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ORIGINAL ARTICLE

Long-term impact of the Fostering Healthy Futures for Preteens program on suicide-related thoughts and behaviors for youth in out-of-home care: A randomized controlled trial

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Abstract

Youth in out-of-home care are at high risk for suicide-related thoughts and behaviors (STB), yet there are no known efficacious interventions that reduce STB for this population. Fostering Healthy Futures for Preteens (FHF-P) is a 9-month community-based mentoring and skills training preventive intervention for children in out-of-home care. A randomized controlled trial enrolled 156 participants aged 9–11 years who were placed in out-of-home care over the prior year. Participants were 48.9% female, 54.1% Hispanic, 30.1% Black, and 27.1% American Indian. Follow-up interviews, conducted 7–12 years postintervention (85.2% retention rate), asked young adult participants, aged 18–22, to self-report lifetime STB as indexed by non-suicidal self-injury, suicidal thoughts, plans, and/or attempts. There was a nonsignificant reduction in the odds of STB for the intervention group at follow-up (OR = 0.74; CI, 0.32, 1.69). However, FHF-P significantly moderated the effect of baseline STB; control youth who reported baseline STB had 10 times the odds of young adult STB (OR = 10.44, CI, 2.28, 47.78), but there was no increase in the odds of adult-reported STB for intervention youth. Findings suggest that FHF-P buffers the impact of pre-existing STB on young adult STB for care-experienced youth. Further research is needed to identify mechanisms that may reduce STB in this population.

KEYWORDS

foster care, mentoring, out-of-home care, randomized controlled trial, self-harm, suicide

Highlights

- Fostering Healthy Futures for Preteens (FHF-P) is an intervention for children in out-of-home care.
- This randomized trial examined whether FHF-P reduced suicide-related thoughts and behaviors (STB).
- FHF-P demonstrated a nonsignificant 26% reduction in the odds of STB 7–12 years postintervention.
- An interaction effect suggested that FHF-P buffered the impact of preteen STB on young adult STB.

INTRODUCTION

Suicide-related thoughts and behaviors (STB) among young people are a serious global public health concern, with rates increasing in the US since 2007 (Van Meter et al., 2018). Suicide is the second leading cause of death for young people aged 10–24 in the US Young people under the age of 24 have over twice the rate of emergency room visits for self-harm than those aged 25 and older (Centers for Disease Control and Prevention, 2023) and early STB is a robust predictor of later STB (Barch et al., 2022; Lee et al., 2022; Ruch et al., 2021; Conley Wright et al., 2020).

Adverse childhood experiences and trauma increase the risk of youth STB (Anderson et al., 2022; Murray et al., 2022; Ruch et al., 2021; Taussig et al., 2014; Uh et al., 2021; Wang et al., 2023; Conley Wright et al., 2020; Yıldız, 2020). Child maltreatment, including multiple forms of abuse and neglect, is associated with a two- to three-fold increase in the odds of STB in both children and young adults (Angelakis et al., 2020; Baldwin et al., 2023). Placement in out-of-home care (including placement in nonrelative foster care, kinship care or congregate settings) is a robust risk factor for STB. In a study of 515 preadolescent children who recently entered care, over a quarter had STB (Taussig et al., 2014). Another study using administrative records over a 60-year period found care-experienced individuals were over twice as likely to have been hospitalized for suicide attempts across adulthood compared to those who did not experience out-of-home care (Almquist et al., 2020). Finally, a meta-analysis found rates of suicidal ideation and attempts among youth in out-of-home care to be two to four-and-a-half times higher than in noncare populations (Evans et al., 2017).

These rates of STB are highly concerning given that nearly 400,000 youth are currently in out-of-home care in the US (U.S. Department of Health and Human Services, 2023) and nearly 6% of all US children will enter out-of-home care by their 18th birthday (Wildeman & Emanuel, 2014). This includes an overrepresentation of young people from historically marginalized groups with elevated risk for STB, including American Indian (AI) and sexual minority youth. An estimated 15% of AI children experience out-of-home care (Wildeman & Emanuel, 2014), with AI youth and young adults having three times the risk of suicide (Centers for Disease Control and Prevention, 2023; Garcia, 2020; Jones & Satter, 2022). A recent survey of nearly one million 10 to 18-year-old in California found that 30.4% of youth in out-of-home care identified as LGBTQ compared with 11.2% in a nationally representative sample (Baams et al., 2019). LGBTQ youth have higher rates of nonsuicidal self-injury (Conley Wright et al., 2020) and rates of attempted suicide four times as high as non-LGBTQ youth (Centers for Disease Control and Prevention, 2023; Johns et al., 2020).

