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Promoting Health in the Hispanic Community: Evaluation of a Mentoring Program Between a School of Medicine and a Hispanic Community

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Abstract

In 2016, Oakland University William Beaumont School of Medicine collaborated with the Catholic Charities of Southeast Michigan Hispanic La Casa Amiga Outreach program (CCSEM-LCA) to create a program through which medical students are paired to mentor local Hispanic youth from an underserved community. We assessed the program's effect on mentees' behavioral and social skills, evaluating satisfaction and program impact among mentees and their parents, and assessing the mentees' knowledge retention from the program's health education sessions. Using the Behavioral and Emotional Rating Scale, 2nd Edition (BERS-2) questionnaire before and after the program, we observed significant improvements in mentee interpersonal strength, family involvement, intrapersonal strength, school functioning, and affective strength. Additionally, both mentees (N = 45) and parents (N = 38) reported high levels of satisfaction, and pre- and postsession assessments indicated increased understanding of the health topics covered.

Keywords: community partnership, medical education, mentoring program, community service, Hispanic children

In the United States the Hispanic population has grown rapidly and is projected to comprise nearly 28% of the population by 2060 (Noe-Bustamente et al., 2020; Zong, 2022). This population's rapid growth highlights the urgency of addressing health disparities between Hispanic and non-Hispanic communities. For example, in 2018, Hispanic Americans were 1.2 times more likely to be obese, 70% more likely to have diabetes, and Hispanic women were 40% more likely to be diagnosed with cervical cancer than their non-Hispanic counterparts (National Center for Health Statistics, 2021). Social and educational disparities further compound these issues; research links race and associated differences in health literacy to health disparities (Berkman et al., 2011). Health literacy is defined as the ability of an individual to competently contend with the "complex demands of promoting and maintaining health" within modern society (Liu et al., 2020). In 2003, 41% of Hispanics (21 million persons) had below basic levels of health literacy (Kutner et al., 2007). In addition, in 2022, 27% of Hispanic adults held an associate degree or higher, compared to 45% of White adults (U.S. Census Bureau, 2023, Table 1-2, Table 1-6).

Health disparities often emerge early, particularly among Hispanic youth, children with limited English proficiency, and those who speak a language other than English at home (Flores et al., 2005). For instance, Hispanic children are less likely than non-Hispanic White children to receive routine wellness and preventive dental care (Langellier et al., 2016). They also face elevated risks for conditions such as obesity and depression (Rossen & Schoendorf, 2012), along with delayed diagnoses of attention deficit disorder (Berry et al., 2010) and autism spectrum

disorder (Mandell et al., 2009). Thus, experts suggest that interventions could take a "life-course" approach, beginning with health maintenance and educational interventions in childhood, to help mitigate disparities as children transition into adulthood (Thornton et al., 2016).

An intervention could be provided in the form of partnerships between community organizations and academic institutions focused upon addressing gaps in the health maintenance and education of Hispanic youth. It has been shown that community–academic partnerships can lead to beneficial outcomes for students, associated community organizations, and institutions of learning (Nora et al., 1994; Voss et al., 2015). Within this article, we specifically focus on community partnerships centered around mentoring programs for children, which have been associated with favorable outcomes to health, psychological well-being, and education/work in older adolescents. A mentoring program for children is a structured relationship in which an adult or older peer provides guidance and support to promote a child's social, emotional, academic, and behavioral development. These programs often serve youth at risk due to socioeconomic or family challenges, aiming to foster resilience and reduce disparities (DuBois et al., 2011). For example, a mentoring program through which high school mentors engaged Hispanic middle school students using school-based obesity intervention lessons resulted in a sustained decrease in BMI (Arlinghaus et al., 2017). Another mentoring program for urban Hispanic fourth and fifth graders that focused upon development of academics and social skills yielded relationships that demonstrated high emotional engagement and youth-centeredness, as well as low program dissatisfaction (Coller & Kuo, 2014).

