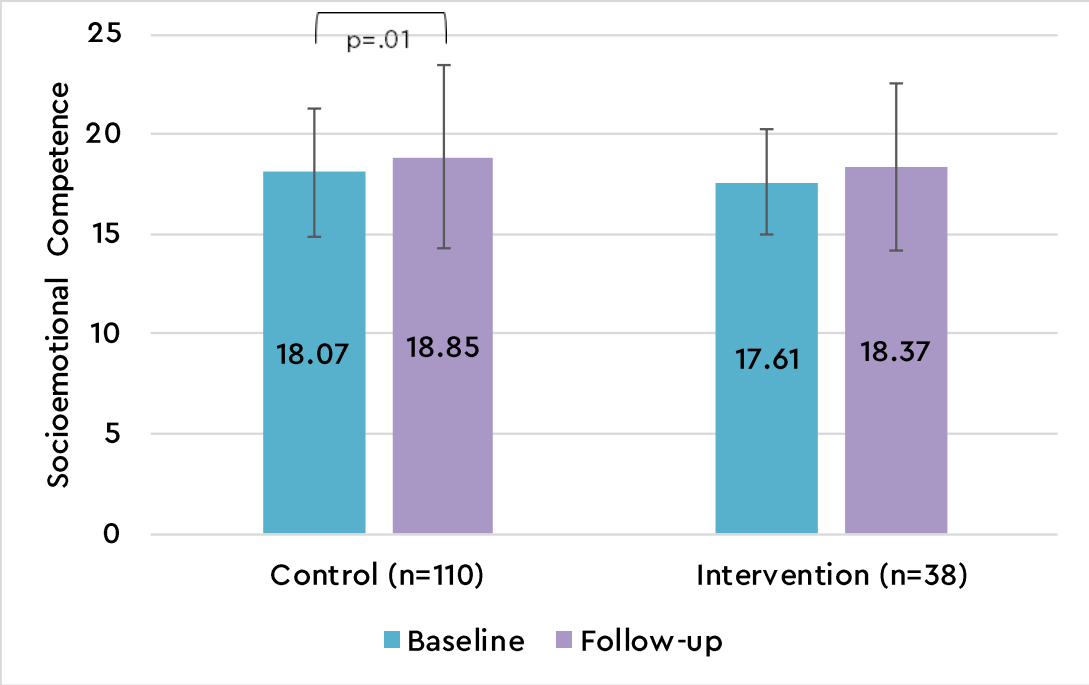
Characteristic	Total (N=148) *Mean (SD) or n (%)*	Intervention (n=38) *Mean (SD) or n (%)*	Control (n=110) *Mean (SD) or n (%)*	*p-value*
Relationship to child				1.00
Parent	147 (99.3%)	38 (100.0%)	109 (99.1%)	
Grandparent	1 (0.7%)	0 (0.0%)	1 (0.9%)	
Household type				.38
Single parent household	35 (23.6%)	11 (28.9%)	24 (21.8%)	
Dual parent household	113 (76.4%)	27 (71.1%)	86 (78.2%)	
Caregiver sex				1.00
Female	143 (96.6%)	37 (97.4%)	106 (96.4%)	
Male	5 (3.4%)	1 (2.6%)	4 (3.6%)	
Caregiver age	31.55 (6.35)	31.97 (5.81)	31.41 (6.55)	.64
Caregiver race				**.01**
Black or African American	14 (9.5%)	3 (7.9%)	11 (10.0%)	
White	1 (0.7%)	1 (2.6%)	0 (0.0%)	
Hispanic/Latino(a)	130 (87.8%)	31 (81.6%)	99 (90.0%)	
Other*	3 (2.0%)	3 (7.9%)	0 (0.0%)	
Caregiver language				.07
English	18 (12.2%)	7 (18.4%)	11 (10.0%)	
Spanish	120 (81.1%)	31 (81.6%)	89 (80.9%)	
Haitian Creole	10 (6.8%)	0 (0.0%)	10 (9.1%)	

*Other includes American Indian or Alaska Native and Asian or Asian American.

Socioemotional Development

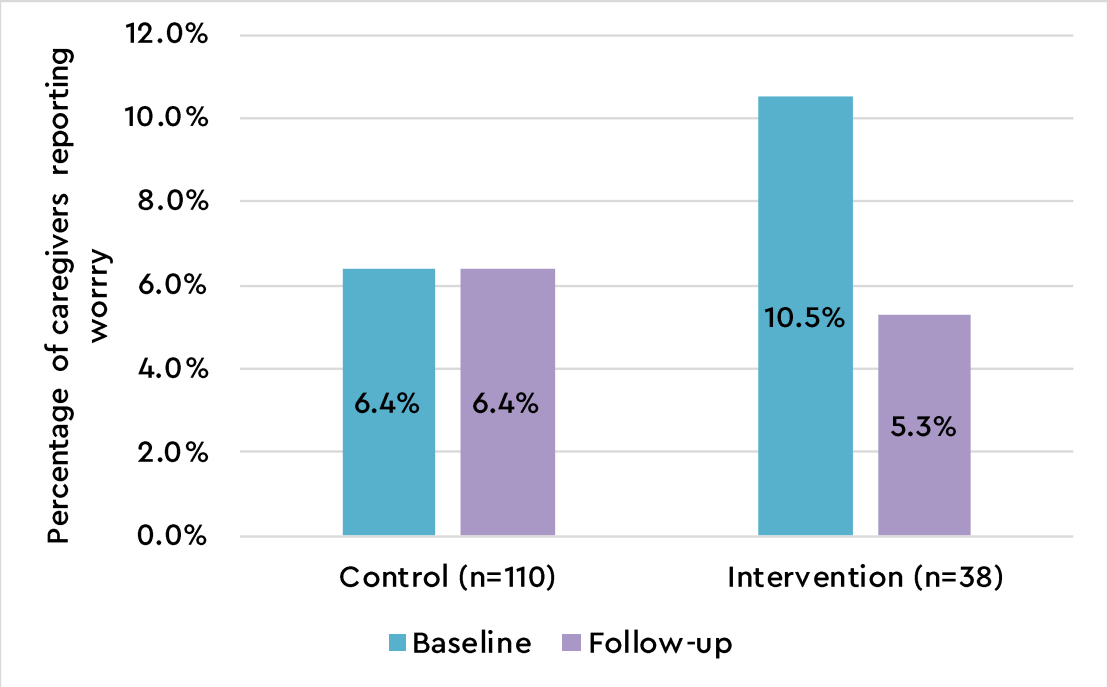
As shown in Figure 2, **caregivers in both the intervention and control groups reported their children to have moderately high levels of socioemotional competence at both the baseline and follow-up time periods.** Independent samples t-tests showed no differences in competence scores between groups at the baseline (p = .50) or follow-up (p = .42) visit. Although paired samples t-tests showed no differences in socioemotional competence scores over time within the intervention group (p = .12), there was slight improvement in socioemotional competence scores in the control group (p = .01).

Figure 2. Changes in socioemotional competence over time between groups



As shown in Figure 3, a small percentage of caregivers reported a high degree of worry about their child's socioemotional development. The rates of worry did not differ between the intervention and control groups at either the baseline (p = .61) or follow-up (p = 1.00) time points. **The percentage of caregivers reporting high levels of worry regarding their child's socioemotional competence decreased over time in the intervention group while remaining the same in the control group; however, the reduction in worry in the intervention group did not reach statistical significance (p = .67)**

Figure 3. Percentage of caregivers reporting high worry about their child's socioemotional competence over time between groups



Results from the repeated measures ANOVA showed effects of time on socioemotional competence ($p = .01$), such that socioemotional competence increased over time. However, there were no effects of group or the group by time interaction on socioemotional competence (ps > .05). The effect of time was no longer significant in the repeated measures ANCOVA after controlling for demographic factors, and no additional effects were found (ps > .05). These findings indicate that **caregivers who did and did not receive P4P report their children to have similar levels of socioemotional competence over time.**

Home Environment

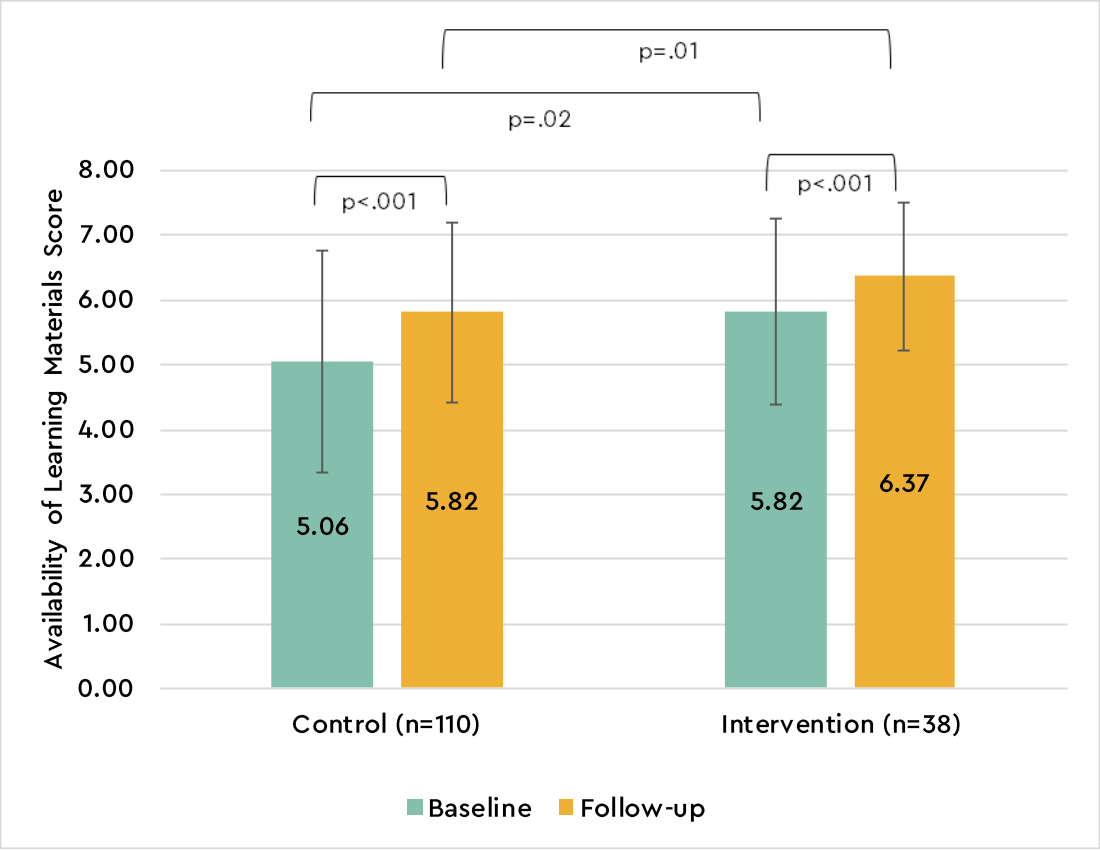
Overall, both groups preferred similar types of toys with only slight variations. Between both the intervention and control groups, the 5 most popular toys at both time points were:

- Small cars, trucks, and trains (symbolic play)
- Dolls and action figures (symbolic play)
- Coloring books (art)
- Crayons (art)
- Toy animals (not stuffed) or toy foods (symbolic play)

As shown in Figure 4, the intervention group had significantly higher ALM scores at baseline compared to the control group ($p = .02$). Over time, both groups had significant increases in ALM scores (ps < .001). The intervention group had a significantly higher ALM score than the control group at follow-up ($p = .01$). **These findings suggest that families who received**

P4P had greater availability of play-related learning materials at baseline compared to those who did not receive P4P and that this effect was retained over time.

Figure 4. Average differences in Availability of Learning Materials (ALM) subscale over time between and within groups



Examination of the ALM subdimensions showed that **the most frequently reported learning materials for both groups were those related to the symbolic play (e.g., puppets, costumes) and adaptive/fine motor subdimensions** (see Table 2). At baseline, the adaptive/fine motor and language subdimensions were significantly higher for the intervention versus the control group (ps < .02). There were no additional baseline differences (ps > .26). The intervention and control groups had increases in all subdimensions from baseline to follow-up, with paired samples t-tests showing these increases to be significant for the symbolic play (ps < .05) and art subdimensions (ps < .05) for both groups. There were no other significant within-group differences for the remaining subdimensions (ps > .06). At follow-up, independent samples t-tests showed that the intervention group had higher scores than the control group on the symbolic play, adaptive/fine motor, and language subdimensions (ps < .04). Overall, these findings suggest that **families of 18- to 36-month old children generally obtain more learning materials over time.** However, given that baseline subdimension scores varied between groups, it is difficult to ascertain how exposure to P4P relates to the availability of learning material over time.

Table 2. Differences in Availability of Learning Materials (ALM) subdimensions between groups at baseline and follow-up

Subdimension	Intervention (n=38) *Mean (SD)*	Control (n=110) *Mean (SD)*	*p-value*
Symbolic play			
Baseline	1.71 (.46)	1.61 (.51)	.26
Follow-up	1.95 (.23)	1.82 (.41)	**.02**
Adaptive/fine motor			
Baseline	1.74 (.50)	1.41 (.65)	**.002**
Follow-up	1.76 (.54)	1.49 (.65)	**.01**
Art			
Baseline	.84 (.37)	.78 (.42)	.40
Follow-up	.97 (.16)	.90 (.30)	.06
Language			
Baseline	.76 (.43)	.55 (.50)	**.02**
Follow-up	.82 (.39)	.65 (.43)	**.03**
Life-size			
Baseline	.76 (.43)	.71 (.46)	.52
Follow-up	.87 (.34)	.78 (.42)	.21

Results from the repeated measures ANOVA showed a significant effect of group ($p = .004$) and time ($p < .001$) on ALM scores but not a group by time interaction ($p > .05$). In particular, both groups showed increases in the overall availability of learning material over time ($p < .001$), with specific effects found for symbolic play ($p < .001$) and art ($p = .003$). Moreover, the intervention group had greater availability of learning materials overall ($p = .004$), with specific effects found for the adaptive/fine motor ($p = .004$) and language ($p = .01$) subdimensions. However, these group and time effects did not persist in the repeated measures ANCOVA after controlling for demographic factors ($ps > .05$). No demographic differences in ALM scores were found ($ps > .05$). Taken together, these findings indicate that, **although caregivers generally obtain more play-related learning material over time, these effects do not persist after controlling for demographic factors.** Moreover, **P4P does not appear to influence the availability of learning material in the short-term after accounting for caregiver demographics.**

Limitations

This longitudinal pilot study had several limitations. First, due to shipping delays for P4P kits, the implementation of P4P was hindered, leading to a notably smaller intervention versus control group. Second, the follow-up period between surveys was only 3 months,

which limited our ability to detect changes in socioemotional competence and the home environment. Third, findings may not be generalizable to other health settings or patient populations. Fourth, results are subject to selection bias and demand effects, which may have led caregivers to report higher levels of socioemotional competence in their children and greater availability of learning material in their homes. Lastly, this research was intended as a pilot study. To understand the full impact of P4P on socioemotional and home environment outcomes, there is a need to further evaluate its effectiveness in a larger sample using more rigorous methods and a longer follow-up period.

Summary

This pilot study compared longitudinal differences in socioemotional competence and home environment outcomes between families who did (intervention) and did not (control) receive P4P. **The overall retention rate was 67.3%**, with both groups showing similar demographic characteristics, aside from race. The key findings of this project demonstrated that:

- Socioemotional competence for 18- to 36-month-old children remained relatively stable when assessed over a 3-month time period.
- Exposure to P4P did not relate to children's socioemotional competence or caregiver worry about socioemotional competence.
- Items for symbolic play (e.g., puppets, costumes), adaptive/fine motor development (e.g., toy xylophone, wooden or plastic blocks), and art (e.g., crayons, coloring books) were the most commonly available play-related material among families of 18- to 36-month-old children.
- Families generally obtained more play-related learning materials over time, though these effects did not persist after controlling for demographic factors.
- Although exposure to P4P was associated with greater availability of learning materials overall, these effects did not persist after controlling for demographic factors.

Despite the largely null findings, **this study provides support for the feasibility of recruiting and retaining caregivers of young children for longitudinal research.** Results further suggest the need for additional research with a larger sample size and longer follow-up to better understand the impact of P4P over time.

Mixed-Methods Assessment of Caregiver Variability in Play Beliefs and Behaviors

Study Rationale and Research Questions

The goal of this mixed-methods assessment was to better understand play beliefs and behaviors and to identify barriers and facilitators to play among caregivers. This work aimed to clarify the appropriateness, acceptability, and relevance of P4P to inform the development of more appropriate play-promotion intervention approaches for all families. Using a mixed methods approach, the primary research questions included:

1. How does the frequency and type of play vary across families?
2. Do caregivers report varied beliefs about the importance and utility of play?
3. What barriers to play exist for families receiving well-child care at FQHCs?
4. What resources do caregivers rely on for play information and what recommendations do they have for play-promotion programs?

Participants and Procedures

This assessment was conducted at five FQHCs located in Arizona, Connecticut, Florida Indiana, and New York. The sites from Florida and New York were the same that participated in the longitudinal study described previously. All of the participating clinics predominantly serve uninsured and low-income populations. Using a mixed-methods approach, caregivers of 18- to 36-month-old children were invited to participate in a remote survey, with an additional opportunity to take part in an online focus group. Eligible caregivers received a handout during their child's well-child check describing the research. Eligible caregivers included those who: (1) were at least 18 years of age, (2) were the responsible party for the pediatric patient, and (3) had phone access for study data collection. Caregivers who did not read or speak English, Spanish, or Haitian Creole and those who opted out of participation were excluded. Caregivers were not required to have received P4P. Within several weeks of receiving the research letter, caregivers were contacted by a third party survey vendor (Crossroads Group, Inc.) to complete validated survey measures of play beliefs and behaviors by phone or email. Caregivers who completed the survey received a $20 Amazon gift card in exchange for their participation.

All caregivers who completed the survey were invited to participate in focus groups to further contextualize the survey findings. Focus group participants were scheduled by phone by members of the research team. No more than 8 caregivers were scheduled to attend a focus group at a time. Focus groups followed a semi-structured guide and took place online via Zoom. Focus groups lasted approximately 1 hour and were conducted by trained research staff. Given limited interest from caregivers who spoke Haitian Creole, focus groups were only conducted in English or Spanish. All focus groups were audio recorded and transcribed verbatim using TranscribeMe. The transcripts in Spanish were then translated to English by TranscribeMe. Participants were compensated with a $40 Amazon gift card for their participation in the focus groups. Due to difficulties recruiting

certain caregivers (e.g., males), an additional snowball sampling technique was implemented in which focus group participants could refer additional caregivers to participate. For each person the participant referred, who went on to complete a focus group, both participants received an extra $5 bonus Amazon gift card. The Community Health Center, Inc. Institutional Review Board approved the protocol and materials prior to data collection. Data collection for the surveys and focus groups occurred from August 2024 to November 2024.

Measures

Demographics

Caregivers reported their demographics as part of the survey, including their age, sex, race/ethnicity, and relationship with the pediatric patient. The language of the interview was recorded by the surveyor.

Parent Play Beliefs Scale (PPBS)

The PPBS is a 25-item scale assessing parent and caregiver perspectives on the role of play in their children's development and has previously been shown to be valid and reliable.[11] Items are rated on a 5-point Likert-type scale ranging from 1 (disagree) to 5 (very much agree). The PPBS consists of two subscales: Play Support and Academic Focus. The Play Support subscale consists of 17 items (e.g., "*Through play my child develops new skills and abilities*," and "*I can help my child learn to control his or her emotions during play*") that measures the extent to which caregivers believe play to be an enjoyable and valuable activity that is important for child development. The Academic Focus subscale consists of 8 items (e.g., "*I do not think my child learns important skills by playing*," and "*I would rather read to my child than play together*") measuring the degree to which caregivers prioritize academically oriented activities over play. Each subscale is scored by averaging the items, with higher scores on the Play Support subscale indicating stronger beliefs that play supports child development while higher scores on the Academic Focus subscale indicate stronger beliefs that factors other than play are more important for academic development.