Given the extent of the STB public health crisis in the US among youth, understanding what works to prevent and treat STB is of critical importance. Unfortunately, multiple systematic reviews have concluded that few interventions designed to address STB are supported with strong evidence (Glenn et al., 2015, 2019; Ougrin et al., 2015). In fact, only Dialectical Behavior Therapy for adolescents (a multicomponent cognitive-behavioral treatment for STB that focuses on increasing emotion regulation and distress tolerance) has been shown to reduce suicidal ideation in more than one independent randomized controlled trial. Meanwhile, a handful of other interventions, such as Safe Alternatives for Teens and Youth (a family-focused treatment for STB that incorporates components of both Dialectical Behavior Therapy and cognitive-behavioral therapy) and parent training (a competency-based treatment that provides parents with psychoeducation about STBs and skills to manage family conflict), are regarded as promising for STB, but require independent replication to bolster confidence in their efficacy (Glenn et al., 2019). A key takeaway from such reviews is that many intervention studies targeting STB suffer from small samples, low methodological rigor, substantial attrition, and only short-term follow-up (Ougrin et al., 2015; Conley Wright et al., 2020).

Longitudinal follow-up may be especially important to detect intervention effects (Ayer et al., 2023; Wyman, 2014). This is borne out in research assessing interventions that were and were not designed to address STB. With respect to the former, a youth-nominated support team intervention for suicidal adolescents initially found limited short-term effects (King et al., 2009); however, the intervention demonstrated a reduction in long-term suicide mortality 11–14 years postenrollment (King et al., 2019). With respect to the latter, two preventive interventions have shown promising long-term STB outcomes. Multidimensional Treatment Foster Care, a parent-management training and youth support model for adolescent girls with juvenile justice involvement, found that suicidal ideation marginally decreased by the 9-year follow-up (OR = 0.92, $p < .10$); however, there were no long-term program impacts on suicide attempts. Family Check-Up, another family-centered intervention to enhance parenting skills, also found trend-level main effects of the intervention on STB 5–12 years later (Connell et al., 2019) and program effects on STB for a high engagement group 7–19 years postintervention (Connell et al., 2016).

Despite the greater risk of STB among maltreated youth with child welfare involvement and those in out-of-home care, there are limited prevention or intervention efforts that have focused on STB in this population (Brown, 2020; Evans et al., 2023; Russell et al., 2021). A promising way to advance such efforts is to design interventions for a child welfare context and ensure they contain active components that resemble those of efficacious STB interventions. Although no two STB interventions are the same, most of them include a *skill building component* (e.g., emotion regulation, problem-solving) for individual youth and an *interpersonal component* to strengthen their support system (Glenn et al., 2019). These components align with many contemporary suicide theories, such as the Interpersonal Theory of Suicide (Van Orden et al., 2010), Three-Step Theory (Klonsky & May, 2015), and the Integrated Motivational-Volitional Model (O'Connor & Kirtley, 2018), which incorporate individual and interpersonal drivers/moderators (e.g., thwarted belongingness, hopelessness, coping, social support) to explain STB.

Fostering Healthy Futures for Preteens (FHF-P) is a preventive intervention designed for youth in out-of-home care due to maltreatment. The two major intervention components of the FHF-P program, mentoring and skills groups, are consistent with evidence-based STB interventions that emanate from the risk and protective factors identified in the suicide theories described above. FHF-P is a positive youth development (PYD) program that provides a supportive context for the development of young people's social, behavioral, and emotional competencies (see the Method section for a more detailed program description) (Taussig et al., 2007). There is an increasing evidence base to support the association between PYD and a reduction in STB (Taliaferro et al., 2023; Zhu & Shek, 2023).

FHF-P is hypothesized to result in a host of positive outcomes for youth across multiple domains (Taussig et al., 2007) and has demonstrated positive short-term effects on internalizing and trauma symptoms, mental health service utilization, placement changes, out-of-home care costs, and residential treatment, as well as positive long-term impacts on delinquency (Taussig & Culhane, 2010; Taussig et al., 2012, 2019, 2021; Winokur & Crawford, 2014). Since many of the outcomes targeted in FHF-P are demonstrated risk factors for STB, sharing some of the same predictive factors and mechanisms (Ayer et al., 2023), it stands to reason that FHF-P may also reduce the occurrence of STB.