However, though the aforementioned programs provide evidence that youth mentoring programs can positively impact the health outcomes of minority children, there is no literature evidence of the impact of mentoring programs led by medical students for Hispanic youth (though such programs exist). Thus, evidence for the positive impact of these mentoring programs fills a gap in research on this aspect of higher education outreach.

Peters et al. (2021) previously described the creation of a health education mentoring program between Oakland University William Beaumont School of Medicine (OUWB) and a local Hispanic youth nonprofit organization. They explored the logistics, benefits, and challenges of instituting a youth mentoring program between a medical school and the community. In this study, medical students had high levels of satisfaction with the program, and felt that they had improved their communication skills and increased their understanding of the needs of Hispanic children within this community. Although Peters et al. explored the benefits of this program to the participating medical students, the impact of this interaction upon the mentees has not yet been evaluated.

Thus, in this article, we evaluate several aspects of the program's impact upon the mentees. We evaluate improvements in the mentees' behavioral and social skills by assessing effects on their interpersonal strength, intrapersonal strength, family involvement, school functioning, and affective strength. In addition, we evaluate the mentees' knowledge retention from the program's health education sessions, as well as levels of satisfaction among mentees and mentees' parents.

Methods and Materials

Program Description

Peters et al. (2021) have previously described the partnership and development of the mentoring program between OUWB and the Hispanic community. In 2016, OUWB established a partnership with the Catholic Charities of Southeast Michigan Hispanic La Casa Amiga outreach program (CCSEM-LCA) through which medical students are paired to mentor local Hispanic youth from an underserved community in Pontiac, Michigan.

The goals of the program are threefold. The first goal is to increase the mentees' understanding of health-related topics (healthy eating, drug use prevention) so they are better able to foster optimal development of their own healthy behaviors and reduce health risks, as well as increase their knowledge of the consequences of unhealthy habits. Second, the program aims to motivate the mentees and improve their self-esteem and communication skills through personal interaction between mentors and mentees. Third, the program seeks to improve the cultural awareness of the medical student mentors by allowing them a deeper understanding of the challenges faced by diverse populations in the United States.

Mentors and mentees are paired, usually by gender, in a one-to-one ratio, at the beginning of the year. The mentor–mentee pairings meet twice a month (for approximately 5 hours each month) over the course of a year (excluding summer), and also engage in weekly phone calls. Approximately 15 sessions are held per year. The in-person sessions are generally divided into five main parts (Peters et al., 2021): (a) a prequiz consisting of five to 10 multiple choice questions (MCQs) to determine the mentees' basic level of knowledge of the given topic; (b) a 40-minute interactive small group didactic lecture presented by the student coordinators, a volunteer faculty member from OUWB, or a guest speaker; (c) a 20-minute small group discussion to allow collaboration among mentor–mentee pairs; (d) a 20-minute large group discussion to give mentees the opportunity to review the main points and share their new knowledge with their peers; and (e) a postquiz that includes the same MCQs as the prequiz to measure the effectiveness of the session and aid in mentees' retention of information.

Participants

Preclinical medical students from OUWB serve as program mentors (Peters et al., 2021). The mentees who participated in this study were Hispanic youth between 7 and 16 years old from Pontiac, Michigan (N = 45). The mentees' parents (N = 38) also participated in satisfaction questionnaires regarding the program. The selection criteria for this program specified that mentees be Hispanic children of immigrant parents who utilize services provided by LCA, including legal assistance, family support, and English classes.

Program Evaluation

The program is evaluated at multiple levels, including a parental assessment of children's behavior, assessment of mentee satisfaction with the program (both assessments provided by the LCA), and brief pre- and postquizzes included within the educational session for mentees that assess dissemination of knowledge during the session. These assessments were held in order to shape and improve the future development of the program. The deidentified data from both the surveys and the assessments was provided to OUWB by LCA. Nonhuman subject research approval for program evaluation was obtained from Oakland University IRB, Study Number 1192710.