Parent Play Questionnaire (PPQ)

The PPQ is a validated measure consisting of three subscales assessing the frequency of caregiver-child play and digital media use as well as caregiver attitudes toward play.[12] The Frequency of Parent-Child Play subscale consists of 8 items that measure how frequently caregivers engaged in different types of play with their child in the past two weeks (e.g., active physical play, noisy play, play with toys). The Frequency of Digital Media Use subscale consists of 3 items measuring child exposure to screens in the past two weeks (e.g., TV, computer). The Attitudes Towards Play subscale consists of 11 items assessing caregiver involvement in and enjoyment of play with their child in the past two weeks (e.g.,

[11] Fogle, L. M., & Mendez, J. L. (2006). Assessing the play beliefs of African American mothers with preschool children. *Early Childhood Research Quarterly*, *21*(4), 507-518.

[12] Ahmadzadeh, Y. I., Lester, K. J., Oliver, B. R., & McAdams, T. A. (2020). The Parent Play Questionnaire: Development of a parent questionnaire to assess parent–child play and digital media use. *Social Development*, *29*(4), 945-963.

"*Playing with my child can be a chore*", "*I take any opportunity to play with my child*"). The Frequency of Parent-Child Play and Frequency of Digital Media Use subscales are rated on a 6-point Likert scale ranging from 1 (never) to 6 (several times a day). The Attitudes Towards Play subscale is rated on a 4-point Likert scale, ranging from 1 (never) to 4 (always), with several items being reverse scored. The PPQ is scored by averaging the items for each subscale, with higher scores indicating a greater frequency of play or digital media use and more positive attitudes towards play.

Focus Groups

The focus group guide was developed by the research team through a collaborative process. The guide was semi-structured and included 10 questions assessing topics related to play habits (e.g., "*Can you describe a typical playtime scenario in your family*?"), information sources (e.g., "*Where do you typically get guidance on how to play with your child?*"), and program adaptations and development (e.g., "*What suggestions do you have for how we can encourage parents and caregivers to play more with their children*?"). These questions included additional prompts to ask follow-up questions based on participant responses. The complete focus group guide can be found in Appendix A.

Analysis

Descriptive statistics were used to summarize the sample of caregivers with complete survey data. Independent samples t-tests and ANOVAs were used to document differences in survey subscales across demographic factors. Separate linear regression models were performed for each outcome to examine the main effect of each demographic factor on play beliefs and behaviors. An alpha level of $p < 0.05$ was used to determine statistical significance for all analyses. Statistical procedures were conducted using SPSS Version 29.

An inductive thematic analysis approach was used to identify key themes within the qualitative focus group data.[13] Two independent coders initially read each focus group transcript to gain an in-depth understanding of the content. After familiarizing themselves with the transcripts, initial codes were generated; these codes were then reviewed by the coders before being grouped into overarching themes. Themes were refined, named, and defined through team consensus, and a final codebook was created. Themes from each transcript were then coded based on this final codebook using NVivo. Saturation was determined to be the point at which no new codes or themes emerged from the data.[15] During the final round of coding, each coder independently reviewed and coded 9 transcripts. Two randomly selected transcripts–one from a focus group conducted in English and the other from a focus group conducted in Spanish–were reviewed by both coders to document interrater reliability (percent agreement).

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[13] Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101.

[15] Naeem, M., Ozuem, W., Howell, K., & Ranfagni, S. (2024). Demystification and Actualisation of Data Saturation in Qualitative Research Through Thematic Analysis. *International Journal of Qualitative Methods*, *23*.

Survey Results

Sample Characteristics

A total of 600 caregivers completed the survey. Of the full sample, 21 (3.5%) were missing data on age, 6 (1%) were missing data on sex, and 34 (5.7%) were missing data on race. Caregivers with missing data were excluded, and the remaining 539 caregivers were retained for analysis. The demographic characteristics for the final analytic sample are displayed in Table 3. As shown, most caregivers were the parents of the pediatric patient (n=527, 97.8%). A majority of caregivers were female (n=506, 97.8%), were Hispanic/Latino(a) (n=418, 77.6%), were 25- to 34-years-old (n=273, 50.6%), and conducted their survey in Spanish (n=314, 58.3%). The caregiver sample further consisted of over sixty different ethnicities, with the largest groups being Mexican (n=196, 36.4%), Guatemalan (n=69, 12.8%), Ecuadorian (n=33, 6.1%), Haitian (n=22, 4.1%), and Dominican (n=16, 3.0%). A more detailed assessment of variability in caregiver demographics is presented in Appendices B through F.

Table 3. Survey sample characteristics (N=539)

Characteristic	Mean (SD) or n (%)
Relationship to child	
Parent	527 (97.8%)
Grandparent or Non-related Caregiver	12 (2.2%)
Caregiver sex	
Female	506 (93.9%)
Male	33 (6.1%)
Caregiver age	
18-24 years	91 (16.9%)
25-34 years	273 (50.6%)
35+ years	175 (32.5)
Caregiver race	
Black or African American	45 (8.3%)
White	33 (6.1%)
Hispanic/Latino(a)	418 (77.6%)
Other*	43 (8.0%)
Caregiver language	
English	205 (38.0%)
Spanish	314 (58.3%)
Haitian Creole	20 (3.7%)
*Other includes American Indian or Alaska Native, Asian, Middle Eastern or North African, Native Hawaiian or Other Pacific Islander, and Other	

As shown in Table 4, average responses to the survey subscales showed that **caregivers strongly believe that play supports child development and do not prioritize academic development over play.** Caregivers reported frequent play with their child, moderate digital media use, and positive attitudes toward play. Based on the average scores, **caregivers play with their children almost daily, and their children use digital media at least once or twice per week.**

Table 4. Survey subscale scores

Subscale	Mean (SD)
The Parent Play Beliefs Scale	
Play Support (range 1-5)	4.24 (0.39)
Academic Focus (range 1-5)	1.87 (0.79)
The Parent Play Questionnaire	
Frequency of Parent-Child Play (range 1-6)	4.74 (0.82)
Frequency of Digital Media Use (range 1-6)	3.67 (1.17)
Attitudes Towards Play (range 1-4)	3.39 (0.35)

Bivariate Analyses

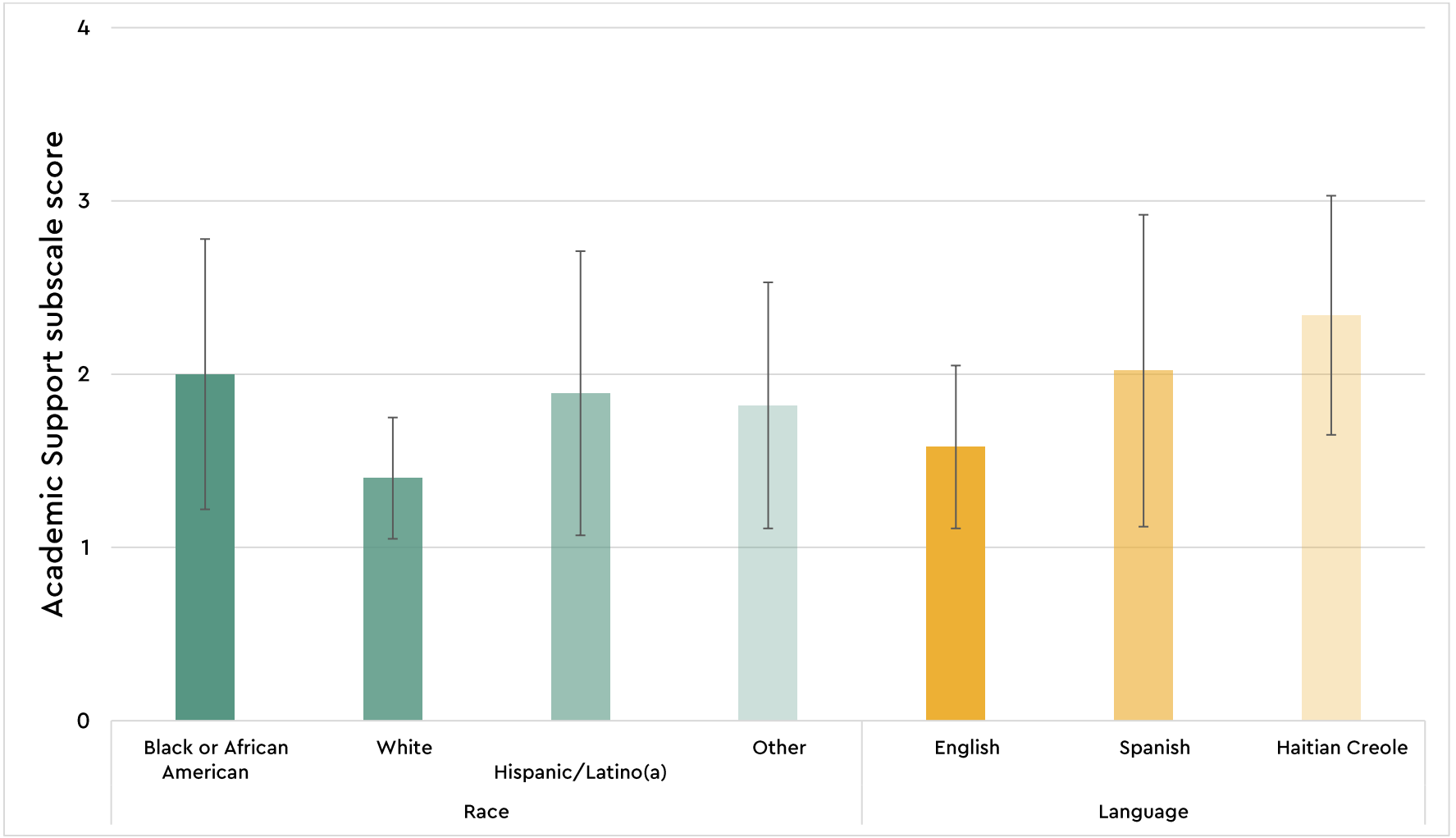
Differences in survey responses across caregiver demographics are presented in Tables 5 and 6. As shown in Table 5, **White caregivers and those who spoke English expressed the strongest beliefs in the developmental benefits of play relative to those belonging to other racial and language categories,** though the overall magnitude of these effects were small. Results further showed that **Black or African American caregivers and those who spoke Haitian Creole were most likely to report prioritizing academic activities over play,** especially when compared to White and English-speaking caregivers, who were least likely to do so (see Figure 5).

Table 5. Comparison of caregiver characteristics and Parent Play Belief Scale subscales

Characteristic	Play Support		Academic Focus	
	Mean (SD)	*p-value*	*Mean (SD)*	*p-value*
Caregiver age		.09		.41
18-24 years	4.16 (0.36)		1.95 (0.88)	
25-34 years	4.27 (0.42)		1.83 (0.75)	
35+ years	4.24 (0.37)		1.88 (0.82)	
Relationship to child		.55		.50
Parent	4.24 (0.39)		1.87 (0.80)	
Grandparent or Non-related Caregiver	4.31 (0.42)		1.71 (0.69)	
Caregiver sex		.71		.85
Female	4.24 (0.39)		1.86 (0.79)	
Male	4.27 (0.43)		1.89 (0.84)	
Caregiver race		**.03**		**.01**
Black or African American	4.24 (0.43)		2.00 (0.78)	
White	4.43 (0.40)		1.40 (0.35)	
Hispanic/Latino(a)	4.22 (0.38)		1.89 (0.82)	
Other*	4.30 (0.43)		1.82 (0.71)	
Caregiver language		**.01**		**<.001**
English	4.31 (0.42)		1.58 (0.47)	
Spanish	4.20 (0.37)		2.02 (0.90)	
Haitian Creole	4.24 (0.43)		2.34 (0.69)	

*Other includes American Indian or Alaska Native, Asian, Middle Eastern or North African, Native Hawaiian or Other Pacific Islander, and Other

Figure 5. Differences in Academic Support across race and language categories



With regard to play frequency, **White caregivers and those who spoke English reported playing with their children more often than those belonging to other racial and language categories** (see Figure 6). **There was no difference in digital media use or attitudes towards play across any caregiver demographic** (see Table 6).

Figure 6. Differences in frequency of parent-child play across race and language categories

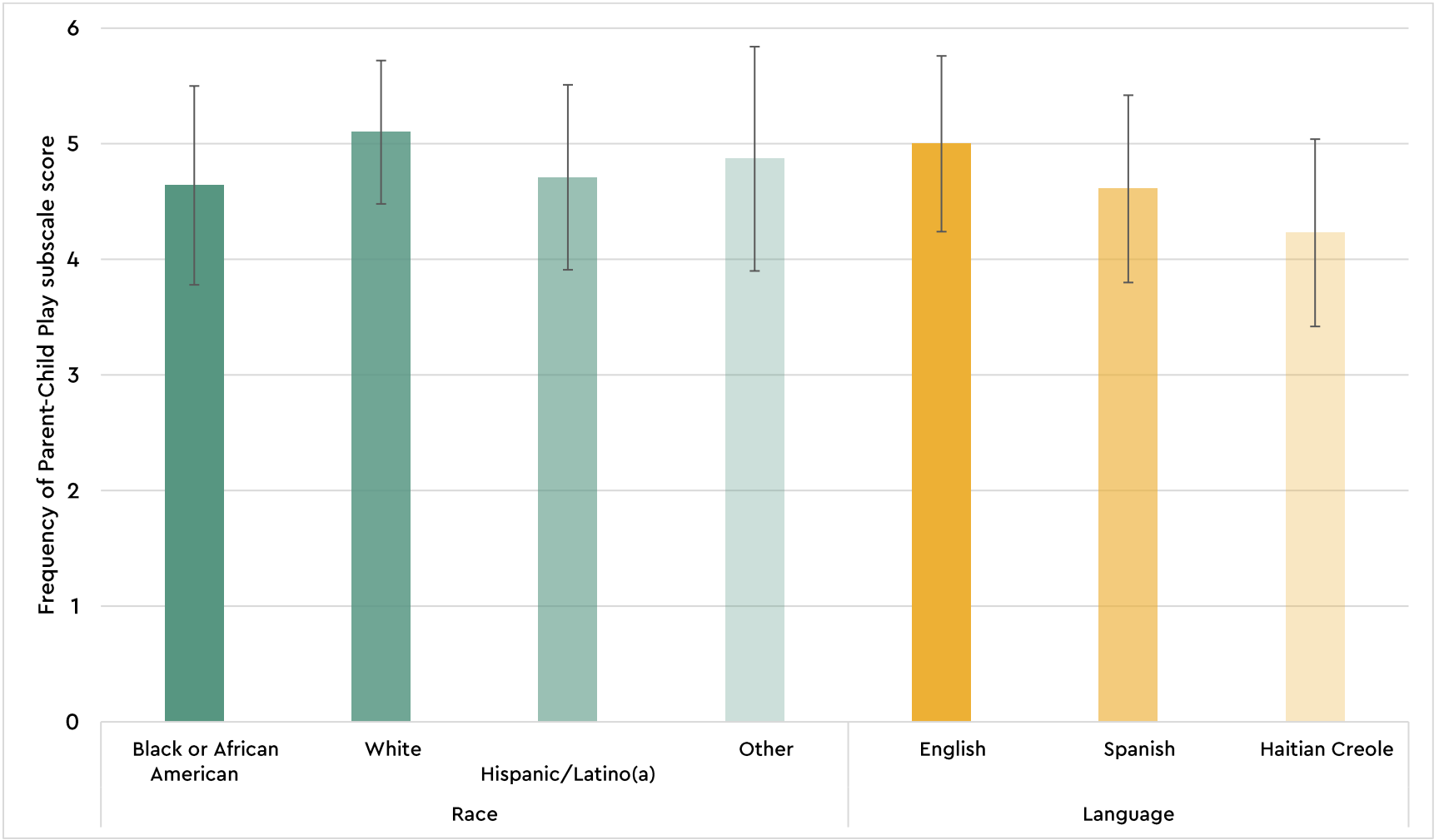


Table 6. Comparison of caregiver characteristics and Parent Play Questionnaire subscales

Characteristic	Frequency of Parent-Child Play		Frequency of Digital Media Use		Attitudes Towards Play	
	Mean (SD)	*p-value*	*Mean (SD)*	*p-value*	*Mean (SD)*	*p-value*
Relationship to child		.74		.75		.97
Parent	4.74 (0.81)		3.67 (1.17)		3.39 (0.35)	
Grandparent or Non-related Caregiver	4.67 (1.04)		3.78 (1.60)		3.38 (0.42)	
Caregiver sex		.86		.34		.17
Female	4.74 (0.80)		3.68 (1.16)		3.38 (0.35)	
Male	4.71 (1.00)		3.48 (1.33)		3.47 (0.27)	
Caregiver age		.20		.09		.40
18-24 years	4.76 (0.80)		3.43 (1.15)		3.43 (0.37)	
25-34 years	4.79 (0.81)		3.72 (1.09)		3.39 (0.33)	
35+ years	4.65 (0.83)		3.72 (1.30)		3.36 (0.37)	
Caregiver race		**.04**		.12		.13
Black or African American	4.64 (0.86)		4.07 (1.11)		3.40 (0.34)	
White	5.10 (0.62)		3.71 (1.06)		3.26 (0.34)	
Hispanic/Latino(a)	4.71 (0.80)		3.63 (1.17)		3.40 (0.34)	
Other*	4.87 (0.97)		3.62 (1.34)		3.34 (0.38)	
Caregiver language		**<.001**		.07		.55
English	5.00 (0.76)		3.74 (1.15)		3.37 (0.35)	
Spanish	4.61 (0.81)		3.60 (1.19)		3.40 (0.35)	
Haitian Creole	4.23 (0.81)		4.15 (1.00)		3.35 (0.30)	

*Other includes American Indian or Alaska Native, Asian, Middle Eastern or North African, Native Hawaiian or Other Pacific Islander, and Other

Regression Analyses

Results from the regression analyses assessing the relationship between caregiver demographics and PPBS subscales are displayed in Tables 7 and 8. **Results showed language to be a small but consistent correlate of the Play Support and Academic Focus subscales.** As shown in Table 7, **Spanish-speaking caregivers were less likely than English-speaking caregivers to endorse play as an important factor for child development,** though the magnitude of this effect was small. In addition, caregivers aged 25 to 34 were more slightly more likely to support play compared to younger caregivers. As further shown in Table 8, **caregivers who spoke Spanish or Haitian Creole were more likely to prioritize academic development over play when compared to those who spoke English**, though the magnitude of this effect was small. In addition, caregivers of other races were slightly more likely to prioritize academic activities over play compared to White caregivers. Other demographic factors, such as caregiver sex and relationship to the child did not significantly relate to the PPBS subscales.