THE CURRENT STUDY

The current study examined the long-term impact of FHF-P on young adult STB measured 7–12 years postintervention. Key research questions and hypotheses included:

Question 1: Does the FHF-P intervention reduce lifetime STB by young adulthood?

Hypothesis 1. After controlling for any baseline group differences, baseline STB, and strong covariates of STB, fewer participants in the FHF-P intervention group, relative to the control group, will report lifetime STB in young adulthood.

Question 2: Does the FHF-P intervention moderate the impact of baseline STB on young adult-reported STB?

Hypothesis 2. There will be an interaction between baseline STB and group status, such that the FHF-P intervention will buffer the impact of baseline STB on lifetime STB reported in young adulthood.

METHOD

Participants

Eligible participants were recruited in five cohorts over five consecutive summers. Children were eligible for the study if they (a) had been placed in any type of out-of-home care (i.e., nonrelative foster care, kinship care, congregate care) due to maltreatment within the preceding year in the Denver, Colorado metro area, (b) had lived in their current placement setting for at least 3 weeks, (c) resided within a 35-min drive to the intervention group sites at the time of recruitment, (d) did not have a developmental disability that would preclude them from participating in group, and (e) were English speaking (caregivers, however, could be monolingual Spanish speaking). When multiple siblings were eligible, one sibling was randomly selected to participate in the randomized controlled trial (RCT). Participation in the study was voluntary and could not be court-ordered.

As shown in the CONSORT diagram (see Figure 1), 91.4% of eligible children and families agreed to participate in the baseline interview (Taussig & Culhane, 2010). Participants were recruited for a long-term follow-up interview 7–12 years postintervention ($M = 8.94$, SD = 1.07) when they were between the ages of 18–22. Of the 156 children who were randomized, 85.3% ($n = 133$) were retained at follow-up. Characteristics of the 156 children who participated in the RCT are presented in Table 1.

Study protocol

The current study was approved by the university's institutional review board. Written informed consent and assent were obtained before each interview. All participants received a baseline screening assessment of their cognitive and psychosocial functioning; screening reports with recommendations were provided to caseworkers (Taussig et al., 2007). Most recommendations were for additional assessment of mental health and/or academic functioning and concomitant services (Petrenko et al., 2011). Following the baseline interview, children were randomized to condition (control = baseline assessment only, intervention = baseline assessment plus FHF-P intervention) after stratifying on sex and county. Within each of the five cohorts, all children were manually randomized in a single block. STB was assessed at both the baseline interview (prerandomization) and at the young adult follow-up interview; protocols for reporting imminent risk of harm have been delineated previously (Taussig et al., 2014). Children and their out-of-home caregivers were interviewed in separate, private rooms at baseline, typically in their homes, and