Assessment of Knowledge. Of the 30 unique educational sessions provided between 2016 and 2020, 12 included presession and postsession formative quizzes within the lesson plan. These formative quizzes, on topics such as nutrition, mental health, and health equity, consisted of five to 10 multiple choice questions. The scores for presession and postsession quizzes were compared to assess information retention throughout each session. The pre- and postsession quizzes were created by the medical student program coordinators and faculty members, who also spearheaded creation of the educational material, to ensure that the mentees had grasped the main points of the sessions and to evaluate whether the information had been disseminated effectively.

Children Satisfaction and Program Impact Survey. Mentees responded to 23 items using a Likert scale to assess their level of satisfaction with the program (1 question) and their relationship with their mentor (satisfaction [1 question], encouragement [3 questions], communication [7 questions], confidence [2 questions]). Other question categories included content (1 question), school (2 questions), self-confidence (1 question), and communication skills (5 questions). (Questions are listed in Appendix A.)

Parent Satisfaction and Program Impact Survey. Parents were asked 14 questions to assess their level of satisfaction with the program and how it influenced their children. Question categories included satisfaction with mentor (1 question), emotions (2 questions), relationships (2 questions), home responsibility (3 questions), confidence (1 question), school performance (1 question), school attitude (1 question), and school responsibility (3 questions). (Questions are listed in Appendix B.)

Behavioral and Emotional Rating Scale, 2nd Edition Assessment. The Behavioral and Emotional Rating Scale, 2nd Edition (BERS-2) is a validated and reliable survey assessing children's emotional and behavioral strengths. One of the instrument's primary purposes is to document the effects of an intervention designed to enhance the functioning of children—in this case, a mentoring program (Buckley & Epstein, 2004). Mentees' parents complete a 52-item BERS-2 assessment rating scale to measure interpersonal strength (e.g., "Accepts criticism"; 15 questions), family involvement (e.g., "Participates in family activities";

10 questions), intrapersonal strength (e.g., "Is self-confident"; 11 questions), school functioning (e.g., "Pays attention in class"; 9 questions), affective strength (e.g., "Expresses affection for others"; 7 questions; Duppong Hurley et al., 2015).

Statistical Analysis

Paired *t*-tests were utilized to compare the means for the pre- and postprogram BERS-2 survey results, analyzing each of the five BERS categories (Duppong et al., 2015). Similarly, to determine mentee retention of learning sessions, a paired t-test was used to measure the mean differences between pre- and postformative assessment performance.