Table 7. Multiple linear regression model relating caregiver demographics to the Play Support subscale of the Parent Play Belief Scale

Characteristic	Standardized β	95% CI	p value
Relationship to child			
Parent (ref)	--	--	--
Grandparent or Non-related Caregiver	.005	-.22, .25	.92
Caregiver sex			
Female (ref)	--	--	--
Male	.01	-.13, .15	.83
Caregiver age			
18-24 years (ref)	--	--	--
25-34 years	.12	.0004, .19	**.05**
35+ years	.09	-.03, .18	.14
Caregiver race			
White (ref)	--	--	--
Black or African American	-.13	-.38, .03	.09
Hispanic/Latino(a)	-.14	-.28, .01	.07
Other	-.07	-.28, .08	.26
Caregiver language			
English (ref)	--	--	--
Spanish	-.11	-.17, -.01	**.03**
Haitian Creole	-.01	-.25, .21	.89

Table 8. Multiple linear regression model relating caregiver demographics to the Academic Focus subscale of the Parent Play Belief Scale

Characteristic	Standardized β	95% CI	p value
Relationship to child			
Parent (ref)	--	--	--
Grandparent or Non-related Caregiver	.004	-.09, .10	.92
Caregiver sex			
Female (ref)	--	--	--
Male	.01	-.05, .07	.77
Caregiver age			
18-24 years (ref)	--	--	--
25-34 years	-.07	-.06, .02	.27
35+ years	-.07	-.07, .02	.28
Caregiver race			
White (ref)	--	--	--
Black or African American	.12	-.01, .16	.10
Hispanic/Latino(a)	.13	-.01, .11	.11
Other	.12	.003, .15	**.04**
Caregiver language			
English (ref)	--	--	--
Spanish	.24	.05, .12	**<.001**
Haitian Creole	.17	.06, .25	**.002**

Results from the regression analyses assessing the relationship between caregiver demographics and PPQ subscales are displayed in Tables 9 through 11. As shown in Table 9, **language again emerged as a small but significant correlate of play frequency, such that caregivers who spoke Spanish and Haitian Creole reported playing less frequently with their children compared to those who spoke English** (see Table 9). There were no additional effects of caregiver demographics on play frequency. With regard to frequency of digital media use, **age was the only correlate of digital media use, such that caregivers aged 25 to 34 reported using digital media somewhat more frequently with their children compared to younger caregivers** (see Table 10). Meanwhile, no caregiver demographics emerged as correlates of attitudes towards play (see Table 11).

Table 9. Multiple linear regression model relating caregiver demographics to the Frequency of Parent-Child Play subscale of the Parent Play Questionnaire

Characteristic	Standardized β	95% CI	p value
Relationship to child			
Parent (ref)	--	--	--
Grandparent or Non-related Caregiver	-.03	-.65, .30	.47
Caregiver sex			
Female (ref)	--	--	--
Male	-.01	-.31, .26	.87
Caregiver age			
18-24 years (ref)	--	--	--
25-34 years	.02	-.16, .22	.76
35+ years	-.03	-.26, .15	.59
Caregiver race			
White (ref)	--	--	--
Black or African American	-.05	-.57, .26	.46
Hispanic/Latino(a)	-.09	-.48, .13	.26
Other	-.06	-.54, .19	.34
Caregiver language			
English (ref)	--	--	--
Spanish	-.22	-.52, -.21	**<.001**
Haitian Creole	-.18	-1.23, -.29	**.002**

Table 10. Multiple linear regression model relating caregiver demographics to the Frequency of Digital Media Use subscale of the Parent Play Questionnaire

Characteristic	Standardized β	95% CI	p value
Relationship to child			
Parent (ref)	--	--	--
Grandparent or Non-related Caregiver	.01	-.61, .79	.79
Caregiver sex			
Female (ref)	--	--	--
Male	-.04	-.62, .21	.33
Caregiver age			
18-24 years (ref)	--	--	--
25-34 years	.12	.01, .57	**.04**
35+ years	.11	-.03, .58	.08
Caregiver race			
White (ref)	--	--	--
Black or African American	.07	-.30, .93	.32
Hispanic/Latino(a)	.02	-.39, .50	.82
Other	-.01	-.58, .50	.88
Caregiver language			
English (ref)	--	--	--
Spanish	-.06	-.36, .10	.27
Haitian Creole	.02	-.57, .82	.72

Table 11. Multiple linear regression model relating caregiver demographics to the Attitudes Towards Play subscale of the Parent Play Questionnaire

Characteristic	Standardized β	95% CI	p value
Relationship to child			
Parent (ref)	--	--	--
Grandparent or Non-related Caregiver	.01	-.18, .24	.78
Caregiver sex			
Female (ref)	--	--	--
Male	.07	-.03, .22	.13
Caregiver age			
18-24 years (ref)	--	--	--
25-34 years	-.04	-.11, .06	.51
35+ years	-.08	-.15, .03	.20
Caregiver race			
White (ref)	--	--	--
Black or African American	.14	-.001, .36	.052
Hispanic/Latino(a)	.15	-.01, .26	.07
Other	.05	-.09, .23	.41
Caregiver language			
English (ref)	--	--	--
Spanish	.03	-.05, .09	.61
Haitian Creole	-.05	-.29, .12	.43

Focus Group Results

Sample Characteristics

A total of 18 focus groups were conducted, with 10 sessions held in English and 8 in Spanish. Thirty-nine caregivers completed focus groups. Attendance ranged from 1 to 8 caregivers per session, with an average of 4 caregivers (SD=2) per session. Focus groups lasted an average of 45 minutes (SD=15). Although separate codebooks were considered for focus groups conducted in different languages, no thematic differences were identified between focus groups in English or Spanish, allowing the same codebook to be applied across all sessions. In developing the final codebook, saturation was reached after reviewing 8 transcripts. However, the coders reviewed and applied the final codebook to all transcripts for completeness. Percent agreement between coders for the two randomly selected transcripts was 99.4%.

As shown in Table 12, the focus group participants predominantly spoke English. Caregivers ranged in age from 21 to 62, with 84.6% (n=33) falling between the ages of 21 and 40. The majority of caregivers were female (n=36, 92.3%) and the parent of the child (n=34, 87.2%), with a small proportion of grandparents in attendance (n=4, 10.3%). In terms of racial and ethnic identity, 92.3% (n=36) of caregivers were members of racialized groups, with 69.2%

(n=27) identifying as Hispanic/Latino(a). Among those who specified their ethnicity, the most common responses were Mexican (n=9), Ecuadorian (n=5), Colombian (n=2), and Guatemalan (n=2).

Table 12. Focus group participant characteristics (N=39)

Characteristic	n	%
Relationship to child		
Grandparent	4	10.3%
Parent	34	87.2%
Missing	1	2.6%
Caregiver sex		
Female	36	92.3%
Male	2	5.1%
Other	1	2.6%
Caregiver age		
21-30 years	16	41.0%
31-40 years	17	43.6%
41-50 years	2	5.1%
51-62 years	1	2.6%
Missing	3	7.7%
Caregiver race		
American Indian or Alaska Native	1	2.6%
Asian	1	2.6%
Black or African American	3	7.7%
Hispanic/Latino(a)	27	69.2%
Other	4	10.3%
White	1	2.6%
Missing	2	5.1%
Caregiver language		
English	22	56.4%
Spanish	17	43.5%

Insights on Play

Across focus groups, caregivers overwhelmingly described finding play important for child development. As shown in Table 13, **caregivers reported benefits of play across domains related to cognitive, social, emotional, physical, and language development.** Caregivers also described engaging in a variety of different types of play with their children to support their development (see Table 14). Structured play activities, such as board games and puzzles, were often used to teach specific cognitive skills, including literacy and numeracy. Caregivers shared that unstructured play, such as imaginative role-playing or free exploration with toys, allowed children to express creativity. Physical play, including activities like running, climbing, and playing ball, was also highly valued for supporting physical health, building motor skills, and providing children with an outlet for energy.

Additionally, caregivers emphasized the social benefits of play, highlighting how it allows their child to build friendships and practice sharing and turn-taking. Across all types of play, caregivers highlighted the need to adapt play activities to suit their children's unique preferences and developmental stages, reflecting their thoughtful approach to nurturing growth through play.

Table 13. Primary developmental skills caregivers report are impacted by play

Developmental Skill	Sample Quote
Cognitive	*"He can play at times with his toy cars and a small car track he has, assembling the track. It is a track that can be assembled and disassembled. Sometimes we can see him putting it together to place his cars on the track."*
Social	*"We noticed he would play by himself, [so we started playing with him more] and that kind of gave him a little more confidence. And then, eventually, when we'd go introduce another family member or go to the park or something, I felt that he had, I don't know, just found some sort of confidence from being able to play by himself to go introduce himself to other kids and just start playing with them and teaching from them or learning from them and him teaching them what he knows."*
Emotional	*"I think that [play is] truly the part that regulates the other parts, to put it one way, because it gives them a lot of confidence and a lot of–sometimes, kids get stressed or something, whether from school or other situations, and play really helps them start controlling or regulating those emotions they start feeling."*
Physical	*"So luckily, I have a swimming pool. So that is a real energy–an energy releaser and also very good for the coordination."*
Language	*"So he can unload the silverware right now. Great. And we say it in English and Spanish what the utensils are. Sometimes in German, whatever language we can. We also have incorporated sign language into our house, by the way, at an early age when he was a baby just so that we could get those basics, and he loves it."*

Table 14. Types of play caregivers report engaging in with their children

Play Type	Definition	Sample Quote
Structured Play	Caregiver-facilitated play activities with clear goals, rules, or guidance.	*"We've played with LEGOs to build big houses, buildings, and animals, too. We build robots, like we imitate between–we help them, mainly. They ask for our help, and then we sit down and play that together."*
Unstructured Play	Free, self-directed play without specific goals or rules.	*"Well, me, she plays with toys, with her cars. She uses her imagination a lot."*
Digital Play	Use of technology (e.g., tablets, apps) in play activities.	*"She definitely will get my phone or the kid tablet and be able to manipulate and choose what she wants to watch, whether it's Netflix or YouTube Kids."*
Sensory Play	Activities that engage the senses, such as sight, smell, touch, taste, or hearing.	*"I kind of scoped the scenery, and I've seen the toys that–they have the sensory toys. So I try to get that stuff when I had my baby, when I had my son."*
Physical Play	Activities that involve gross or fine motor skills (e.g., running, climbing, building blocks).	*"Well, for me, I like to play a little more–how do I say it? How do I say? A little more running, that has more to do with physical activities."*
Imaginative Play	Pretend scenarios (e.g., role-playing as characters, using toys symbolically).	*"She likes to pretend a lot, so we do a lot of pretend cooking. She likes to play, like I'm the teacher, and she's a student. So she likes to do that, and we'll sit down and read. She likes a lot of imaginary as far as princess play or ballerina play."*
Creative Play	Arts, crafts, or music-related activities (e.g., drawing, playing instruments).	*"My kid likes to play, doing arts and crafts activities like painting."*
Cognitive Play	Problem-solving or educational activities (e.g., puzzles, board games).	*"Me and my kids, we do board games. So like old school, we love to play Malecala, Jenga, Uno with my older kids."*

Thematic analysis

As described in the sections below, the coders identified three overarching themes from the focus groups related to (1) general play beliefs and practices, (2) sociocultural approaches to play, and (3) barriers to play.

General Play Beliefs and Practices

Caregivers enjoy and prioritize play

Across cultures and communities, **caregivers frequently cited how much they enjoy playing with their children and prioritize it as often as they can,** even with competing demands like household chores, childcare for older children, or work. For example, one English-speaking caregiver described the importance of reserving just 10 to 20 minutes a day to play with their child:

> *"But the biggest thing is just as much as you need to set aside that time for your rest and to re-gear, I would just say if you can just put 10 to 20 minutes aside or as much as you can, 30 minutes aside, once or twice a day for your child, it doesn't matter what you're doing with them, they're going to love it."*

Caregivers often mentioned that playtime is a great time to "build friendship" and bond with their child and to watch their child's interests evolve in real-time by observing what activities they are most drawn to. Caregivers further reported being mindful of incorporating both structured and unstructured play with their children and described a range of enjoyable playtime scenarios, including outdoor activities at the park, creative play with coloring or singing, and cognitive play with LEGOs or reading. One English-speaking caregiver noted that kids often need scaffolding to learn how to play with certain toys, which also provides caregivers a chance to reconnect with their own childhood joy:

> *"And then you also enjoy playing with your kids because it brings back–when we first grew up–when we were growing up, we were learning. Now when you get to go back and how to do things the right way and learn how to teach your child it, it's a different joy in your heart that you're going to feel."*

Meanwhile, a Spanish-speaking caregiver touched on the importance of play for fostering curiosity and a positive disposition:

> *"And that's something I also tell the parents I've worked with and my husband too, to share no matter what. So whether it's the game, a toy, a word or a moment, share, always be willing. So, I think that's a good suggestion. Based on the good disposition that one has as a parent, teach children to have a very good disposition to learn, to play, to share, for whatever."*

Caregivers tailor play to the needs of their children

Caregivers consistently mentioned how they adapt play to meet the needs of their children, especially for those with developmental concerns. For example, one caregiver

noted that she emphasizes sensory play with her child with autism, so they can become more accustomed to overstimulation before attending school. Another caregiver focused on engaging in play that reinforces communication and language skills so their child would be comfortable with expressing their needs and desires without becoming frustrated. Multiple parents highlighted that physical play was essential for their children who experienced hyperactivity, noting that being able to release the extra energy helped with meals or naptime later in the day. They also noted how physical play seemed to improve cognition and communication skills for their children. For example, an English-speaking caregiver described how physical play helps her son with communication:

> *"I'm trying to teach my son no, the meaning of no. And just basically trying to express himself without biting. So he's not a biter, but he has bitten another kid when she was caressing him too much. He was uncomfortable. But yeah, I'm trying to teach him how to, I don't know, communicate because of his [disabilities] and things like that. So I don't want him to resort to biting because he is really adorable. So older kids love picking him up and snuggling him. And he has sensory issues. He's not a cuddly, lovey-dovey baby. So he's constantly, like, "Oh, get off him." But he'll bite because he's nonverbal. He bites and trying to refrain from having him do that anymore."*

Another English-speaking caregiver touched on how she adapts play to teach her child about how to respond to sensory stimulation and use his words with other children:

> *"He's got a lot of energy, and taking him outside really helps him burn some energy, me get a little rest, and then we bring him inside. And he's hungry from playing, so he gets to eat. And I just feel like he gets the frustration out because he has a little hard time—sorry. He has a hard time communicating a little bit. He's a little bit delayed, like putting two words together. I feel like after he has gone outside and he's burned a little bit of that energy, he's easier communicating what he wants."*

Caregivers are both cautious of and accepting towards technology

When asked about the role of screen time in how their child plays, **caregivers reported generally allowing their children to use tablets or their cellphone but always coupled with monitoring.** One English-speaking caregiver mentioned setting rules around the amount of time and type of content that their child engages with, especially on Youtube or with downloaded games or apps:

> *"I do monitor [my daughter's screen time] very closely because I know YouTube Kids can be weird sometimes."*

Some caregivers expressed concerns about setting boundaries with technology and not becoming over reliant on technology. For example, one English-speaking caregiver discussed the importance of helping her child work through his emotions rather than using technology to self-soothe:

> *"But once I notice that he doesn't get his way or if he gets upset, we don't just give him the YouTube or whatever, the show to watch, because [that's] the easy thing. We really try to talk to him or calm him down or try to re-introduce him to another activity."*

Most caregivers also reported being aware of the potential consequences of technology on their child's development, specifically with regard to cognition, emotional regulation, and eyesight from excessive screen time. **Caregivers also noted some benefits to incorporating technology into playtime,** including new skills gained through educational programs like Ms. Rachel and helping to distract their children. For example, one mother from an English-speaking household mentioned that she utilizes technology with her son when she needs a moment to rest or while they are on the go:

> *"For me, we usually give him his iPad when either we need a break, a short break from everything just to cool down on everybody's home, or if I am on the go, like, right now, I'm actually on the way to pick up my daughter. So I have to make sure he's not like, "Mommy, mommy," calling me every time while I'm on call. So I give him his iPad with pre-downloaded content so that he can just browse it without an issue."*

Sociocultural Approaches to Play

Caregivers incorporate their culture into play

Caregivers report incorporating their unique cultural backgrounds into playtime by engaging their children in expressive forms of play, such as dance (e.g., salsa, bachata), singing, and cooking. They described these activities as being deeply rooted in their cultural traditions, noting that they provide an immersive way for their children to connect with their heritage. Caregivers also highlighted that these activities are cost-effective as they require little to no financial investment while promoting creativity, bonding, and skill-building. **By prioritizing movement, sound, and shared experiences through cooking and dancing, caregivers are able to engage in play that is both culturally rich and economically accessible** as one Spanish-speaking caregiver mentioned:

> *"Because when someone plays music, well, I play with them. They jump and pretend to dance salsa. So apart from dancing, we played. And the other thing about culture would be food..."*

Caregivers noted that these activities also serve as a platform for teaching essential life skills–like teamwork, communication, and adaptability while fostering emotional well-being and resilience. For instance, caregivers stated that collaborative cooking can impart lessons in patience and cooperation, while dance and singing can encourage self-expression and confidence. For caregivers of boys, there was an additional emphasis on incorporating cooking or household life skills through play from an early age to normalize these activities and move away from traditional roles, with one English-speaking caregiver describing the following:

"But in our house, we've taken on–I personally took off those gender biases with my children. So with this one, it doesn't exist. I have a husband who isn't a great cook, but [our grandson is] a great cook. When he cooks, we love it. He also helps. Our grandson helps with those things."

Personal values influence how caregivers play with their children

Focus group discussions frequently underscored that **beliefs about play and its significance are deeply intertwined with caregiver values.** Caregivers emphasized that learning values–like sharing and patience–is an integral part of play in childhood. **The values caregivers prioritized through play often reflected their aspirations for their children's social and emotional development.** These findings suggest that caregivers from varied backgrounds regard play, not only as a form of entertainment, but also as a vehicle for instilling core life principles. For example, a Spanish-speaking caregiver touched on the importance of instilling confidence and autonomy by recognizing her son's achievements since she recognized the value of that from her own childhood:

"I think it would be that I'm teaching him to celebrate his achievements. That's something that no one ever taught me, so it's something that I'd have liked to have been taught, so I try to teach my children. It's important, I think. And also teach autonomy."

An English-speaking caregiver further described how she promotes empathy and respect for other cultures through language learning:

"But a value for bilingualism and different cultures and differences, and I guess empathy falls under that. So just being respectful of anyone regardless of who they are, what they look like, where they come from, and what their lifestyle is. I guess just respecting and embracing other people's lifestyles and cultures and languages and just absorbing as much as you want and don't want and minding your business and just being in awe with the world and the human experience. And I know that sounds like something for an older child, but I think it starts from the beginning, like that. No judgment, empathy, all of those things."