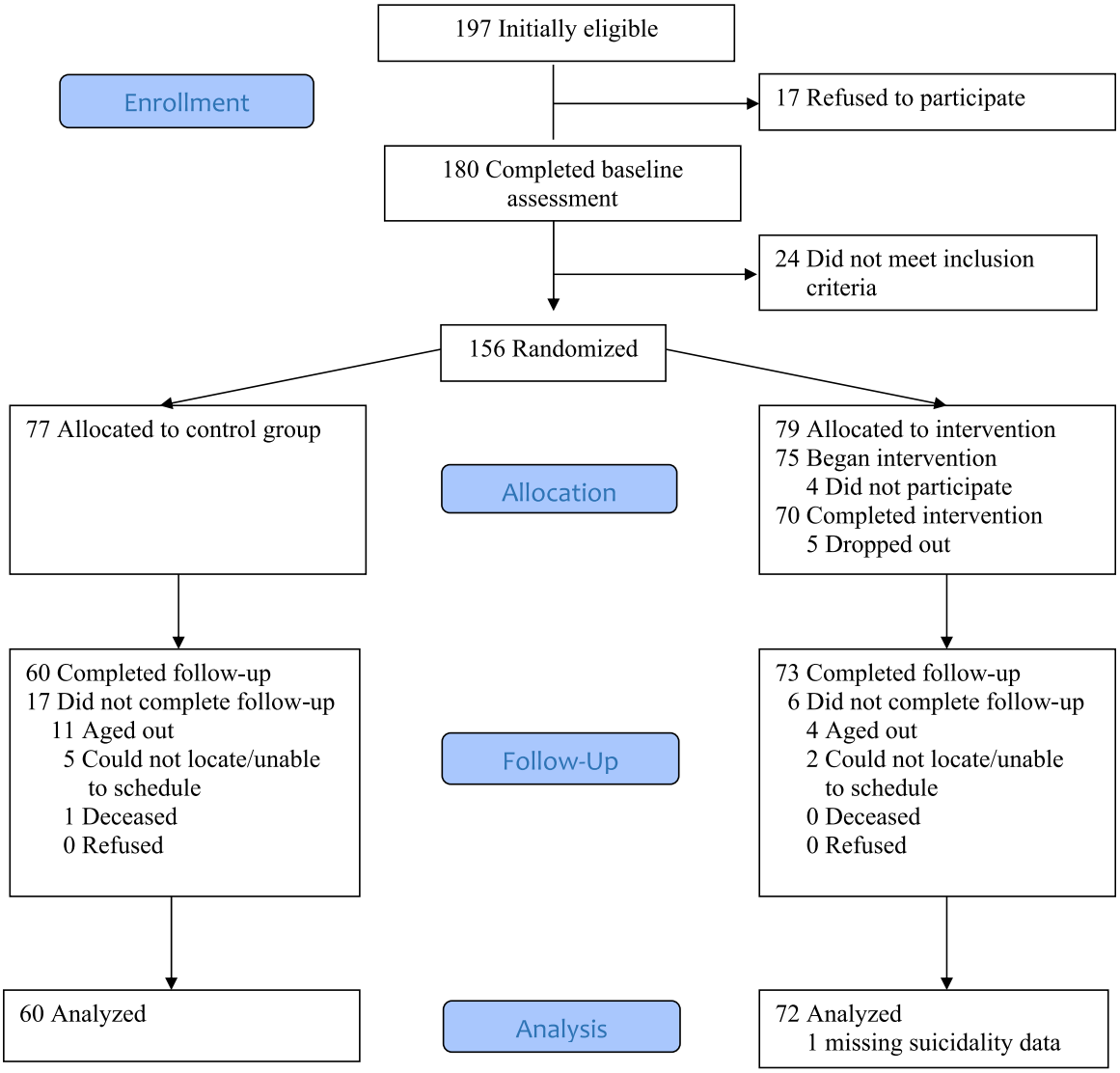

FIGURE 1 CONSORT diagram.

young adult interviews were typically conducted in a private room in a public setting (e.g., library, recreation center). Trained graduate research assistants, who were masked to condition, read each interview question aloud and recorded participants' responses. Children and caregivers each received $40 in cash at the baseline interview and young adults received $100 in cash for the follow-up interview.

Fostering Healthy Futures for Preteens (FHF-P) preventive intervention

FHF-P is a 30-week program consisting of weekly skills groups and one-on-one community-based mentoring. Skills groups meet for 1.5 h/week and utilize a cognitive behavioral curriculum with units addressing emotion recognition, perspective taking, problem solving, anger management, cultural identity, change and loss, healthy relationships, peer pressure, abuse prevention, and future orientation. Mentors are graduate students in social work or psychology who meet weekly with their mentees in their communities to build healthy relationships and support their mentees in practicing social skills, engaging in extracurricular activities, and thinking positively about their futures. Children continue to participate in the 30-week FHF-P program regardless of whether they change placements or reunify with their birth families. High rates of engagement and fidelity were achieved in the trial: 95% of those offered FHF-P started the program, 92% completed it, and there was over 85% attendance at mentoring and skills groups (see Taussig et al., 2007, 2019 for additional details on the program design and fidelity).

Measures

Demographic, maternal, and maltreatment characteristics

Race, ethnicity, sex, baseline placement type, and type of maltreatment (coded using Barnett et al., 1993) were obtained from child welfare records and child/caregiver reports at baseline. Maternal history of mental health problems was coded as present if there was any mention of mental health problems in the family social history completed by caseworkers. Table 1 shows these baseline data in the *Randomized Sample* columns. Self-report of race, ethnicity, and sexual identity were also collected during the young adult interviews, and these data are shown in the *Analyzed Sample* columns.