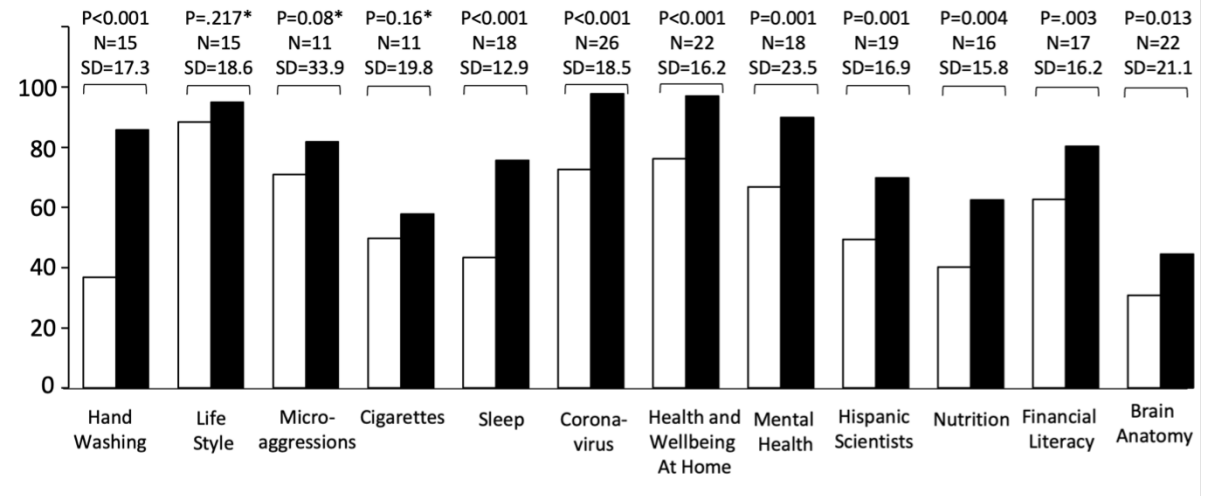
Results

First, we evaluated whether students learned and retained information during the educational sessions (on topics such as handwashing, lifestyle, microaggressions, cigarettes, and sleep) and whether the sessions were an appropriate level of difficulty for the students. Twelve educational sessions included pre- and postsession formative assessments, consisting of five to 10 multiple choice questions each. Differing numbers of mentees attended each educational session, varying from 11 to 26 participants. Comparing the mean scores from the presession quizzes and postsession quizzes, we found a significant increase in student performance on the postsession quizzes in nine of 12 lessons (Figure 1). Significant percentage increases in the mentee assessment performance range from improvements of 13.6% to improvements of 49%; insignificant percentage increases range from 6.7% to 10.9%. These results suggest that the mentees learned and retained information in most of the educational sessions.

The mentee satisfaction and program impact survey included questions about satisfaction with the program overall, the mentor–mentee relationship, and communication skills. Additionally, the survey included questions assessing self-reported changes in motivation, confidence, and performance in school after completing the mentoring program. Mentees rated most program attributes on a Likert-style scale from 1 (*strongly disagree*) to 6 (*strongly agree*); on communication skills before and after the program, the scale ranged from 0 (*none*) to 4 (*expert*). Mentees reported they were satisfied with the program overall (M = 5.38, SD = 0.62) and with the content provided during educational sessions (M = 5.10, SD = 0.77).

The survey had four main categories evaluating mentor–mentee relationship (Appendix A). Notably, mentees were highly satisfied with their mentors (M = 5.60, SD = 0.63) and felt they could rely on their mentors for encouragement (M = 4.98, SD = 1.19), communication (M = 5.11, SD = 1.22), and increased self-confidence (M = 5.21, SD = 1.07). Mentees reported improved grades in school (M = 4.41, SD = 1.50), improved self-confidence (M = 4.78, SD = 1.31), and improved communication skills with adults (M = 4.53, SD = 1.31) after participating in

Figure 1. Results From Evaluation of Educational Sessions



Note. *p < .05

the program. Lastly, the mentees were asked to rate their communication before and after the program, and the increase was significant (N = 45, from preprogram M = 1.96, SD = 1.19 to postprogram M = 2.93, SD = 0.96, $p < .0001$).

The parent satisfaction and program impact survey (N = 38) asked questions related to perceived satisfaction of their children with the program and noticeable behavioral changes in their children after completing the program (Appendix B). The behavioral changes were tracked via question categories such as emotions, relationships, home responsibility, confidence, and school conduct. These questions were answered on a 3-point scale in Spanish, where 1 = *No*, 2 = *Mas o Menos* (*More or Less*), 3 = *Si* (*Yes*). Parents perceived the program as highly satisfactory (M = 2.95, SD = 0.30). Notably, 97% of parents responded with "Si" to the question "Did your child enjoy their time with their mentor?" After completion of the program, parents reported that their children were more responsible and well-behaved at home (M = 2.76, SD = 0.61) and in school (M = 2.79, SD = 0.58), had stronger interpersonal relationships (M = 2.88, SD = 0.42), were more confident (M = 2.81, SD = 0.55), performed better in school (M = 2.85, SD = 0.48), and had a better attitude toward school (M = 2.84, SD = 0.53). In short, we found that parents perceived the program as highly satisfactory.