In this way, caregivers can use play as a tool to shape behaviors and the broader developmental goals they set for their children. **Play was also viewed as an opportunity to reinforce familial bonds and strengthen community ties,** with many caregivers incorporating group or intergenerational activities into their play routines. By incorporating personal values and family connections into play, caregivers reported creating meaningful experiences that go beyond simple fun and help their children build important life skills and develop a strong sense of identity

Caregiver sex influences play approaches

During discussions about playtime dynamics, a theme surfaced regarding caregiver sex and its impact on play approaches. **Male caregivers frequently engaged in more active, physical play, such as running or other outdoor activities while female caregivers leaned more toward structured or cognitive play.** One male Spanish-speaking caregiver illustrated this dynamic, sharing:

> *"Well, for me, I like to play a little more–how do I say it? How do I say? A little more running, that has more to do with physical activities. When it comes to my partner, she usually plays coloring, memory games, and stuff like that. So I would be a little more hands-on, and then she would be more just trying to play memory games and stuff like that."*

Most focus group participants were female and expressed a preference for creative or cognitive types of play, such as reading. For example, one female English-speaking caregiver, discussed how she noticed reading increasing her child's engagement and vocabulary development:

> *"I think reading is such a big thing that has helped my kid learn new words and be as far as he is with everything, completely growing and learning".*

Although female caregivers acknowledged their children's enthusiasm for physical play, regardless of the sex of the play partner, many expressed concerns about the potential risk of injury associated with these activities. This apprehension often shaped their preference for creative or cognitive play, which they perceived as safer while still fostering their children's development. For example, one female English-speaking caregiver, mentioned:

> *"But in terms of the rough play, not me, that's my husband. That's his dad. And I literally have to just walk away noticing. For me, I'm like, "Ugh." They scare me. They're not doing anything dangerous. I'm grandma."*

Barriers to Play

A recurring theme across focus groups were the **significant challenges caregivers face in finding time to play with their children.** Many caregivers expressed that their daily responsibilities, including work, household duties, and other obligations, leave little room for dedicated playtime. An English-speaking caregiver expressed challenges in engaging in play with their child, citing difficulties in managing daily household responsibilities:

> *"I'd say that what makes it difficult for me would be having to do work around the house. I have to cook before I have to go do laundry or clean around the house. It makes it hard because he kind of slows–he slows me down because he's a child."*

Additionally, a Spanish-speaking caregiver highlighted how the demands of their strenuous daily responsibilities create challenges in playing with their child, leading to feelings of neglect:

> *"The hardest part is work, I think, and that we have to do everything. But I feel like planning, creating times, that helps us because–a routine both for them and for us, because you have to think of things to do and it never ends. I have–I have four children, but two of them are much older. One of the things that I used to do is I'd spend a lot of time cleaning the house and getting the kids ready and presentable, and I neglected spending time with them."*

This lack of time often creates feelings of guilt or frustration, as **caregivers recognize the value of play in fostering their child's development but struggle to balance it with competing priorities.** Some caregivers further noted that even when time is available, fatigue and stress from their demanding schedules can limit their capacity to fully engage in play. These barriers are particularly pronounced in households where caregivers work multiple jobs, have limited access to childcare support, or face economic pressures. For example, a Spanish-speaking caregiver highlighted financial stressors as a significant barrier to engaging in play with their child:

> *"In my case, it's also similar to [other focus group participant], that I worked here at home, I'm a designer and I had a job–they brought me work to the house for dry cleaning and alterations, but I couldn't receive work anymore, precisely due to the kids. The girl can grab a pin, she can eat it, they pull on the machine, they pull my clothes. So, I can't work, so it's less money, that's also a concern".*

Despite these challenges, **caregivers often find creative ways to embed play into daily routines, such as turning mealtime into a playful interaction or incorporating educational games during household tasks.** An English-speaking caregiver shared how they incorporate cooking as a form of play to address challenges arising from their demanding schedule. This approach allows them to engage their child in a meaningful and interactive activity while balancing their daily responsibilities:

> *"I work all day, so it's hard for me. So I try to fit it in right before bed. I don't know if that's good, but I like to do that right before bed. And then I make sure that on the weekend, when I am off that I'm playing with her. I make sure to give her my full attention because during the weekday it is very hard. I come home. I have to cook. I have to do things like that. I do incorporate her basically cooking with me, though. So we do that together. I don't know if that's a form of playing, but she does come home, and she helps me cook".*

Caregiver Suggestions for Program Development

Caregivers shared valuable insights on strategies to foster engagement in play, highlighting practical, community-grounded, and motivational suggestions. Caregivers emphasized the importance of practical strategies, such as offering simple, actionable ideas that could easily fit into daily routines. For example, one English-speaking caregiver suggested several practical ways caregivers could incorporate play into their everyday lives showing the importance of incorporating seasonal and outdoor activities into play routines while also ensuring accessibility and variety in play options at home:

> *"I think my biggest suggestion for caregivers and parents to enjoy more play time with children are outdoor activities. Even as the seasons change, we have to adapt to nature and become more aware of the seasons and surroundings. I think some cool fall-time outdoor activities would be cooking outdoors or even eating outdoors, as well as engaging in a lot of physical activity. Yard work and tending to a garden or outdoor area is important. Rearranging toys for easier access is*

another idea—maybe get some soccer balls to kick around. And we always kept sleds at home, ready for the snow to come."

Caregivers also highlighted the need for community-specific approaches, which include recommendations rooted in traditional values or community norms. These approaches often emphasize community resources, events, and networks to support engagement in play. For example, one English-speaking caregiver shared how their school provides valuable resources, which shows the role of schools and local organizations in fostering connections and providing accessible opportunities for play:

"I get a lot of resources from my diverse school. So they have a chat, and they send me a lot of flyers of events. So I think that's always—I think community is also very helpful of what's going on in your community. So you can get more involved or have your child involved."

Additionally, caregivers shared motivational messages during the focus groups to encourage and inspire other caregivers to prioritize more play with their child. As mentioned previously, caregivers often experience challenges when trying to prioritize play with their child. Motivational messages can serve as a catalyst for caregivers to play more with their child and a reminder to caregivers on the impact they have on their child. For example, one Spanish-speaking caregiver emphasized the importance of getting back to basics with play:

"I think it would be like focusing more on finding simple things to play with sometimes. The truth is, we don't need to have special toys, so sometimes we need to start drawing, jump rope, start like–sometimes I hide something here in the house and send the kids to go look for it."

This reflects a broader understanding that play, even with simple items is a critical component of a child's development. Motivational messages can help shift the focus from the challenges caregivers face to internal motivations, fostering a sense of responsibility for nurturing a child's well-being.

As shown in Table 15, caregivers also discussed receiving **information about play from a variety of sources, including healthcare providers, local resources, social media, and past experiences**. They highlighted how advice from pediatricians or social workers often shaped their understanding of age-appropriate activities, while local resources such as social service programs (e.g., WIC) and libraries provided accessible resources and workshops. Social media was frequently mentioned as a source of creative ideas and strategies, though caregivers expressed skepticism about its reliability. Caregivers also emphasized the role of advice passed down from family members as well as tips shared by friends, who provided practical and relatable strategies based on their own parenting experiences. These social circles were described as trusted sources of guidance, offering insights that felt both familiar and relevant to their daily lives.

Table 15. Top information sources caregivers use to learn about play

Source	Examples	Sample Quote
Healthcare and service providers	Pediatrician, social workers	*"I mostly trust his pediatrician because my son's pediatrician was my pediatrician, too. So I feel like her giving me advice on how to play with him, what to play with him, is a little bit more comforting."*
Social circles	Family, friends, community members	*"I really turn to, mainly to my mother. I always tell her, "Mommy, this happens, that happens, what do you think?" She always starts with the phrase: "Children today are very different, but something worked for me with you" - because we are three sisters - "Such and such a thing worked for me with you." Other times she tells me, "I don't know why that never happened to me." So, I ask my mother-in-law, and she tells me, "Maybe this will work for you." Depending on the situation, I tell my sisters or my sisters-in-law, who are already mothers."*
Local resources	Library, parenting classes, social service programs (e.g., WIC)	*"I try to keep up with a lot of local programs. I have WIC and food stamps and Access, and they're always trying to send me links for HealthyParents.org, which is like a website that I know of. And they have a lot of programs...And there's a lot of local programs. So I just went to a car show this weekend and it's called Parents Aid. And they have classes, like different ways to play with your kids. Or it could be information where they can learn as well as play, and the library."*
Social media	Youtube, TikTok, Instagram	*"But watching things on YouTube has also helped me a lot, for example about food, healthy games, especially children's books. I feel like I've become much more informed with my second daughter than with the first one, and that's helped me a lot."*
Internet	Websites, online resources	*"For example, I look a lot on the internet. I look for creative activities for two-year-olds. I mean, I'm guided more by the internet. Because there are a lot of things that I also don't know, despite–and the truth is that I do like to inform myself, in that sense, I do like to look for recreational activities for kids, so I do rely a lot on the internet."*

Phone apps	Peanut App, BabyCenter	*"The Peanut. Yeah. So that app is really good. It has a very large group of moms that are there for each other. And it's just nice. It's support, not just for parenting but other things as well. So I feel like that's a good resource to have. If people are looking for ways to help with ideas for play and things like that with their kids, that is a good resource as well."*
Television	Ms. Rachel, Blippi, Mickey Mouse, Cocomelon	*"Ms Rachel, I do. I have done a lot of research on her and how she came to do what she does and everything because her son was a delayed child. And that's what made her get into everything and learning different ways to engage kids and teach kids. And so I am a wholehearted Ms. Rachel fan. I love that she teaches inclusivity and things like that with other children in different types of races and things like that. So I really, really like Ms Rachel for that."*
Subscription services	Book subscriptions (e.g., Literati), toy subscriptions (e.g., Lovevery® Play Kits)	*"And then all these things, I see as things that I can pass on to my other children because I do plan on having at least one more. So I have this thing called Lovevery, and it's very expensive, but I do quality over quantity. I don't buy my child–it's a toy subscription, essentially. I don't buy my child toys outside of this. It's just whatever he gets in the mail. You get it every three months. And it's toys that are geared towards his development, his brain development. And they're wooden wood, some plastic, but they're open-ended toys that come with a little booklet. And the booklet will tell you what the milestones are for that time period and how you can teach your child to play with these toys, as well as how you can just watch them do different things with them. And I feel like that helps a lot because I don't have to find out what to do. They just come in, and I set them up."*
Prior or past experience	Relying on past experience working with, raising, or interacting with children	*"I kind of learned from just my previous jobs, such as working with kids and children. I also worked at a daycare, the very same one he worked at. So I kind of scoped the scenery, and I've seen the toys that–they have the sensory toys. So I try to get that stuff when I had my baby when I had...my son. And as he became a toddler and started growing, I try to just maintain the things that I learned from work and things like that."*

Limitations

This study had several limitations. Because we wanted a sample with varied language speakers, we recruited research sites with large populations of Spanish-speaking patients. Consequently, a majority of participants identified as Hispanic/Latino(a), which limits generalizability to caregivers from other racial and ethnic backgrounds. Similarly, nearly all caregivers were female and the parents of the child, underscoring the need for additional efforts to strategically recruit male caregivers and those with varied relationships to the child to better understand how play differs across these particular subpopulations. Although we successfully recruited caregivers who spoke Haitian Creole to complete the quantitative survey, we were unable to recruit Haitian Creole-speaking caregivers to attend focus groups, which limits our ability to further contextualize the findings for this particular demographic.

Summary

This mixed-methods evaluation assessed how play beliefs and behaviors vary across caregivers. **The 539 caregivers who completed the survey represent one of the largest and most varied samples to ever evaluate differences in play.** Focus groups further provided rich contextual information, allowing for a deeper understanding of how caregivers view, prioritize, and approach play with their children. The key findings from this assessment include the following:

- Caregivers hold strong beliefs that play supports child development and do not generally prioritize academic development over play.
- Caregivers play almost daily with their children and allow their children to use digital media at least once or twice per week.
- Caregiver language was the most consistent correlate of variability in play beliefs and behaviors.
    - Compared to caregivers who spoke English, those who spoke Spanish or Haitian Creole were more likely to prioritize academic activities over play and reported playing less frequently with their children.
    - Spanish-speaking caregivers also reported fewer developmental benefits of play relative to English-speaking caregivers.
- Caregiver age also emerged as a correlate of play, with 25- to 34-year-old caregivers being more likely to acknowledge the developmental benefits of play and to let their children use digital media more frequently than younger caregivers.
- Despite the language differences that emerged from the quantitative survey, the thematic analysis revealed that caregivers from the English- and Spanish-speaking focus groups held similar views of and approaches towards play.
- Focus group discussions showed that caregivers recognize the importance of play, engage in a variety of play activities, and seek out information about how to play with their children from multiple sources.
- In line with the survey results, focus group participants described enjoying and prioritizing play with their children.
- Caregivers further discussed ways that they adjust play to both meet the needs of their children and to infuse the cultural beliefs and values they want their children to exemplify.

- With regard to digital media use, caregivers reported being both cautious and accepting of technology, with many noting the benefits of screen time while also acknowledging the need to regulate their children's use of technology.
- The focus groups provided additional insight into the many barriers to play that caregivers face. Caregivers described struggling to balance competing demands and find time to play with their busy schedules.
- Caregivers provided valuable insight for program development through the use of practical, community-grounded, and motivational messaging to support caregivers with play.

Key takeaways

Over the last year, the P4P research team sought to contribute to the literature regarding play in early childhood, exploring how P4P impacts children's development and to understand how caregivers play with their children day to day.

In the Longitudinal Assessment of P4P Outcomes, we piloted a study to explore the relationship between exposure to P4P and changes in socioemotional competence. In addition, the assessment investigated the potential for P4P to influence changes in the home environment. The findings from this study help to lay the groundwork for future research regarding the longitudinal impacts of P4P.

Key findings from the Longitudinal Assessment

- **Recruiting, retaining, and assessing** caregivers longitudinally.
- **Socioemotional competence** for 18- to 36-month-old children, regardless of P4P exposure, **remained relatively stable** when assessed over a 3-month time period.
- **Families generally obtained more play-related learning material over time**, regardless of P4P exposure, though these effects did not persist after controlling for demographic factors.

In the Mixed Methods Assessment of Caregiver Variability in Play Beliefs and Behaviors, we utilized a mixed-methods approach to explore how the type and frequency of play as well as beliefs about play vary across caregivers. In addition, we investigated the barriers to play caregivers face and their suggestions for program development. Through research with 539 caregivers, including 39 who completed focus groups, this mixed methods approach offered a rich investigation, revealing similarities among caregivers across demographics as well as a few variances.

Key Findings from the Mixed-Methods Assessment

- Across demographics, caregivers reported **frequent play with their child**, **moderate digital media use**, **positive attitudes toward play**, and described **enjoying and prioritizing play** with their children
- Caregivers discussed ways they **adjust playing** to both meet their children's needs and to **infuse their cultural beliefs and values**.

- Surveys indicated variance along linguistic demographics, where Spanish- and Haitian Creole-speaking caregivers prioritized academics over play and reported playing less frequently with their children compared to English-speaking caregivers. Spanish-speakers also perceived fewer developmental benefits of play than English-speakers. Focus groups, however, revealed **caregivers from the English- and Spanish-speaking focus groups expressed similar views of and approaches towards play.**
- Caregivers aged **25- to 34-year-old were more likely to acknowledge the developmental benefits of play** and to let their children use digital media more frequently than younger caregivers.
- Caregivers learn about play through many sources and recommend that **play-promotion interventions focus on promoting practical strategies** for play, provide **motivational messaging**, and consider **varied family approaches** to play.
- Caregivers described **struggling to balance competing demands** and find time to play with their busy schedules.

Key Takeaways for P4P Program

From these findings, it is evident **caregivers want to, and even enjoy, playing with their children**. However, caregivers have concerns related to limitations of time and information overload on recommended ways to play and parent. Considering this, we have synthesized a few ways P4P providers can adapt their practice to inform discussions about play in a health care setting, while helping to mitigate limitations and address the key concerns of caregivers.

First, participating caregivers named providers as a key resource for their parenting and play advice. *P4P providers can leverage this trusted dynamic with caregivers to discuss the benefits of play with young children, knowing that most caregivers are receptive to their advice.*

In addition, to help combat caregiver fatigue and time constraints, *P4P providers can follow the requests of caregivers and focus on practical guidance and motivational materials that discuss ways to play with one's child*, using resources like those being developed by the P4P team or from other trusted sources.

Lastly, screen time and media usage was a key topic for caregivers, with most reporting moderate usage with their children as well as some skepticism of what the proper guidance is for young children. *P4P providers can use program resources to address concerns about media usage and screen time, discussing how play without screens can contribute to a child's development* alongside other evidence-based guidance.

Future directions

Both studies demonstrated key successes and challenges of research regarding the P4P program and are making integral contributions to research regarding play in early childhood.

Successes and Limitations

The Longitudinal Assessment of P4P Outcomes demonstrated great promise for future studies with major successes in longitudinal retention of participants. **Overall, this study supports the feasibility of recruiting and retaining caregivers of young children for longitudinal research in safety-net settings**.

The Mixed-Methods Assessment of Caregiver Variability in Play Beliefs and Behaviors demonstrated success with a large sample of 539 caregivers across five research sites, **one of the largest, most varied samples to ever evaluate demographic variability in play**. Additionally, findings from this study highlight the need for more in depth research regarding play behaviors and beliefs across caregivers to better understand the reality of play in childhood and how to create acceptable recommendations and programs for all families.

Alongside these successes, a few factors created limitations within these studies. Due to time constraints with a shortened follow-up period in the Longitudinal Assessment, detection of social and emotional competence and changes in home environment were limited. In addition, the sample of participants recruited for the Mixed-Methods Assessment were predominantly Hispanic/Latino(a), Spanish-speaking, and female, limiting generalizability to caregivers from other racial and language backgrounds.

Building a Case Control Study on P4P Outcomes

The successes of 2024's research endeavors demonstrate the feasibility of our team to execute a rigorous, longitudinal, multi-site study on P4P outcomes. In addition, the limitations of both the Longitudinal Assessment and the Mixed-Methods Assessment demonstrate several ways we can enhance study procedures in the future to 1) increase the number of caregivers assessed and 2) ensure sufficient follow-up time frames to assess changes in development.

Over the course of the next three years, our team will implement a case-control study across five participating research sites to evaluate the impact P4P on longitudinal developmental outcomes, including factors related to children's mental, physical, and social health. By recruiting 18- to 36-month-old participants who do (N=500) and do not (N=500) receive P4P for longitudinal follow-up across clinics implementing P4P, this case control study design will offer a robust quasi-experimental approach.

Participants will complete researcher-designed surveys at baseline and again 1 and 2 years later, assessing multiple domains relating to play and child development. Among children who receive P4P (N=500), an exploratory study of electronic health record data will be

conducted to examine whether continued conversations about play in well-child visits influence developmental outcomes in a dose-dependent manner. Propensity score matching will be used to better estimate the effect of P4P on developmental outcomes relative to usual care. Conducting a study such as this will assist in filling a wide gap in the literature related to the impact of play-promotion interventions on child development.

Appendix A: Focus Group Guide

Play Conception & Habits

1) (*Free listing exercise*) Name the different ways your child plays.
2) Can you describe a typical playtime scenario in your family?
    a) Follow-up prompts: When does your family fit in play? Who usually plays with your child? If applicable, do you notice any differences between how you and your partner play with your child?
3) What role does technology have in your child's playtime?
4) How does your cultural heritage (things like family background, upbringing, or personal values) shape your approach to play with your child?
    a) Follow-up prompts: Are there any toys, activities, or games that are popular in your community or culture? Any games, toys, or activities that your parents or family played with you that you are passing onto your child?
5) What role do you think play has in your child's development (like cognitive, social, emotional, or academic skills)?
    a) Follow-up prompt: What specific skills or values do you try to emphasize through play with your child (things like sharing or learning life skills)?
6) In your everyday life, what makes it hard to play with your child?
    a) Follow-up prompt: How do you overcome these challenges?

Information Sources

7) Where do you typically get guidance on how to play with your child (For example, tiktok, youtube, grandparents, friends, pediatrician)?
    a) Follow-up prompt: Of these resources, who do you trust the most and why?

Adaptations & Development

8) What suggestions do you have for how we can encourage parents and caregivers to play more with their children?
    a) Follow-up prompt: What resources would you find helpful in supporting playtime with your child?