Adverse childhood experiences (ACEs)

ACEs were assessed with a six-item published measure empirically developed for this sample (Raviv et al., 2010). Items included physical abuse, sexual abuse, removal from a single parent household, violence exposure, number of caregiver transitions, and number of school transitions.

Preadolescent STB at baseline

Consistent with recommendations to assess youth STB using a combination of youth and caregiver reports (Barch et al., 2022; Wamser-Nanney & Campbell, 2022), items from several standardized measures administered

TABLE 1 Baseline differences for randomized and analyzed samples.

	Randomized sample		Analyzed sample	
Baseline variable	**Control ($n = 77$)**	**Intervention ($n = 79$)**	**Control ($n = 60$)**	**Intervention ($n = 73$)**
Demographic				
Age, mean years[a]	10.37 (0.93)	10.33 (0.88)	20.28 (1.04)	19.99 (0.91)
Female, %	50.6	48.1	48.3	49.3
Hispanic, %[b]	52.1	45.9	58.3	50.7
White, %[b]	51.4	46.1	55.0	43.8
Black, %[b]	25.7	37.3	23.3	35.6
American Indian (AI), %[b]	44.3	34.2	31.7	23.3
Lesbian, gay, or bisexual, %[c]	—	—	6.7	12.3
Maternal mental health problems, %	37.7	39.2	36.7	39.7
Maltreatment				
Physical abuse, %	24.7	39.2	25.0	38.4
Sexual abuse, %	14.3	8.9	11.7	9.6
Emotional abuse, %	66.2	57.0	70.0	56.2
Supervisory neglect, %	77.9	78.5	80.0	79.5
Physical neglect, %	51.9	48.1	46.7	52.1
Moral-legal maltreatment, %	27.3	41.8	28.3	42.5
Placement type at baseline				
Kinship care, %	39.0	51.9	45.0	52.1
Foster care, %	55.8	41.8	51.7	45.2
Congregate care, %	5.2	6.3	3.3	2.7
Adverse childhood experiences, mean	1.87 (1.15)	1.95 (1.11)	1.85 (1.20)	1.97 (1.10)
Any STB, %	22.1	24.1	20.0	26.0

Note: Standard deviations in parentheses for continuous variables.

[a]Mean baseline age is shown for the randomized sample; mean young adult age is shown for the analyzed sample.

[b]These variables were measured with child self-report for the randomized sample and young adult report for the analyzed sample; racial/ethnic groups are nonexclusive.

[c]Only reported at follow-up.

to children and their caregivers at the baseline interview were used to index any lifetime STB, including: (1) the Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 2000), (2) the Trauma Symptom Checklist for Children (Briere, 1996), and (3) the Child Behavior Checklist (Achenbach & Rescorla, 2001). In addition, children answered questions about lifetime history of nonsuicidal self-injury, suicidal ideation, plans, attempts, and methods on the Adolescent Risk Behavior Survey (ARBS; Taussig, 1998). A description of these 11 items has been described previously (Taussig et al., 2014). Baseline STB was coded as "present" if there was an affirmative response on one or more of the 11 items as reported by either caregiver or child. Just under a quarter (36/156 = 23.1%) of participants were coded as having any STB at the baseline interview.

Young adult STB at the 7–12-year follow-up

The ARBS was also used to measure lifetime STB at the young adult interview. Young adult STB was coded as "present" if there was an affirmative response to any of the four questions that included a history of nonsuicidal self-injury, suicidal ideation, plans, and/or attempts. Just over a quarter (37/132 = 28.0%) of participants reported lifetime STB in young adulthood.

Analysis plan

Equivalence between intervention and control groups on baseline characteristics was assessed using χ^2 tests for categorical variables and independent samples t tests for continuous variables. The same analyses were repeated for the retained/analyzed sample (i.e., post-attrition). Next, all baseline variables were examined as predictors of attrition across condition using a series of logistic regressions. A χ^2 test was then used to assess whether the rate of attrition varied by intervention condition. Multivariable logistic regression models examined whether interactions between each baseline variable and intervention status predicted attrition status.