We also evaluated mentees' improvements in behavioral skills after completing the program. CCSEM Hispanic Newcomer Outreach used the Behavioral and Emotional Rating Scale, 2nd Edition (BERS-2) survey to ask parents questions relating to the children's emotional and behavioral strengths. Each year from 2016 to 2018, parents (N = 81) completed a BERS-2 questionnaire (52 questions) about their children's improvements in five categories (interpersonal strength, family involvement, intrapersonal strength, school functioning, and affective strength). The mean difference between pre- and postsurveys on a Likert scale (0 = *statement is not at all like the child* to 3 = *statement is very much like the child*) was analyzed using a paired t-test. Each year shows varying results, but all display a significant increase in one or more categories (data not shown). When combining the data from all years, a significant increase in every category from before the program to after completion of the program is evident (Table 1).

Discussion

In 2016, OUWB developed a partnership with the local Hispanic community, creating a longitudinal mentoring program between medical students and Hispanic youth (Peters et al., 2021). A previous article evaluated the beneficial experience of medical students within this program. In this study, we analyzed the mentees' knowledge retention from the program's education sessions, mentee and parent program satisfaction and assessment of program impact, and changes in mentees' behavioral skills over the course of the program.

We found that, using pre- and postquiz data to assess students' information retention during the educational sessions (Figure 1), most mentees showed significant improvements in the mean scores on the postquiz compared to the prequiz (in nine out of 12 sessions). Although the program hosted roughly 30 sessions over the evaluated time period, the student/faculty coordinators created pre- and postquizzes only for certain sessions (more active sessions, like music

Table 1. Behavioral and Emotional Rating Scale-2 (BERS-2) Evaluation

	Interpersonal strength	Family involvement	Intrapersonal strength	School functioning	Affective strength
Change	14.76%	11.10%	5.51%	12.00%	9.91%
Mean presurvey (*SD*)	2.10 (0.59)	2.25 (0.55)	2.36 (0.30)	2.25 (0.67)	2.22 (0.54)
Mean postsurvey (*SD*)	2.41 (0.48)	2.50 (0.45)	2.49 (0.47)	2.52 (0.51)	2.44 (0.45)
***p*-value**	0.0001	0.0001	0.01	0.0001	0.0001

therapy or science museum field trips, were excluded), hence this smaller sample size of 12.

Overall, the pre- and postperformance data suggest that these lessons were provided at an appropriate level for the children and that they were able to retain information after the lesson. However, some lessons did not show significant results. It is likely that the wide age range of children involved in the program (7 to 16 years old) made it difficult to ensure that the material was provided in an age-appropriate manner. This result might be improved by separating the group into two smaller groups based on mentee age. Further studies could evaluate longer term knowledge retention by providing the same cohort of children posttests months to years later. Our current method evaluated only short-term knowledge retention, over the span of a 2-hour session.

We also evaluated the mentees' level of satisfaction toward and assessment of impact of the mentoring program (Appendix A). Of the eight categories evaluated on a Likert scale from 1 to 6, five received a score above 5 and three categories received scores between 4 and 5, suggesting that, overall, mentees were highly satisfied with the program. Although we did not acquire information regarding changes in testing scores at school, mentees indicated that being in the mentoring program improved their grades in school (M = 4.41). The response regarding grades in school was the lowest score found. This finding is not surprising, as this program does not necessarily align with the mentees' school curriculum, and may best be perceived as supplementary, but not preparatory, for the Michigan state curriculum. Nevertheless, a positive perception of the program was observed.

Some categories within the survey were specifically dedicated to evaluating the strength of the mentor–mentee bond: mentor satisfaction, mentor encouragement, mentor communication, and mentor confidence (Appendix A). Students highly rated these categories, indicating that they agreed that their mentor was encouraging, communicative, and improved their self-confidence. As every program session involved extended one-on-one pair mentoring time—usually from a quarter to half of the 2 hours—this data suggests that mentees perceived their mentoring relationship as a positive presence in their lives.