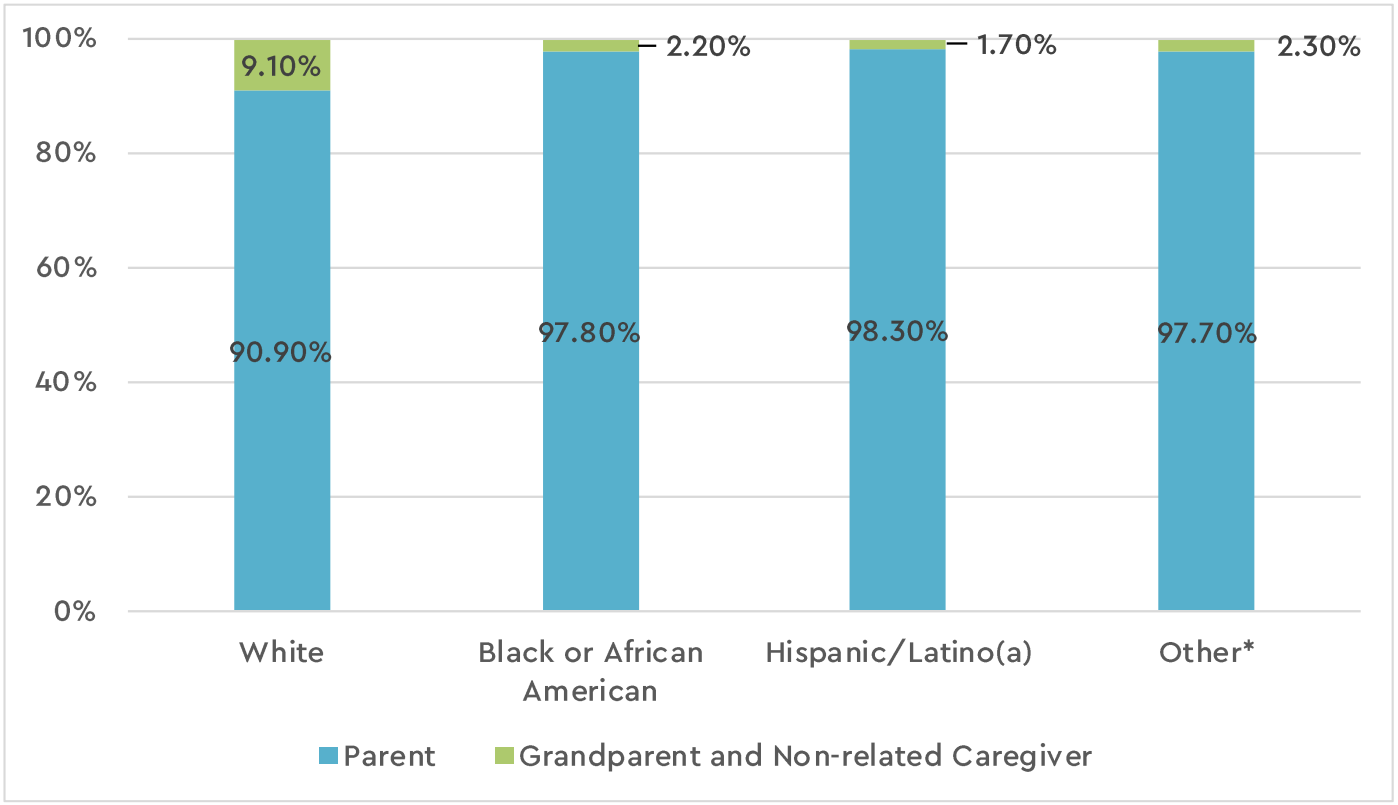
Appendix B: Caregiver Demographics by Race

Table B. Caregiver demographics by race

	Total (n=539)	**White (n=33)**	**Black or African American (n=45)**	**Hispanic/ Latino(a) (n=418)**	**Other* (n=43)**	
Characteristic	*Mean (SD) or n (%)*	*Mean (SD) or n (%)*	*Mean (SD) or n (%)*	*Mean (SD) or n (%)*	*Mean (SD) or n (%)*	*p-value*
Caregiver Age						**.01**
18-24 years	91 (16.9%)	4 (8.9%)	82 (19.6%)	4 (9.3%)	1 (3.0%)	
25-34 years	273 (50.6%)	21 (46.7%)	203 (48.6%)	30 (69.8%)	19 (57.6%)	
35+ years	175 (32.5%)	20 (44.4%)	133 (31.8%)	9 (20.9%)	13 (39.4%)	
Caregiver Sex						.59
Female	506 (93.9%)	30 (90.9%)	44 (97.8%)	392 (93.8%)	40 (93.0%)	
Male	36 (6.1%)	3 (9.1%)	1 (2.2%)	26 (6.2%)	3 (7.0%)	
Relationship to Child						.06
Parent	527 (97.8%)	30 (90.9%)	44 (97.8%)	411 (98.3%)	42 (97.7%)	
Grandparent or Non-related Caregiver	12 (2.2%)	3 (9.1%)	1 (2.2%)	7 (1.7%)	1 (2.3%)	
Caregiver Language						**<.001**
English	205 (38.0%)	30 (90.9%)	24 (53.3%)	121 (28.9%)	30 (69.8%)	
Spanish	314 (58.3%)	3 (9.1%)	1 (2.2%)	297 (71.1%)	13 (30.2%)	
Haitian Creole	20 (3.7%)	0 (0.0%)	20 (44.4%)	0 (0.0%)	0 (0.0%)	

*Includes American Indian or Alaska Native, Asian, Middle Eastern or North African, Native Hawaiian or Other Pacific Islander, and Other

Most caregivers were between the ages of 25 and 34, with age distributions varying significantly across different racial and ethnic groups. Language also reflected significant differences, with English being the predominant language for White and Black or African American caregivers, while the majority of Hispanic/Latino(a) caregivers spoke Spanish. The variability in caregiver demographics by race are further displayed in the figures below.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90.90%
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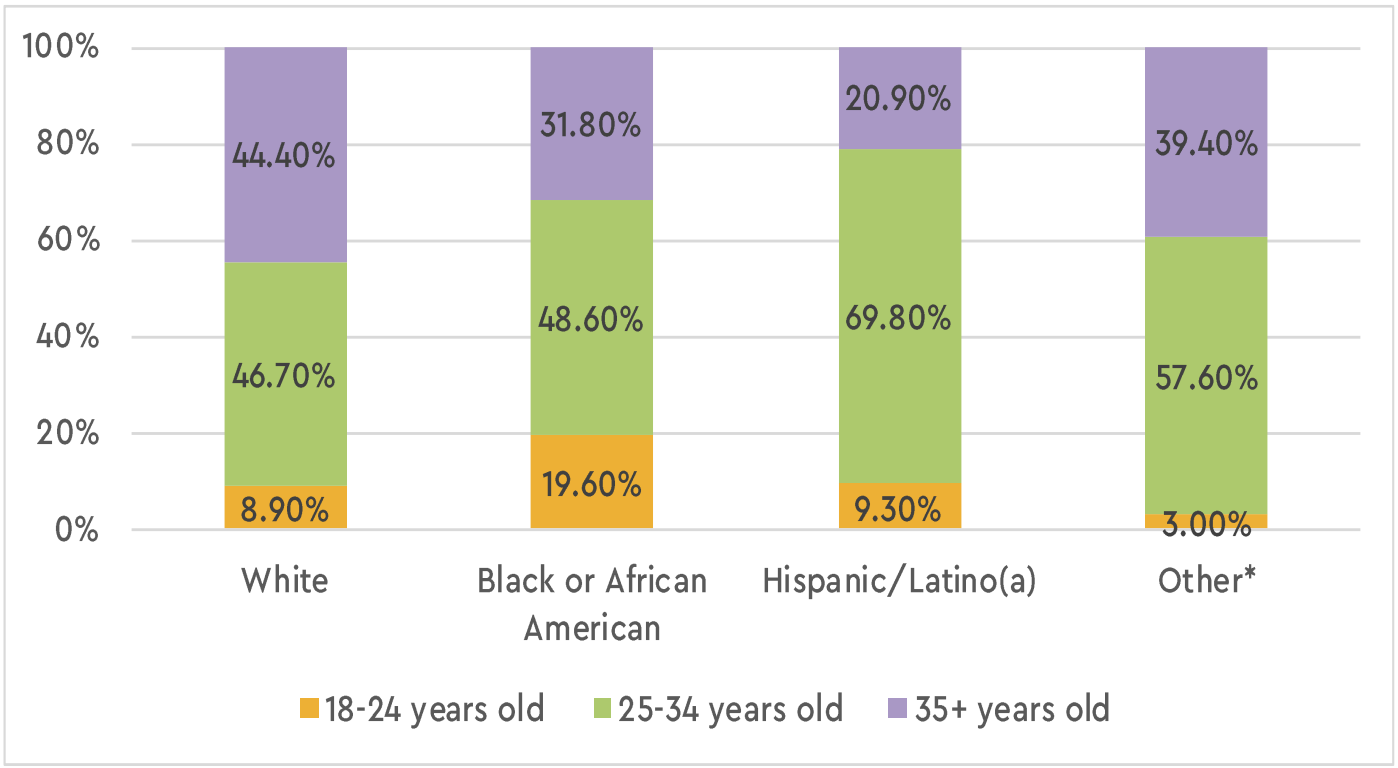
97.80%
1.70%
98.30%
2.30%
97.70%
White
Black or African American
Hispanic/Latino(a)
Other*
Parent
Grandparent and Non-related Caregiver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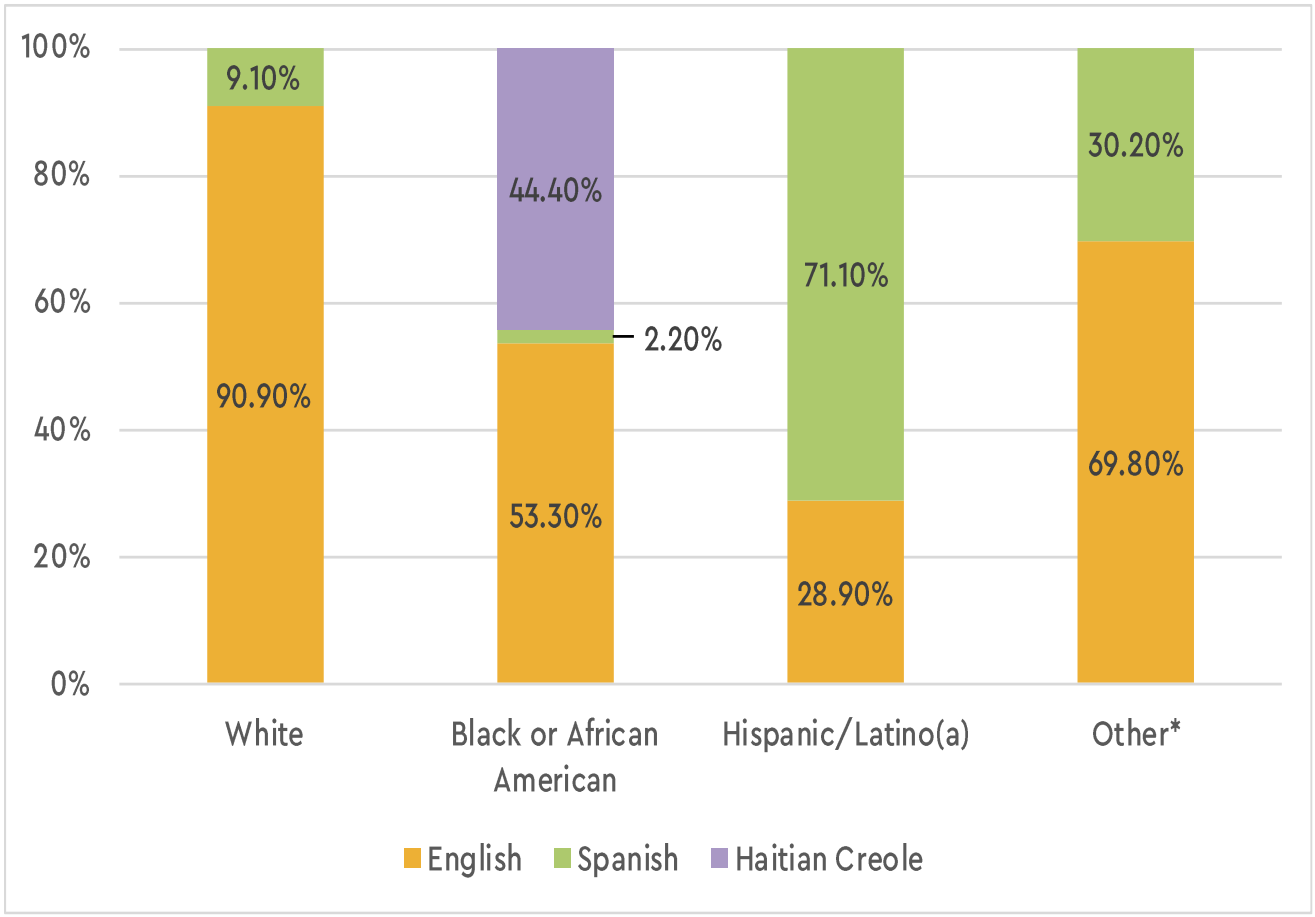
20.90%
69.80%
9.30%
39.40%
57.60%
3.00%
White
Black or African American
Hispanic/Latino(a)
Other*
18-24 years old
25-34 years old
35+ years old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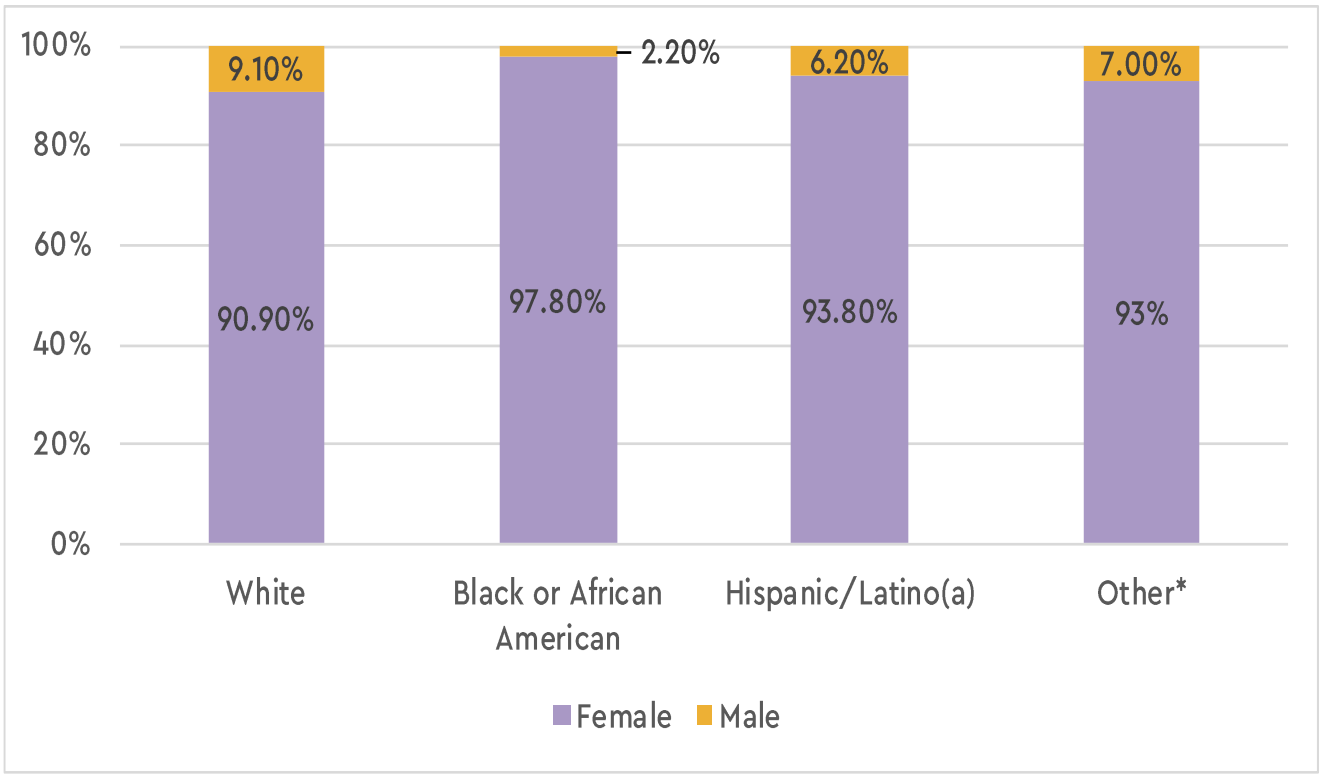
90.90%
44.40%
2.20%
53.30%
71.10%
28.90%
30.20%
69.80%
White
Black or African American
Hispanic/Latino(a)
Other*
English
Spanish
Haitian Creole


100%
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0%
9.10%
90.90%
2.20%
97.80%
6.20%
93.80%
7.00%
93%
White
Black or African American
Hispanic/Latino(a)
Other*
Female
Male

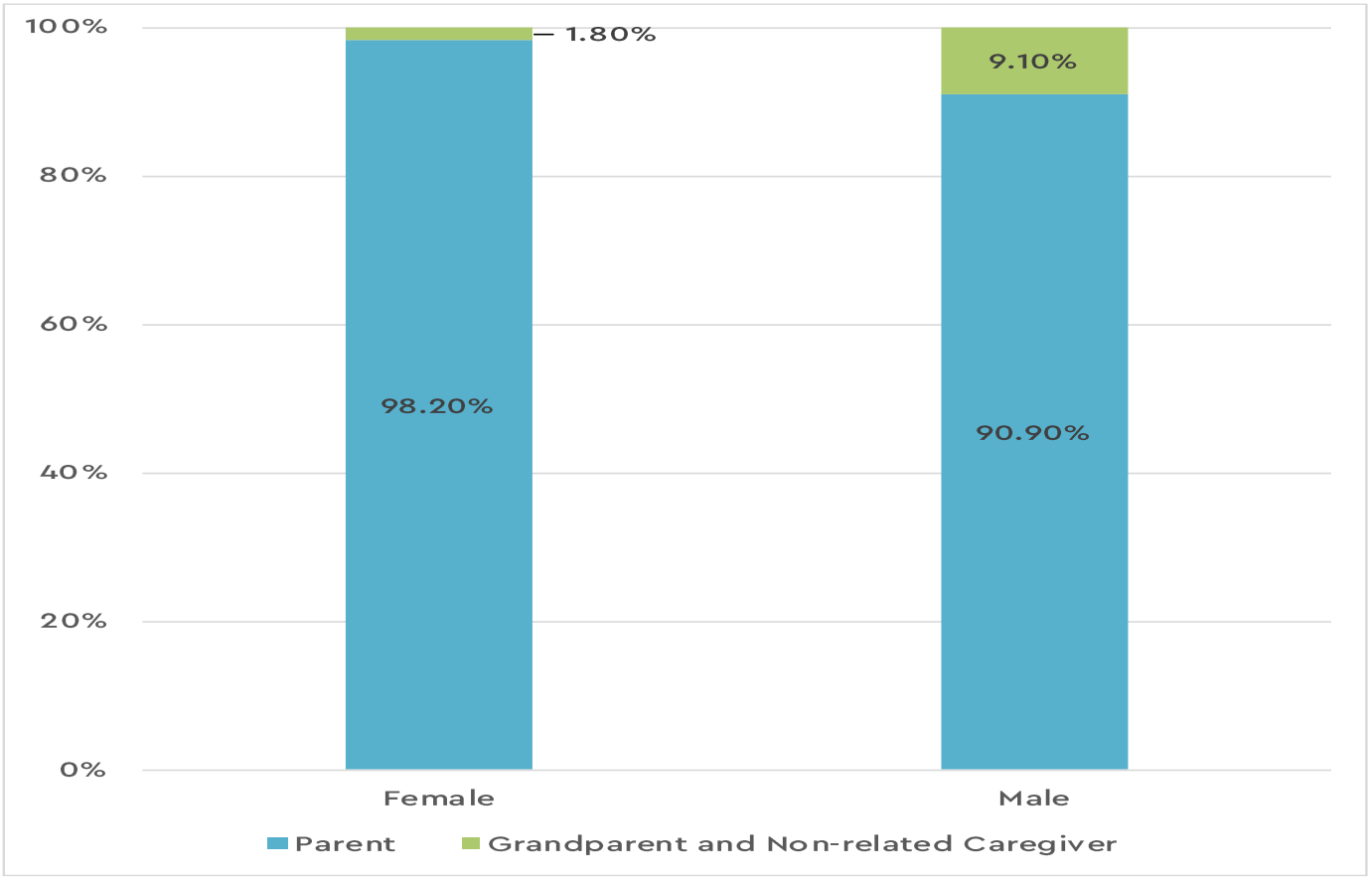
Appendix C: Caregiver Demographics by Sex