The overlap/concordance between lifetime report of STB at baseline and follow-up was examined with a χ^2 test, first for the overall sample and then by intervention condition. For research question 1, a multivariable logistic regression model was used to test the main effect of intervention status on young adult STB. For research question 2, a multivariable logistic regression model that included the interaction term of group status × baseline STB was used to examine whether intervention status moderated the impact of baseline STB on young adult STB. This moderation analysis examined the impact of FHF-P on the well-established predictive link between early STB and later STB (Barch et al., 2022; Lee et al., 2022; Ruch et al., 2021; Conley Wright et al., 2020). All models controlled for baseline STB, ACEs, AI, and sexual identity, as these variables are associated with STB in this sample (Taussig & Evans, 2021). All analyses used the intent-to-treat sample and no missing data were imputed (only one participant was missing outcome data and no participants were missing baseline data/covariates). All regression tests were two-tailed with a $p < .05$ significance level. Analyses were conducted in SPSS statistical software, version 29 (IBM SPSS Statistics for Windows computer program, Version 29, 2022); the PROCESS Macro for SPSS version 4.0 was used for moderation analyses (Hayes, 2022).

RESULTS

Differences on baseline characteristics

There were no statistically significant baseline group differences (see Table 1).

Attrition

There were no significant ($p < .05$) predictors of attrition across condition (i.e., for the whole sample), but there was a higher rate of attrition in the control group, $\chi^2(1, N = 156) = 6.51$, $p = .01$. Only one of the 19 interaction analyses predicting attrition was significant; specifically, there was a cross-over interaction between intervention group and baseline age, $b = -1.25$, SE = 0.61, $p = .04$, suggesting a nonsignificant pattern for younger control youth and older intervention youth to attrit.

Concordance between baseline and young adult measures of STB

There was no statistically significant association between baseline and young adult STB for the total sample; 38.7% of those with baseline STB and 24.8% of those without baseline STB reported lifetime STB at the 7–12-year follow-up. When looking within intervention status, however, some differences emerged. Baseline STB was predictive only for the control group, with 66.7% of those who endorsed STB at baseline reporting young adult STB (Fisher's exact test, $p = .004$). In comparison, only 21.1% of the intervention group who endorsed STB at baseline reported young adult STB.

Impact of FHF-P on young adult STB at follow-up

Regression analysis results for both research questions are shown in Table 2. In the main effects model (research question 1), after controlling for covariates, there was a nonsignificant 26% reduction in the odds of STB for the

TABLE 2 Logistic regression models examining main effects and interactions of intervention status predicting lifetime STB in young adulthood ($N = 132$).

Predictor[a]	Estimate	SE	Odds ratio (OR)	95% CI for OR
Main effects model (research question 1)				
Intervention status	−0.30	0.42	0.74	[0.32, 1.69]
American Indian (AI)	0.97	0.45	2.64*	[1.09, 6.39]
Sexual identity	1.69	0.65	5.41*	[1.51, 19.42]
ACEs	−0.04	0.19	0.96	[0.66, 1.40]
Baseline STB	0.96	0.51	2.60	[0.96, 7.04]
Interaction model (research question 2)				
Intervention status	0.36	0.50	1.43	[0.54, 3.79]
American Indian (AI)	0.99	0.47	2.68*	[1.08, 6.68]
Sexual identity	1.72	0.66	5.56**	[1.53, 20.23]
ACEs	−0.06	0.20	0.95	[0.64, 1.40]
Baseline STB	2.35	0.78	10.44**	[2.28, 47.78]
Intervention status* baseline STB	−2.47	0.99	0.08*	[0.01, 0.60]

Note: Estimate for each predictor is in log-odds.

[a]Coding for categorical predictor variables: Intervention status (0 = control, 1 = intervention); American Indian (0 = non-AI, 1 = AI), sexual identity (0 = heterosexual, 1 = lesbian, gay, or bisexual).

*$p < .05$; **$p < .01$.

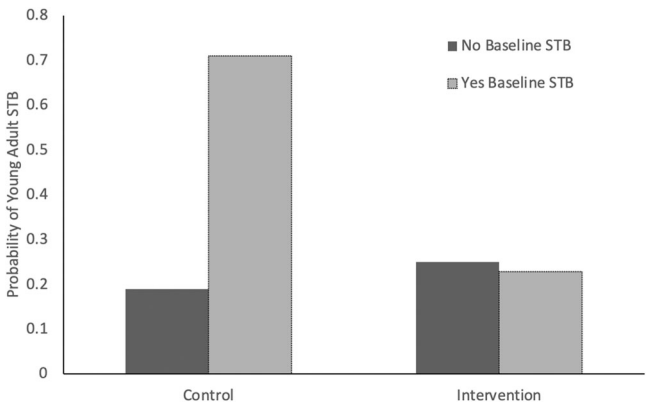

FIGURE 2 The FHF-P intervention moderates the impact of baseline STB on lifetime STB in young adulthood. Conditional effects of the moderator (intervention condition) at the two values of the predictor (baseline STB) were probed and plotted as shown above. Bars represent the expected probability of young adult STB. STB, suicide-related thoughts and behaviors.