Furthermore, we asked mentees to rate their communication skills before and after the mentoring program and found mentees noted a significant improvement in their communication skills. Every program session was heavily structured around discussion activities and nonlinguistic representation via virtual models and art activities, both of which require mentees to communicate effectively with a larger group (Kim et al., 2020). Additionally, mentees participated in weekly phone calls with their mentor and, at the end of the year, were required to complete a presentation to a large audience of fellow mentees, mentor, and family members, on a health topic of their choosing. Thus, mentees regularly practiced their communication skills, whether within a one-on-one interaction with their mentors, a small group discussion, or the large-scale presentation, which likely directly contributed to this improvement (Sugito et al., 2017).

Overall, mentees were highly satisfied with their mentee–mentor interactions and relationships. Overall, the data suggests that mentees enjoyed and found value in the OUWB-LCA program, and that the program fulfilled its goal of assisting its mentees in improving their academic skills, communication skills, self-worth, and mentoring relationships.

The survey evaluating parent satisfaction and program impact showed high levels of satisfaction (Appendix B). This table suggests that, from a parent's viewpoint, the program was deeply efficacious in fostering a mentoring relationship, and was also very effective in facilitating positive emotions, relationships, and attitudes outside the program. Although it is preferable to use a more common 5- or 7-point Likert scale in this survey to obtain more granularity in the results, research has shown that a 3-point Likert scale does not diminish reliability or validity of the ratings (Matell & Jacoby, 1971). Nevertheless, the results described in Appendices A and B suggest that parents were satisfied with the program and felt that it benefited their children.

The BERS-2 survey completed by mentees' parents showed significant mean increases in the five attributes—interpersonal strength, family involvement, intrapersonal strength, school functioning, and affective strength—assessed (Table 1). The attributes are described as follows:

The first subscale, interpersonal

> strengths, assesses a child's ability to control his or her behavior in a social situation. The second scale, family involvement, focuses on a child's participation and relationship with his or her family. The third subscale, interpersonal strengths, assesses a child's outlook on his or her competence and accomplishments. The fourth subscale, school functioning, focuses on a child's competence on school and classroom tasks. Finally, the fifth subscale, affective strengths, addresses a child's ability to give or receive affect. (Epstein, 2000, p. 250)

This tool has been used every year, and the changes within each category for each year vary, though each exhibits a positive percentage change. For instance, interpersonal strength and school functioning are the most consistent in significant changes (three out the four years) when compared to other attributes (data not shown).

Overall, our findings indicate that mentees in the OUWB-LCA mentoring program show improvement in the behavioral skills addressed in BERS-2. Together with the results of the satisfaction and impact survey, which noted a significant improvement in self-rated communication skills and general satisfaction and growth within the program, these results again supported the positive impact of the program. Mentees also completed a BERS-2 survey; results showed an increase in scores for all categories assessed, but none of the results were significant (data not shown). The lack of significant results suggests that the children (age range 7 to 16) may have struggled to understand this survey, or the concept of self-reporting as presented in the BERS survey. In order to improve this method of measurement, it may be necessary to assess a greater number of children or provide assistance in completing the assessment.

It is important to note that the surveys evaluating mentee and parent level of satisfaction and program impact (Appendices A and B) are not validated tools. Many components within these surveys mirror and support aspects evaluated in BERS-2 (Table 1) but are more customized to our specific program (e.g., mentor relationship) in order to better judge the program development.

Future goals for the program include a more longitudinal evaluation of the program's effects on mentees. For example, over the next decade we would like to evaluate whether this exposure actually increases the likelihood that these children will matriculate to college after graduating from high school. This research would involve following the children throughout their time in high school and through graduation. Furthermore, given that the program shifted online for one year in 2020 to 2021 as a result of the COVID-19 pandemic, we plan to conduct future research comparing the efficacy of in-person programs to our COVID-19 online program.