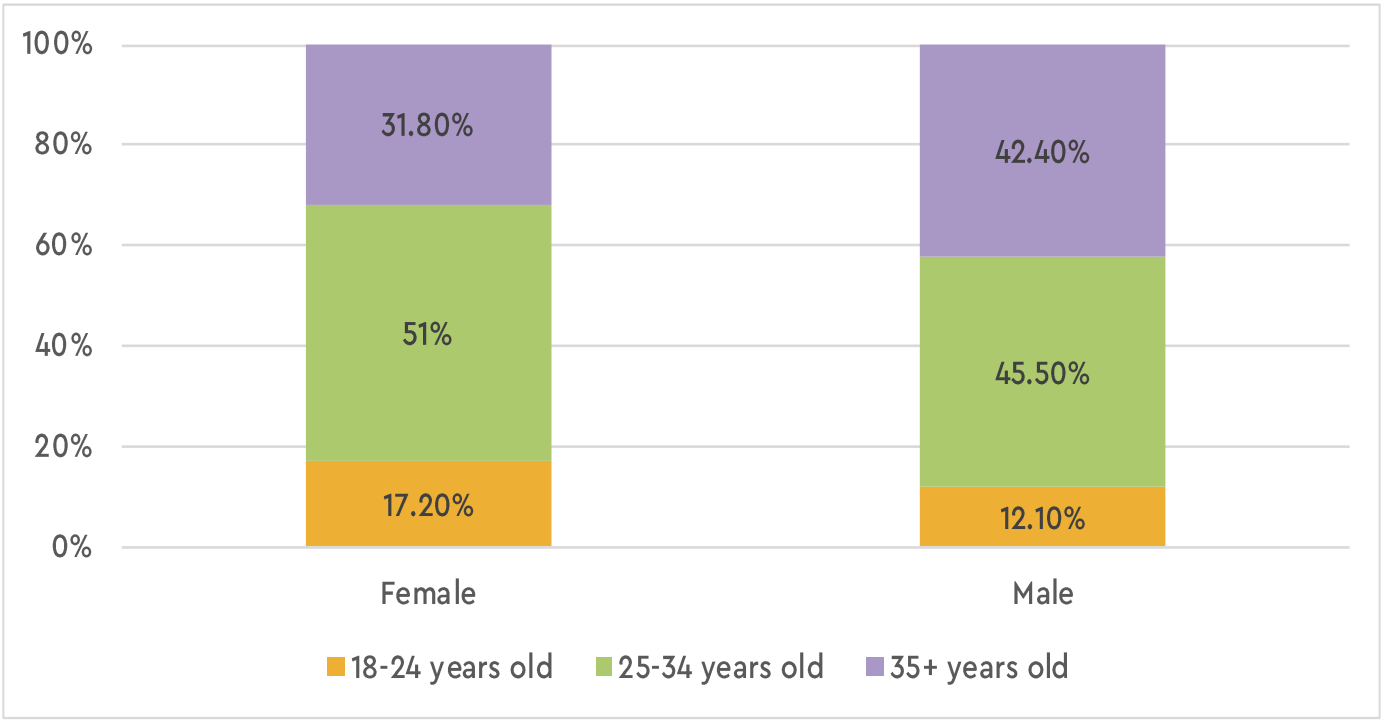
Table C. Caregiver demographics by sex

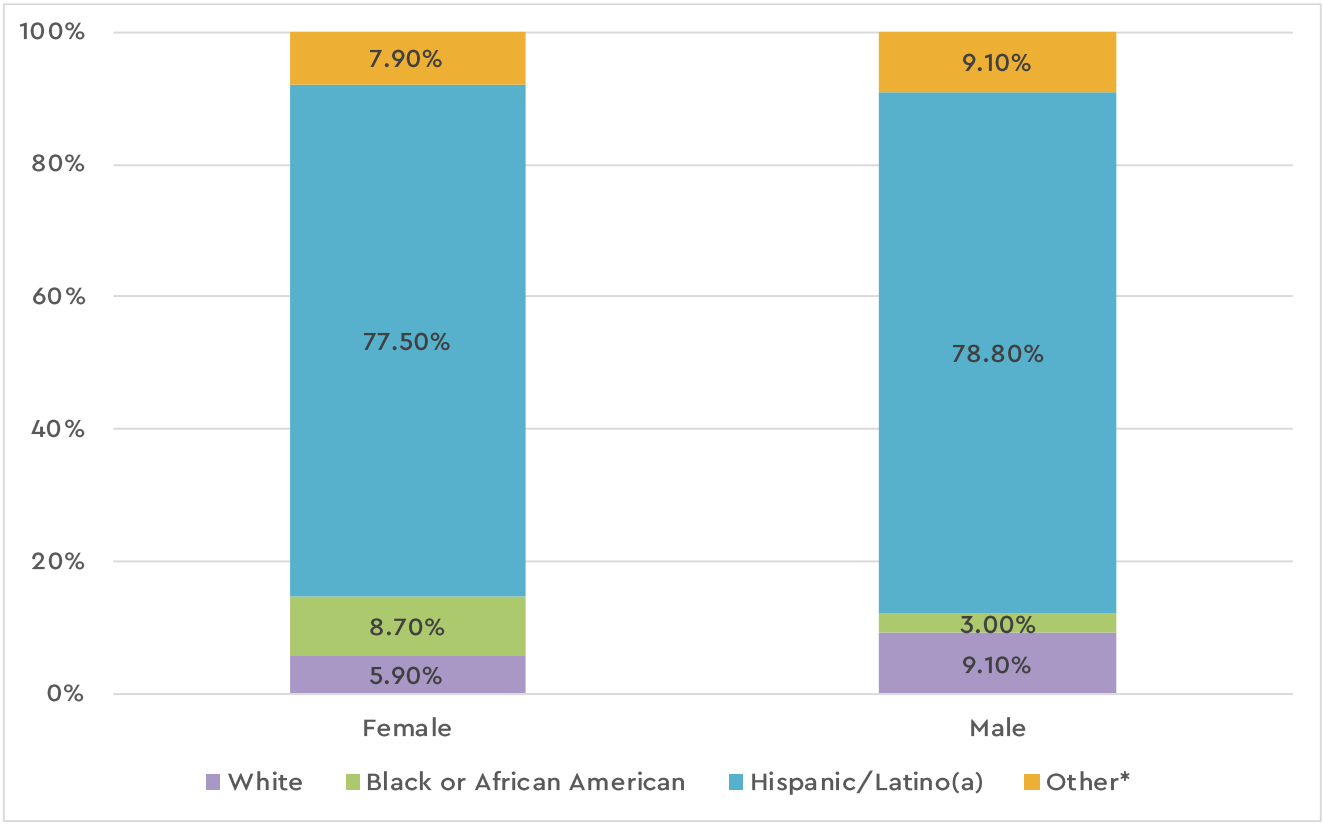
	Total (n=539)	**Female (n=506)**	**Male (n=33)**	
Demographics	*Mean (SD) or n (%)*	*Mean (SD) or n (%)*	*Mean (SD) or n (%)*	*p-value*
Caregiver Age				.44
18-24 years	91 (16.9%)	87 (17.2%)	4 (12.1%)	
25-34 years	273 (50.6%)	258 (51.0%)	15 (45.5%)	
35+years	175 (32.5%)	161 (31.8%)	14 (42.4%)	
Relationship to Child				**.03**
Parent	527 (97.8%)	497 (98.2%)	30 (90.9%)	
Grandparent or Non-related Caregiver	12 (2.2%)	9 (1.8%)	3 (9.1%)	
Caregiver Race				.59
White	33 (6.1%)	30 (5.9%)	3 (9.1%)	
Black or African American	45 (8.3%)	44 (8.7%)	1 (3.0%)	
Hispanic/Latino(a)	418 (77.6%)	392 (77.5%)	26 (78.8%)	
Other*	43 (8.0%)	40 (7.9%)	3 (9.1%)	
Caregiver Language				1.00
English	205 (38.0%)	192 (37.9%)	13 (39.4%)	
Spanish	314 (58.3%)	295 (58.3%)	19 (57.6%)	
Haitian Creole	20 (3.7%)	19 (3.8%)	1 (3.0%)	

*Includes American Indian or Alaska Native, Asian, Middle Eastern or North African, Native Hawaiian or Other Pacific Islander, and Other

Most caregivers, regardless of sex, were parents; however, a higher percentage of males (9.1%) were grandparents or unrelated caregivers compared to female (1.8%). The variability in caregiver demographics by sex are further displayed in the figures below.


100%
80%
60%
40%
20%
0%
1.80%
9.10%
98.20%
90.90%
Female
Male
Parent
Grandparent and Non-related Caregiver


100%
80%
60%
40%
20%
0%
31.80%
42.40%
51%
45.50%
17.20%
12.10%
Female
Male
18-24 years old
25-34 years old
35+ years old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80%
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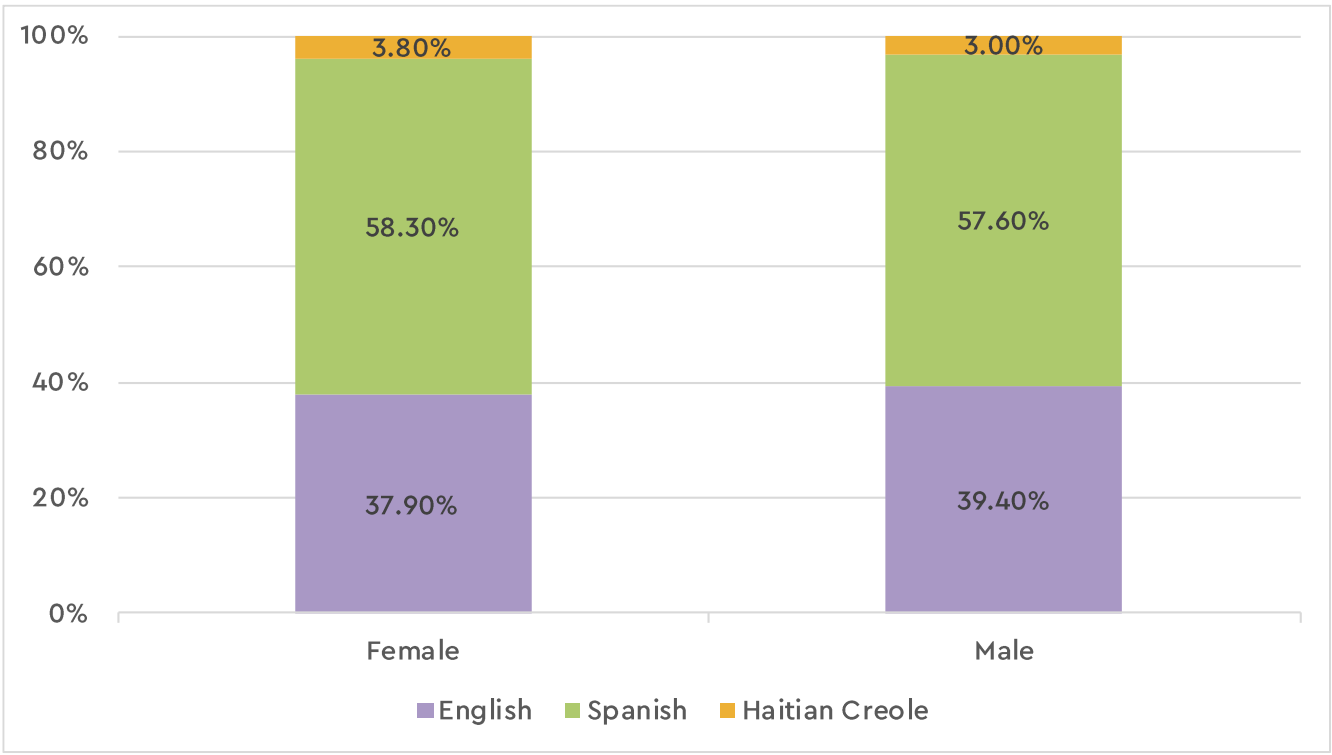
40%
20%
0%
7.90%
77.50%
8.70%
5.90%
9.10%
78.80%
3.00%
9.10%
Female
Male
White
Black or African American
Hispanic/Latino(a)
Other*


100%
80%
60%
40%
20%
0%
3.80%
58.30%
37.90%
3.00%
57.60%
39.40%
Female
Male
English
Spanish
Haitian Creole

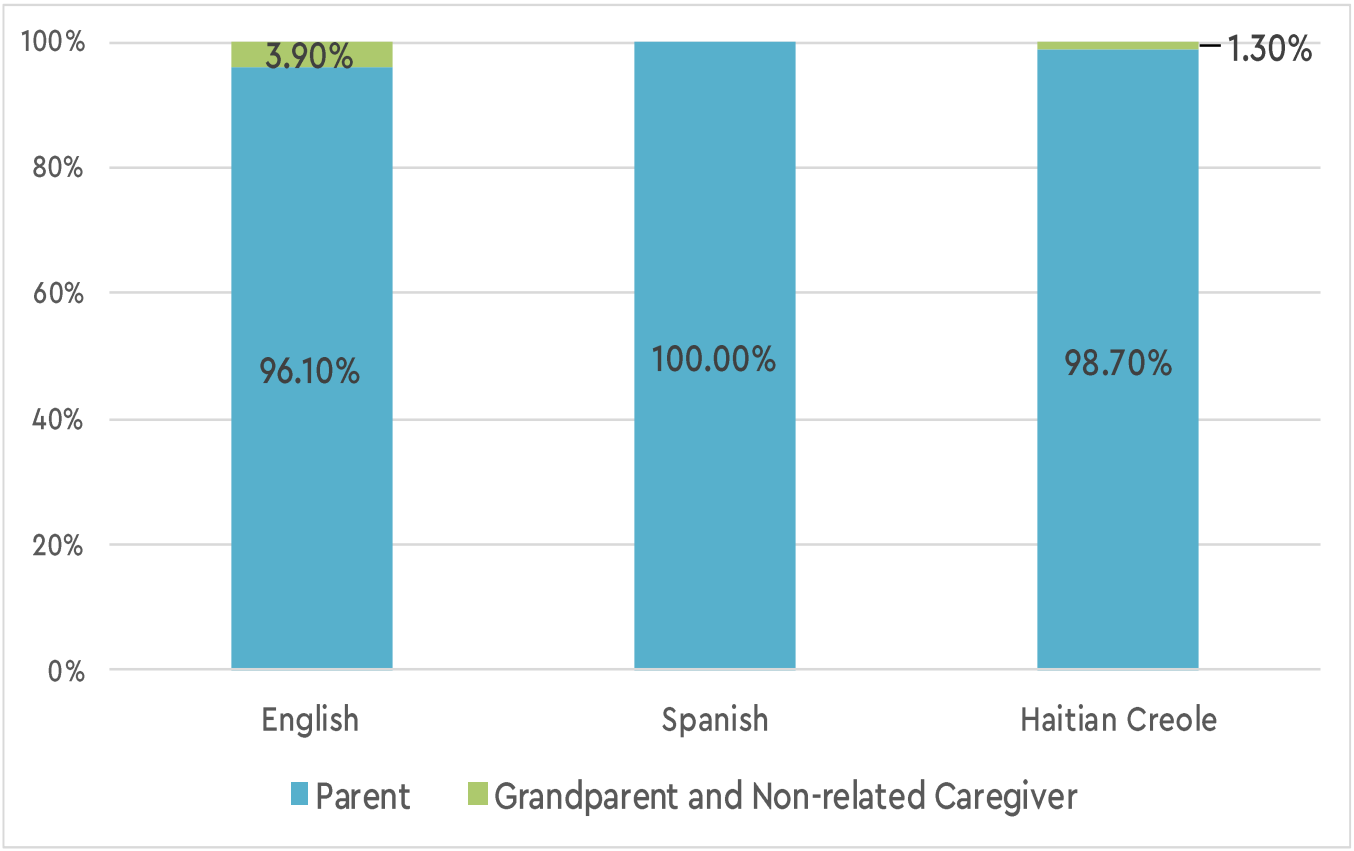
Appendix D: Caregiver Demographics by Language

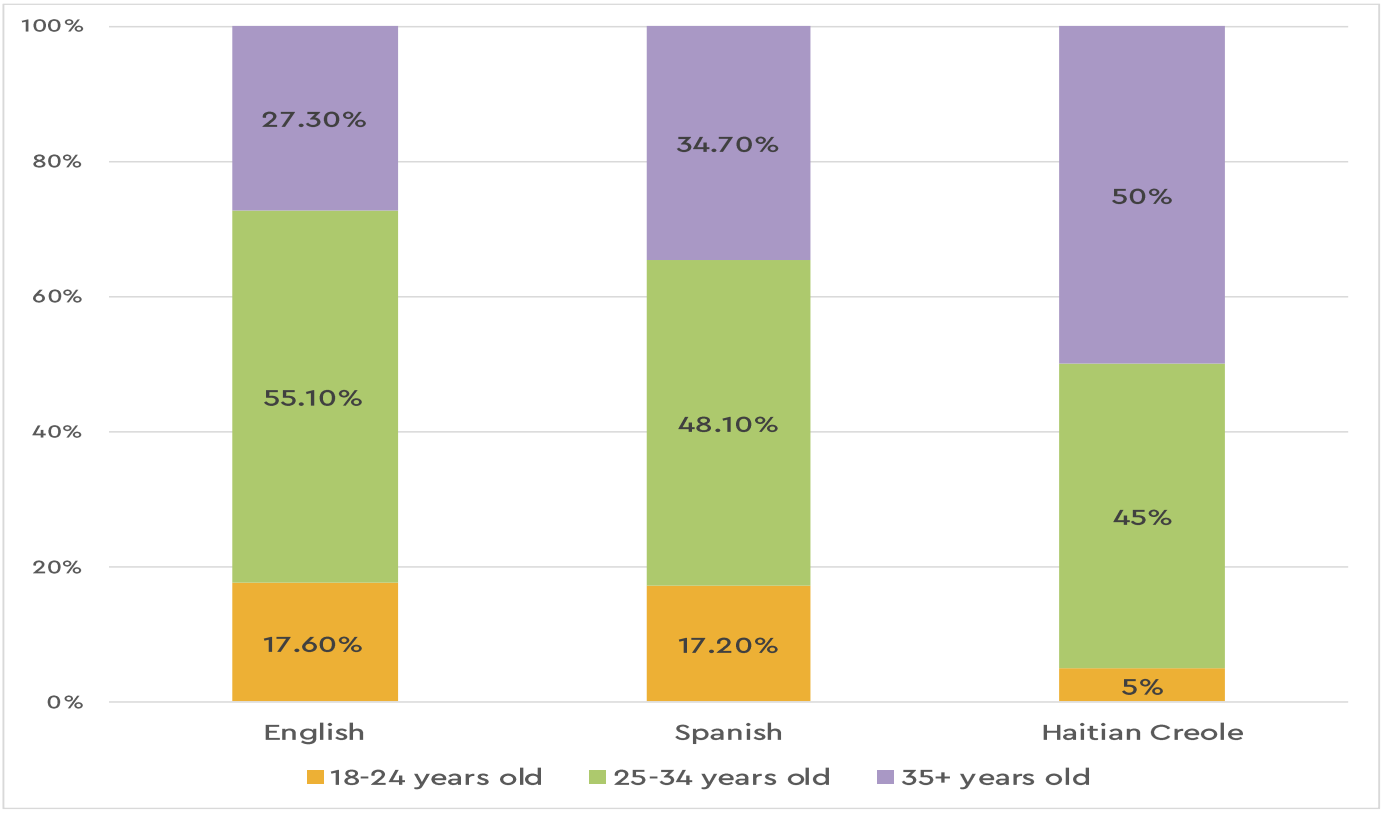
Table D. Caregiver demographics by language

	Total (n=539)	**English (n=205)**	**Spanish (n=314)**	**Haitian Creole (n=20)**	
Demographics	*Mean (SD) or n (%)*	*Mean (SD) or n (%)*	*Mean (SD) or n (%)*	*Mean (SD) or n (%)*	*p-value*
Caregiver Age					.14
18-24 years	91 (16.9%)	36 (17.6%)	54 (17.2%)	1 (5.0%)	
25-34 years	273 (50.6%)	113 (55.1%)	151 (48.1%)	9 (45.0%)	
35+ years	175 (32.5%)	56 (27.3%)	109 (34.7%)	10 (50.0%)	
Caregiver Sex					1.00
Female	506 (93.9%)	192 (93.7%)	295 (93.9%)	19 (95.0%)	
Male	33 (6.1%)	13 (6.3%)	19 (6.1%)	1 (5.0%))	
Relationship to Child					.151
Parent	527 (97.8%)	197 (96.1%)	20 (100.0%)	310 (98.7%)	
Grandparent or Non-related Caregiver	12 (2.2%)	8 (3.9%)	0 (0.0%)	4 (1.3%)	
Caregiver Race					**<.001**
White	33 (6.1%)	30 (14.6%)	3 (1.0%)	0 (0.0%)	
Black or African American	45 (8.3%)	24 (11.7%)	1 (0.3%)	20 (100.0%)	
Hispanic/Latino(a)	418 (77.6%)	121 (59.0%)	297 (94.6%)	0 (0.0%)	
Other*	43 (8.0%)	30 (14.6%)	13 (4.1%)	0 (0.0%)	

*Includes American Indian or Alaska Native, Asian, Middle Eastern or North African, Native Hawaiian or Other Pacific Islander, and Other

The racial backgrounds of caregivers differed across languages, with most Spanish-speakers being Hispanic/Latino(a) and most English-speakers being White or from other races. Meanwhile, Haitian Creole-speakers exclusively identified as Black or African American. The variability in caregiver demographics by language are further displayed in the figures below.