intervention group relative to the control group (OR = 0.74, 95% CI [0.32, 1.69]). In the model with the interaction term (research question 2), intervention status moderated the impact of baseline STB. For youth in the control group, the odds of young adult STB for those who reported baseline STB were 10 times as large as the odds for those who did not report baseline STB (OR = 10.44, 95% CI [2.28, 47.78]; see Figure 2). For intervention youth, the odds of young adult STB did not differ between those with and without baseline STB (OR = 0.89, 95% CI [0.22, 3.50]). In both models, being AI and/or a sexual minority were associated with increased odds of young adult STB.

DISCUSSION

FHF-P, a 30-week individualized mentoring and group-based skills training program, demonstrated high rates of engagement among diverse youth with recent out-of-home care placement, almost a quarter of whom had a history of STB at baseline (Hambrick et al., 2016; Taussig et al., 2014, 2019). Nearly a decade later, those randomized to the control group who had baseline STB had 10 times greater odds of having a lifetime history of STB than control youth without baseline STB. In the intervention group, however, baseline STB was not associated with STB measured 7–12 years postintervention. This is a critical finding, as early STB is one of the strongest predictors of later STB (Barch et al., 2022; Lee et al., 2022; Ruch et al., 2021; Conley Wright et al., 2020). This is the first known study to demonstrate the long-term STB impacts of a preventive intervention for children in foster care.

The National Institutes of Health recently developed a strategic framework for addressing youth mental health disparities that calls for supporting research to improve

"implementation and availability of mental health prevention and treatment interventions and services, as well as programs" within the child welfare setting (National Institute of Mental Health, 2022, p. 9). The results of the current study suggest that although the experience of maltreatment and placement in out-of-home care is associated with multiple adverse outcomes, including STB, a preventive intervention can buffer the risks associated with early STB on long-term STB outcomes. FHF-P has already demonstrated positive outcomes on several non-STB outcomes, and the results of the current study suggest that interventions which have demonstrated positive outcomes on risk and other problem behaviors hold potential for affecting STB. Consequently, these findings should motivate researchers of such interventions to collect longitudinal data on STB and to examine whether those interventions also affect STB.

While the current study did not examine mediators, it does offer evidence to support the components and causal mechanisms of FHF-P which target risk and protective factors identified in contemporary theories of suicide as well as the positive youth development framework. Empirical research on STB prevention and intervention strategies suggests that key STB psychosocial processes may be impacted by mentoring and skills training, the core components of the FHF-P program (Taliaferro et al., 2023). For example, programs that target early social-emotional development, including those that build adaptive problem solving and coping strategies, have been shown to have later positive impacts on STB (Ayer et al., 2023; Wyman, 2014). Healthy relationships with adults and peers have also been shown to ameliorate the risk of STB in both general and high-risk samples (Conley Wright et al., 2020; Yıldız, 2020). One retrospective study found that the protective effect of social support on STB was stronger for adults who had experienced childhood abuse than for those without abuse histories (Angelakis et al., 2020).

Weekly mentoring in the FHF-P program was in part designed to connect children with extracurricular activities to build on their strengths and interests. This, coupled with the weekly skills groups, may have led children to have less "leisure-time sedentary behavior," including less time for video games and other screen-time activities, which are also associated with STB (Messias et al., 2011; Vancampfort et al., 2019). Finally, short-term outcomes that have already been demonstrated to result from FHF-P, including a reduction in placement changes and fewer internalizing and trauma symptoms, may have contributed to the current study's findings (Touati et al., 2021). Indeed, two large-scale longitudinal studies found that mental health problems mediated the impact of early adversity on later STB (Duprey et al., 2020; Yıldız, 2020).