We have established that the relationship between OUWB and LCA, through which medical students at OUWB serve as mentors to the children involved in the program, is of value to mentees, parents, and mentors alike. Our future goals are to continue to improve educational sessions, nurture mentor–mentee relationships, and assess the effect of this program upon mentees' long-term progress, especially as pertains to high school graduation and college matriculation. Ultimately, this article serves as a measure of impact and efficacy of this program upon its mentees and their families, and will help inform the program's future development.

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Appendix A: Analysis of Satisfaction and Program Impact Surveys Given to Mentees After the 1-Year Mentoring Program

Question topic (number of questions)	Mean (*SD*) *N* = 45
Program satisfaction (1) Overall, how satisfied are you with the mentoring program?	5.38 (0.62)
Satisfaction with mentor (1) Overall, how satisfied were you with your mentor?	5.60 (0.63)
Mentor encouragement (3) My mentor helps me do better in school. My mentor praises me and encourages me to do well. I do better at school because my mentor tells me I can.	4.98 (1.19)
Mentor communication (7) I am able to ask my mentor for help when I need it. I am able to discuss problems with my mentor. I am proud to tell my mentor when I have done well. My mentor helps me to see different ways I can deal with my problems. I like talking things over with my mentor. I discuss with my mentor what I would like to do in the future. When I am worried or have a problem, I discuss it with my mentor.	5.11 (1.22)
Mentor confidence (2) I feel I can do more things by myself because of my mentor. My mentor helps me to feel good about myself.	5.21 (1.07)
Content (1) Overall, how satisfied are you with the educational activities?	5.10 (0.77)
School (2) Being in the mentoring program improved my grades in school. Being in the mentoring program helps me to obtain better grades at school.	4.41 (1.50)
Self-confidence (1) Being in the mentoring program improved my confidence.	4.78 (1.31)
Communication skills (3) After this experience, I have learned to better communicate with adults. After this experience in the mentoring program, I have learned to better communicate with my parents. After this experience in the mentoring program, I have learned to better communicate with my teachers.	4.53 (1.31)
Communication skills before and after (2), 2018 and 2019 combined data[a] How would you describe your communication skills BEFORE you started the mentoring program? How would you describe your communication skills AFTER you finish the mentoring program?	1.96 (1.19) 2.93 (0.96)

Note. [a]A statistically significant improvement in self-rated communication skills was found ($p < .0001$).

Appendix B: Analysis of Satisfaction and Program Impact Surveys Given to Parents After the 1-Year Mentoring Program

Question topic (number of questions)	2018 Mean (*SD*) *N* = 19	2019 Mean (*SD*) *N* = 19	Mean total (*SD*) *N* = 38
Satisfaction with mentor (1) Did your child enjoy their time with their mentor?	3.00 (0.00)	2.92 (0.40)	2.95 (0.30)
Emotions (2) Is your child happier? Is your child less angry?	2.81 (0.52)	2.90 (0.37)	2.86 (0.44)
Relationships (2) Does your child interact better with their siblings? Does your child interact better with their friends?	2.92 (0.36)	2.85 (0.46)	2.88 (0.42)
Home responsibility (3) Does your child listen better? Is your child more responsible? Does your child follow house rules better?	2.87 (0.44)	2.68 (0.70)	2.76 (0.61)
Confidence (1) Does your child have more trust in themself?	2.84 (0.50)	2.79 (0.59)	2.81 (0.55)
School performance (1) Is your child more successful in school?	2.94 (0.25)	2.89 (0.58)	2.85 (0.48)
School attitude (1) Does your child have a better attitude toward school?	2.89 (0.46)	2.80 (0.58)	2.84 (0.53)
School responsibility (3) Does your child put more effort into school? Does your child have better attendance at school? Does your child follow school rules better?	2.84 (0.53)	2.75 (0.62)	2.79 (0.58)