100%
80%
60%
40%
20%
0%
3.90%
96.10%
100.00%
1.30%
98.70%
English
Spanish
Haitian Creole
Parent
Grandparent and Non-related Caregiver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80%
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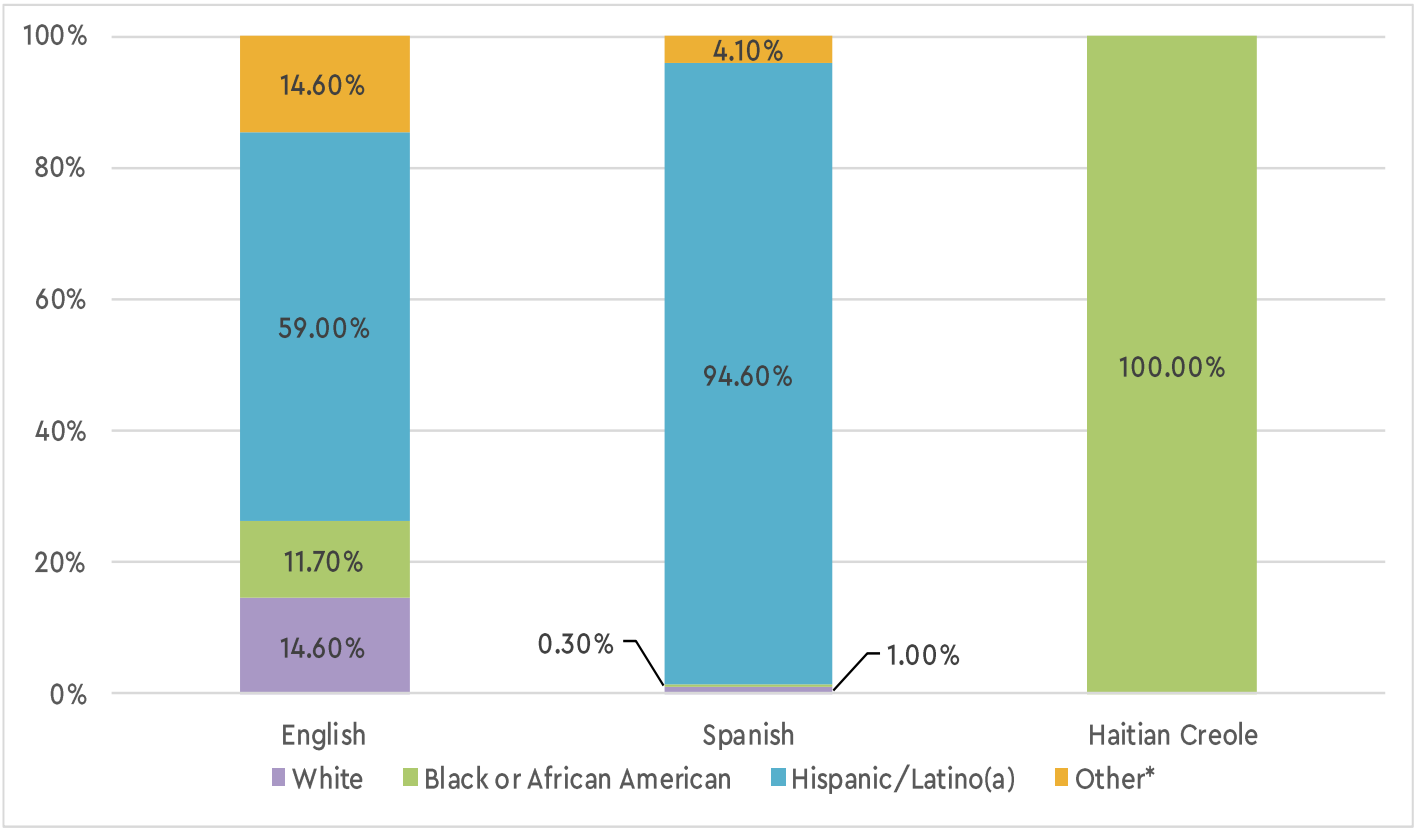
20%
0%
27.30%
55.10%
17.60%
34.70%
48.10%
17.20%
50%
45%
5%
English
Spanish
Haitian Creole
18-24 years old
25-34 years old
35+ years old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14.60%
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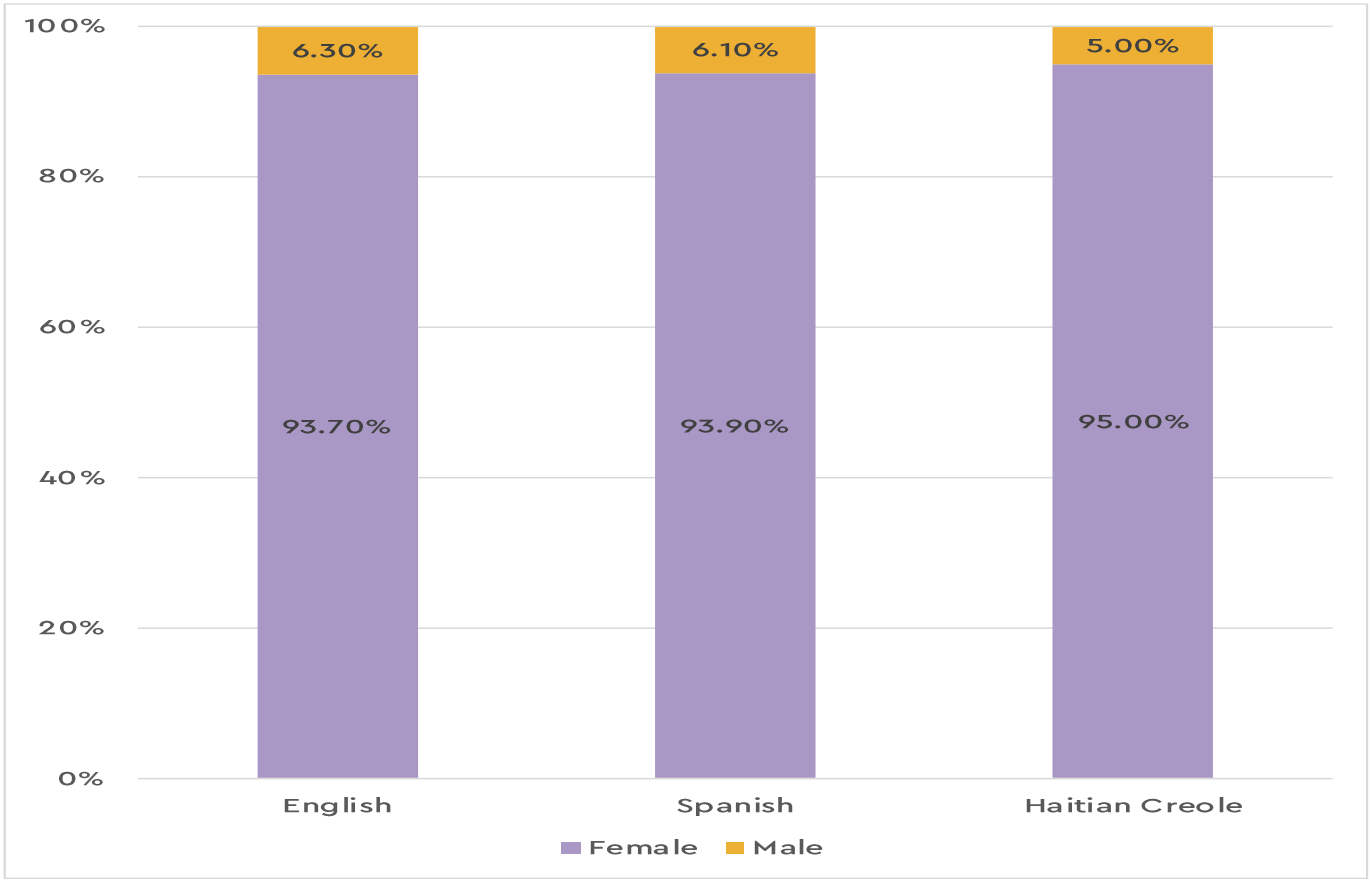
11.70%
14.60%
4.10%
94.60%
0.30%
1.00%
100.00%
English
Spanish
Haitian Creole
White
Black or African American
Hispanic/Latino(a)
Other*


100%
80%
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40%
20%
0%
6.30%
93.70%
6.10%
93.90%
5.00%
95.00%
English
Spanish
Haitian Creole
Female
Male

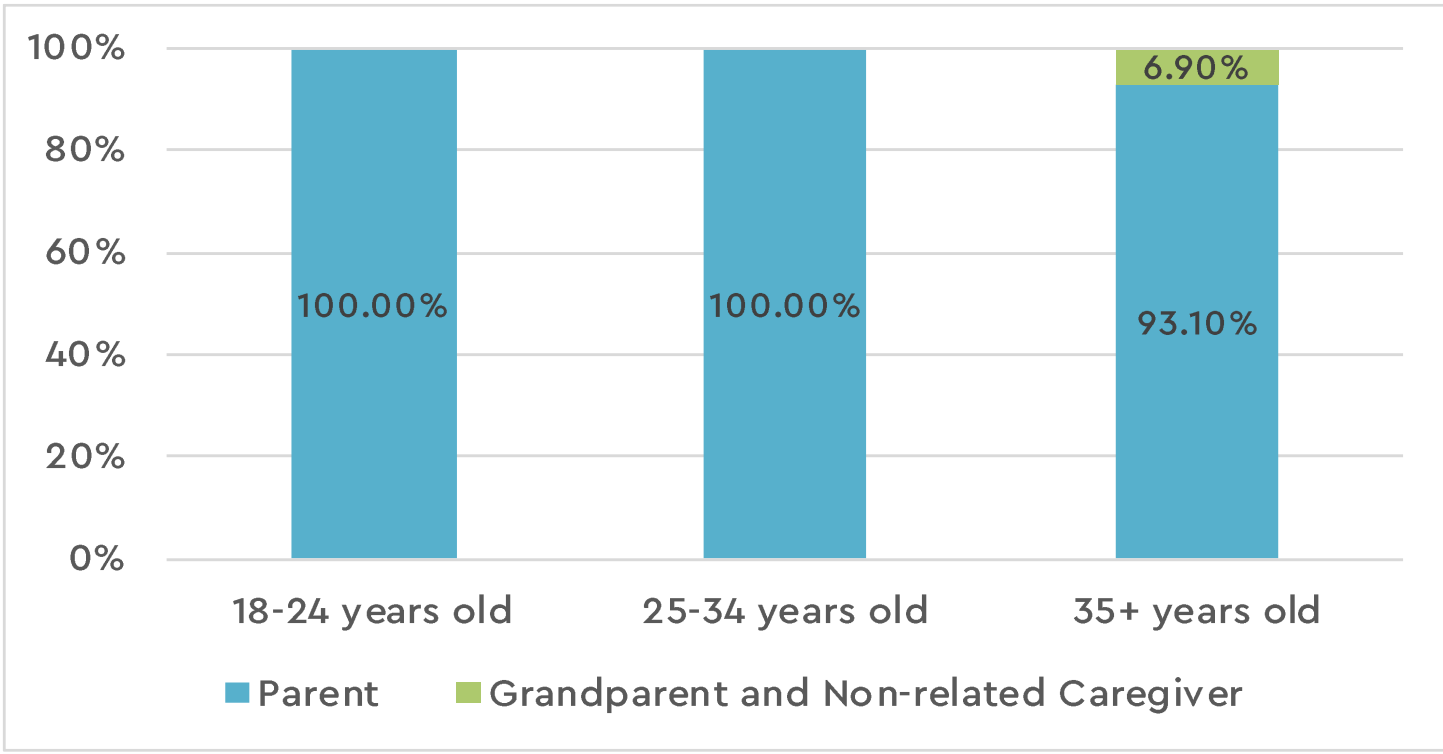
Appendix E: Caregiver Demographics by Age

Table E. Caregiver demographics by age

	Total (n=539)	**18-24 years (n=91)**	**25-34 years (n=273)**	**35+ years (n=175)**	
Demographics	*Mean (SD) or n (%)*	*Mean (SD) or n (%)*	*Mean (SD) or n (%)*	*Mean (SD) or n (%)*	*p-value*
Caregiver Sex					.44
Female	506 (93.9%)	87 (95.6%)	258 (94.5%)	161 (92.0%)	
Male	33 (6.1%)	4 (4.4%)	15 (5.5%)	14 (8.0%)	
Relationship to Child					**<.001**
Parent	527 (97.8%)	91 (100.0%)	273 (100.0%)	163 (93.1%)	
Grandparent or Non-related Caregiver	12 (2.2%)			12 (6.9%)	
Caregiver Race					**.01**
White	33 (6.1%)	1 (1.1%)	19 (7.0%)	13 (7.4%)	
Black or African American	45 (8.3%)	4 (4.4%)	21 (7.7%)	20 (11.4%)	
Hispanic/Latino(a)	418 (77.6%)	82 (90.1%)	203 (74.4%)	133 (76.0%)	
Other*	43 (8.0%)	4 (4.4%)	30 (11.0%)	9 (5.1%)	
Caregiver Language					.14
English	205 (38.0%)	36 (39.6%)	113 (41.4%)	56 (32.0%)	
Spanish	314 (58.3%)	54 (59.3%)	151 (55.3%)	109 (62.3%)	
Haitian Creole	20 (3.7%)	1 (1.1%)	9 (3.3%)	10 (5.7%)	

*Includes American Indian or Alaska Native, Asian, Middle Eastern or North African, Native Hawaiian or Other Pacific Islander, and Other

Nearly all caregivers (97.8%) were parents of the pediatric patient, with older caregivers (35+) being more likely to be grandparents or non-related caregivers (6.9%). Younger caregivers (18-24 years) were more likely to identify as Hispanic/Latino(a) (90.1%) while those who identified as White or Black or African American tended to be ≥25-years-old. The variability in caregiver demographics by age are further displayed in the figures below.