AI and sexual minority youth were at greater risk of STB in the current study, replicating what multiple other studies have found and attributed to the trauma experienced among these marginalized groups as well as lack of access to culturally competent mental health services (Edwards et al., 2022; Garcia, 2020; Hamby et al., 2023; Jones & Satter, 2022; Lucero et al., 2021; Conley Wright et al., 2020). Positive youth development programs, and specifically those using a mentorship model, are often preferred over traditional therapy by youth of color and sexual minority youth and their families because of their nonstigmatizing and future-focused orientations (Edwards et al., 2022; Taussig & Weiler, 2017; Vázquez & Villodas, 2019). In addition, mentoring programs, such as FHF-P, that engage in instrumental practices such healthy coping and social skill development, have been shown to have positive effects on mental health functioning among youth (Cavell et al., 2021; Chesmore et al., 2017; Christensen et al., 2020; Werntz et al., 2023).

Strengths and limitations

This is the first rigorously conducted RCT with longitudinal follow-up that has examined the impact of a community-based positive youth development program on STB outcomes for youth in out-of-home care. The trial had high recruitment and retention rates and used intent-to-treat analyses to examine program effects. Although FHF-P is currently on several registries of evidence-based programs (including the Title IV-E Clearinghouse) and is beginning to be implemented in other states and countries, this is the first study to demonstrate FHF-P's long-term mental health impacts.

While the study was able to control for some key covariates, the sample size precluded the inclusion of other important covariates (such as living history and other major life events) as well as the conduct of additional moderating analyses. The smaller sample size may also have limited the detection of a statistically significant main effect of the FHF-P intervention on STB outcomes, as the odds ratio suggested a 26% reduction in the odds of STB for the intervention group relative to the control group. The large confidence interval, however, suggests a lack of estimate precision, and caution should therefore be taken when interpreting these main effect findings. Other limitations of the study include the low base rate of each STB, which made aggregation and dichotomization of this construct necessary. Studies with larger sample sizes may be able to examine non-suicidal self-injury, suicidal ideation, plans, and attempts as separate dependent variables as well other important metrics, such as chronicity and severity of STB.

The current study also could not model dynamic risk over time, despite the collection of STB data at multiple intervening time points, due to so few endorsements of STB. This may be a function of youth, especially those in out-of-home care, feeling concerned about reporting

STB, which could result in being placed in a higher level of care (McGillivray et al., 2022). Interviewer-administered surveys could also have led to reporting hesitancy due to social desirability bias. Low rates of STB reporting also necessitated using both caregiver and child reports at baseline (as has been recommended, see Barch et al., 2022; Wamser-Nanney & Campbell, 2022) and a lifetime measure of STB in young adulthood (as past-year reporting of STB was very low).

Although it is possible that greater attrition in the control group may have impacted the findings, 100% of the intervention youth who reported baseline STB were retained for the young adult interviews, while only 71% of the control group who had baseline STB were interviewed in adulthood. Furthermore, the control group did not receive treatment as usual; they were given a psychosocial screening assessment prerandomization, the results of which were provided to their caseworkers with accompanying recommendations. In a prior investigation with this sample, those with recommendations for mental health treatment were more likely to be receiving such treatment 6–12 months later (Petrenko et al., 2011). All these factors suggest that the findings regarding the benefit of FHF-P on STB may be conservative. Finally, the fact that this study was conducted in one metropolitan US city limits its external validity and results may not be generalizable to populations in other geographical locations.

CONCLUSIONS

Youth in out-of-home care are in dire need of contextually sensitive, non-stigmatizing, and growth promoting interventions to reduce STB; recent reviews have suggested that there are no evidence-based programs for this population (Brown, 2020; Evans et al., 2023; Taussig & Weiler, 2017). The NIH recently issued an RFP for a cooperative agreement, *Using Secondary Data Analysis to Determine Whether Preventive Interventions Implemented Earlier in Life Reduce Suicide Risk* (RFA-MH-23-275) "to encourage research to integrate/harmonize existing large prevention trial data sets implemented earlier in life to examine whether they reduce risk for later suicide, including suicide thoughts and behaviors." This suggests (1) that preventive intervention efforts not specifically designed to reduce STB should be examined for their impacts in reducing this epidemic, and (2) the importance of long-term follow-up in assessing STB outcomes, even when this has not been the primary outcome of interest. The results of this longitudinal study of FHF-P suggest that suicide risk can be reduced among a high-risk, heterogeneous group of young people. Further research is needed to understand how and for whom FHF-P program components and processes can support the developing brain and provide a "window of opportunity" for healthy adolescent development (Telzer et al., 2022).

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

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