100%
80%
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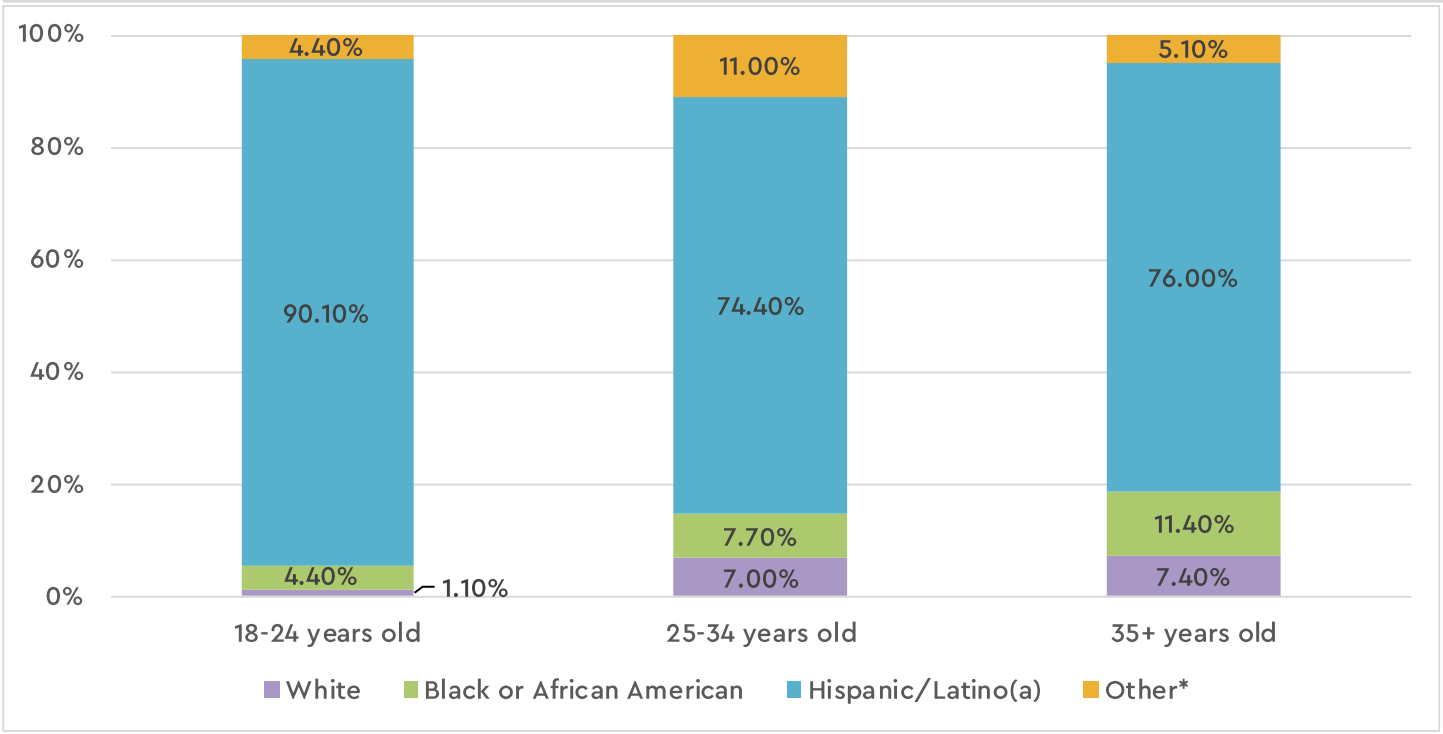
40%
20%
0%
100.00%
100.00%
6.90%
93.10%
18-24 years old
25-34 years old
35+ years old
Parent
Grandparent and Non-related Caregiver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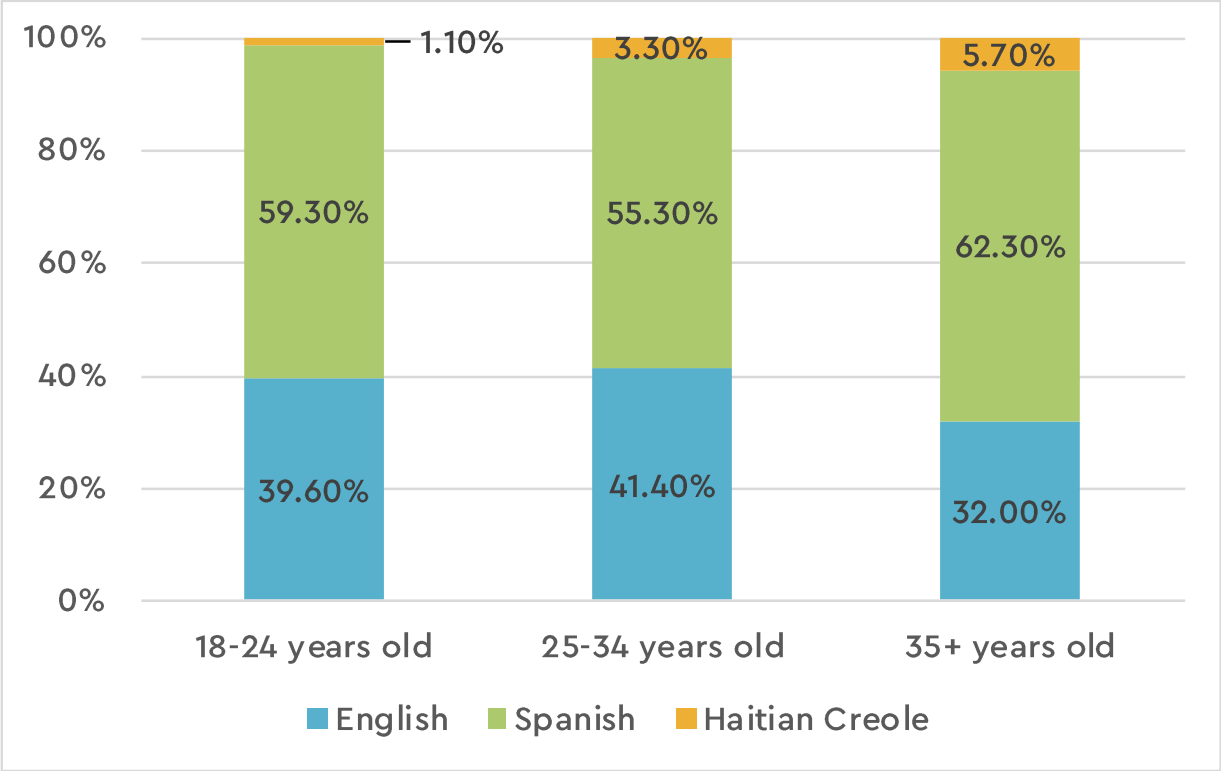
90.10%
4.40%
1.10%
11.00%
74.40%
7.70%
7.00%
5.10%
76.00%
11.40%
7.40%
18-24 years old
25-34 years old
35+ years old
White
Black or African American
Hispanic/Latino(a)
Other*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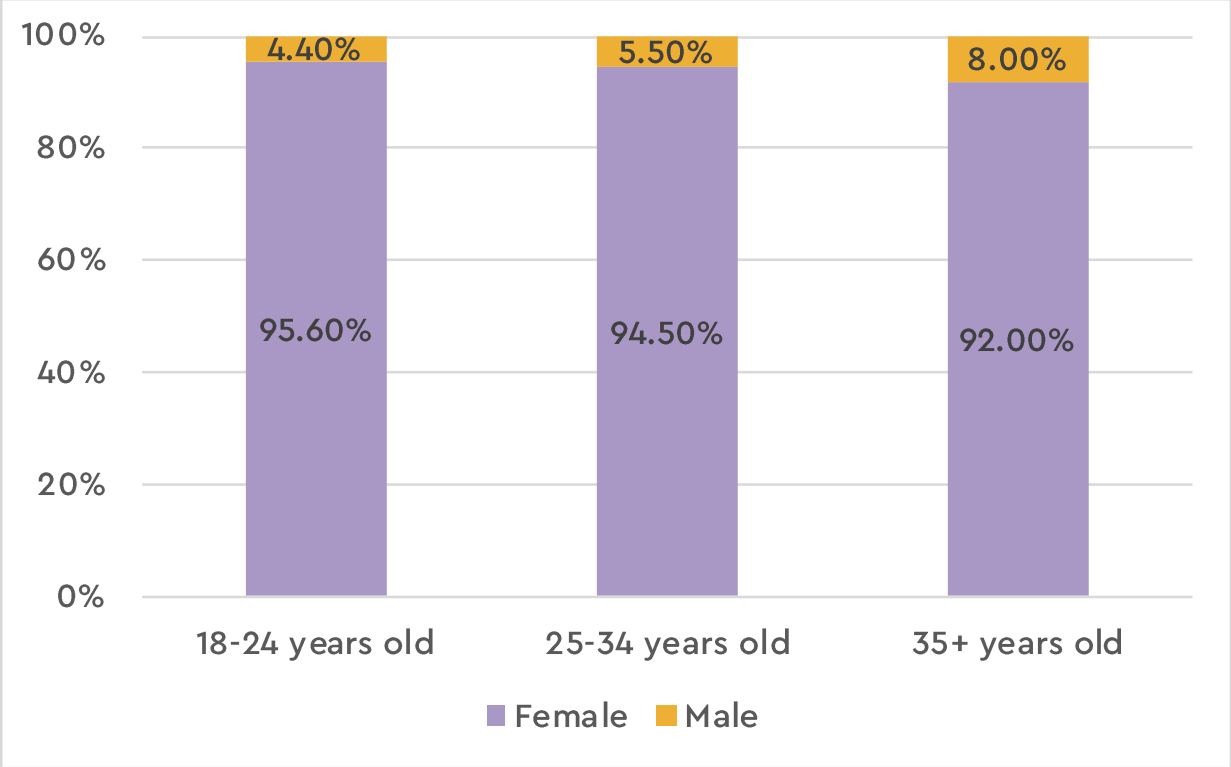
1.10%
3.30%
5.70%
59.30%
55.30%
62.30%
39.60%
41.40%
32.00%
18-24 years old
25-34 years old
35+ years old
English
Spanish
Haitian Creole


100%
80%
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20%
0%
4.40%
5.50%
8.00%
95.60%
94.50%
92.00%
18-24 years old
25-34 years old
35+ years old
Female
Male

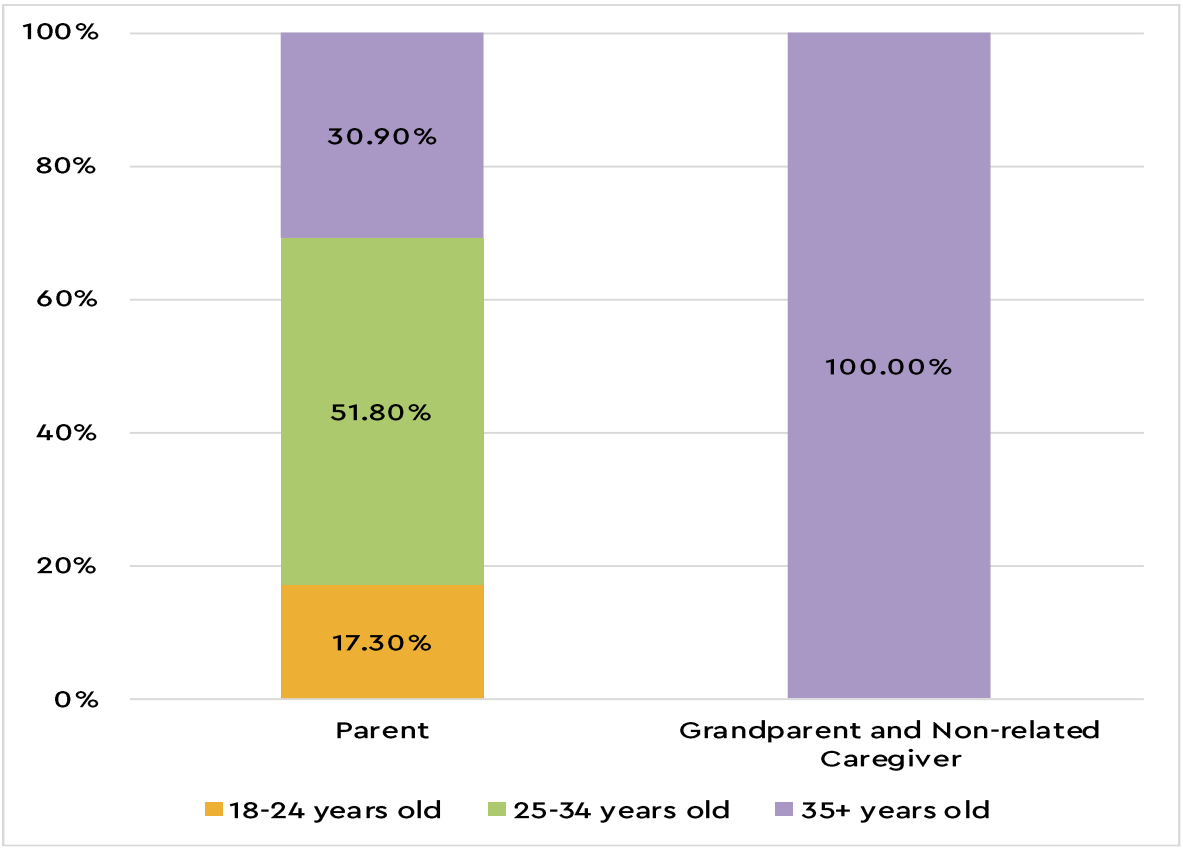
Appendix F: Caregiver Demographics by Relationship to Child

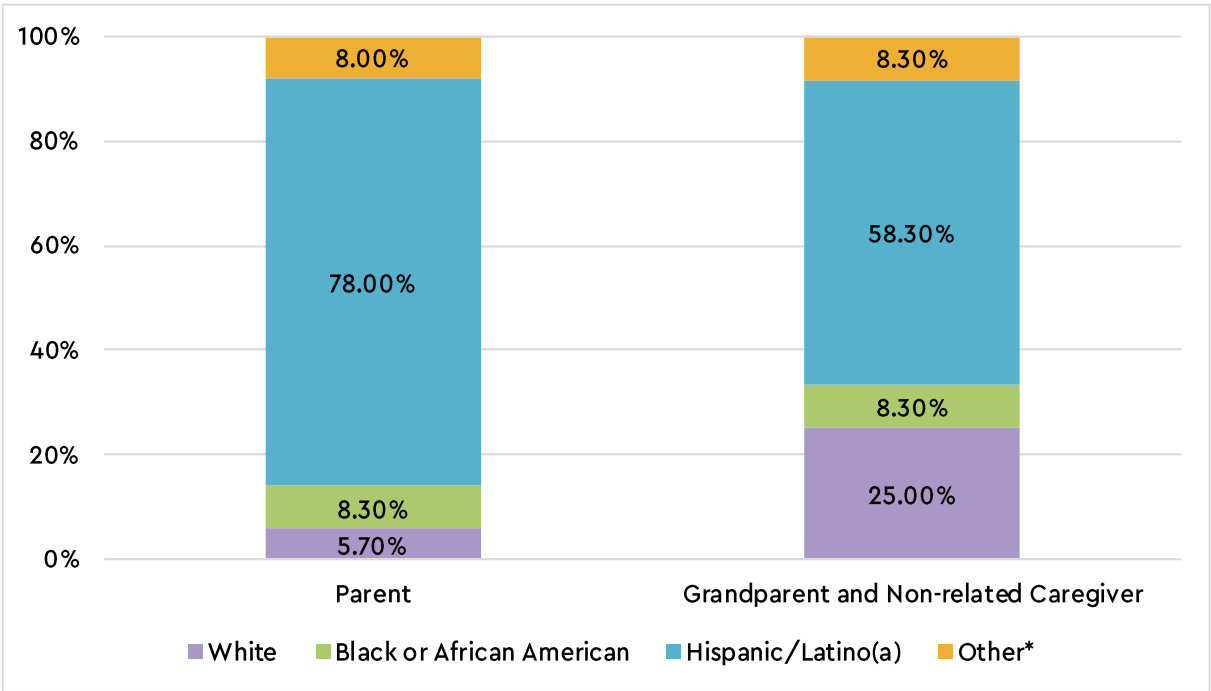
Table F. Caregiver demographics by relationship to child

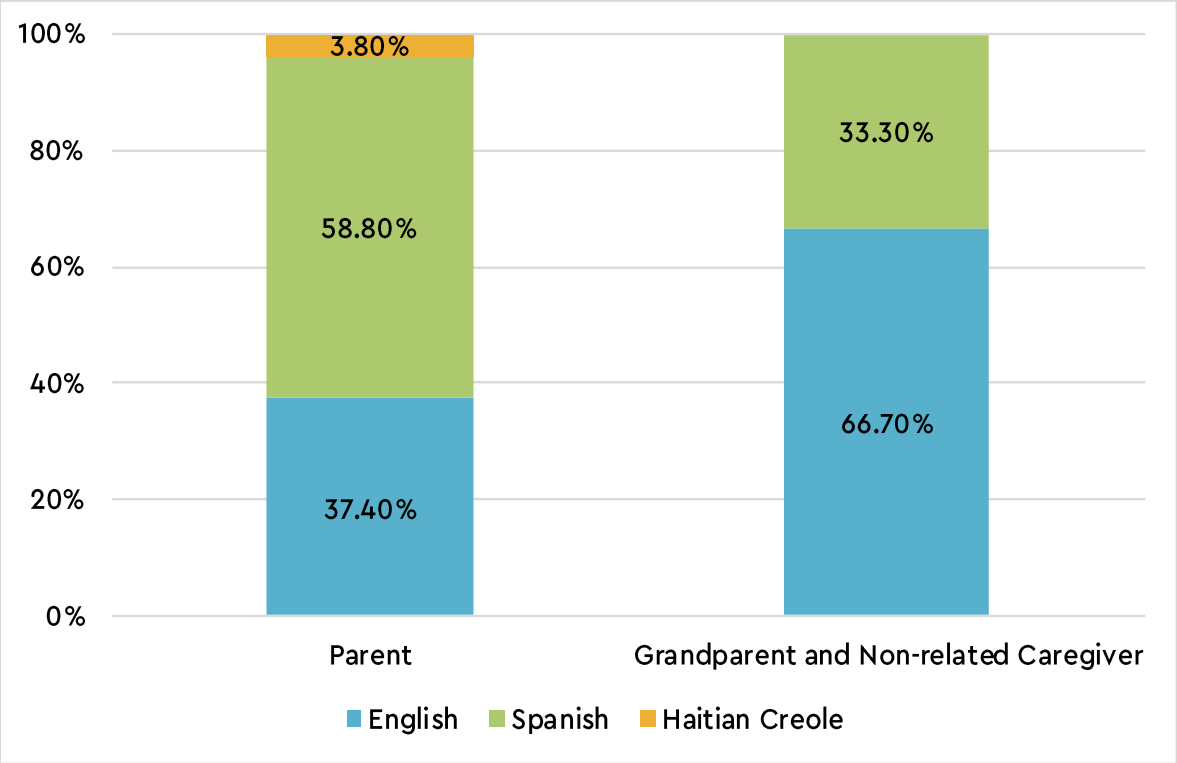
	Total (n=539)	**Parent (n=527)**	**Grandparent and Non-related Caregiver (n=12)**	
Demographics	*Mean (SD) or n (%)*	*Mean (SD) or n (%)*	*Mean (SD) or n (%)*	*p-value*
Caregiver Age				**<.001**
18-24 years	91 (16.9%)	91 (17.3%)	0 (0.0%)	
25-34 years	273 (50.6%)	273 (51.8%)	0 (0.0%)	
35+ years	175 (32.5%)	163 (30.9%)	12 (100.0%)	
Caregiver Sex				**.03**
Female	506 (93.9%)	497 (94.3%)	9 (75.0%)	
Male	33 (6.1%)	30 (5.7%)	3 (25.0%)	
Caregiver Race				.06
White	33 (6.1%)	30 (5.7%)	3 (25.0%)	
Black or African American	45 (8.3%)	44 (8.3%)	1 (8.3%)	
Hispanic/Latino(a)	418 (77.6%)	411 (78.0%)	7 (58.3%)	
Other*	43 (8.0%)	42 (8.0%)	1 (8.3%)	
Caregiver Language				.15
English	205 (38.0%)	197 (37.4%)	8 (66.7%)	
Spanish	314 (58.3%)	310 (58.8%)	4 (33.3%)	
Haitian Creole	20 (3.7%)	20 (3.8%)	0 (0.0%)	

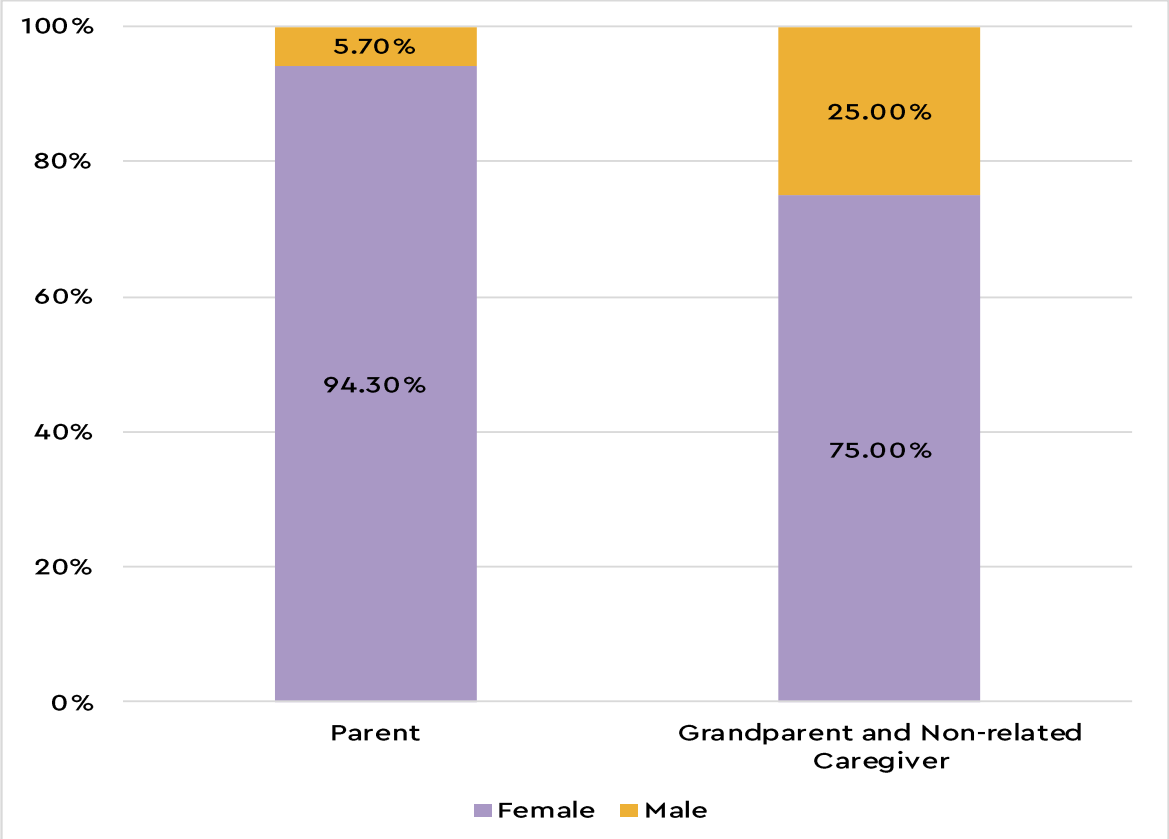
*Includes American Indian or Alaska Native, Asian, Middle Eastern or North African, Native Hawaiian or Other Pacific Islander, and Other

All grandparents and non-related caregivers were over 35-years-old and female. The variability in caregiver demographics by relationship to the pediatric patient are further displayed in the figures below.


100%
80%
60%
40%
20%
0%
30.90%
51.80%
17.30%
100.00%
Parent
Grandparent and Non-related Caregiver
18-24 years old
25-34 years old
35+ years old


100%
80%
60%
40%
20%
0%
8.00%
78.00%
8.30%
5.70%
8.30%
58.30%
8.30%
25.00%
Parent
Grandparent and Non-related Caregiver
White
Black or African American
Hispanic/Latino(a)
Other*


100%
80%
60%
40%
20%
0%
3.80%
58.80%
37.40%
33.30%
66.70%
Parent
Grandparent and Non-related Caregiver
English
Spanish
Haitian Creole


100%
80%
60%
40%
20%
0%
5.70%
94.30%
25.00%
75.00%
Parent
Grandparent and Non-related Caregiver
Female
Male