

EVALUATION OF AN ENTREPRENEURSHIP EDUCATION INTERVENTION FOR AMERICAN INDIAN ADOLESCENTS: TRIAL DESIGN AND BASELINE SAMPLE CHARACTERISTICS

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Abstract: Entrepreneurship education is a strength-based approach and holds promise for promoting health equity for American Indian youth. Arrowhead Business Group (ABG) was developed by a tribal-academic research partnership and is being rigorously evaluated for impacts on psychosocial, behavioral, educational, and economic outcomes. This article describes: 1) the trial design and conceptual model under-girding the ABG program; 2) the sociodemographic, sociocultural, and family/household characteristics of participants at baseline; and 3) the baseline differences in key outcome indicators between study groups. Results demonstrate participants have baseline characteristics appropriate for study aims and are compared and contrasted with other youth from the participating tribal community and state in which the tribe resides. Findings inform future analyses to explore how baseline characteristics are associated with primary and secondary outcomes of the evaluation.

INTRODUCTION

Entrepreneurship education is a strength-based program model shown to alleviate health disparities driven by poverty in under-resourced international contexts (Jennings, 2014). The impact of such approaches among under-resourced populations in the United States has yet to be evaluated, including among American Indian (AI) youth. Many AI communities face large health, education, and economic inequities compared to other racial or ethnic groups. These inequities stem from colonialism and historical trauma, contemporary oppression, underfunding of health services that fall within the trust responsibility of the federal government to AIs/Alaska Natives (AN), and educational systems with a legacy of collective memories of trauma and cultural genocide (Braveheart & DeBruyn, 1998; Burnette & Figley, 2017; Sarche & Spicer, 2008; Warne & Frizzell, 2014). Entrepreneurship education represents a strength-based model that can begin to

remedy a negative history of education by creating one that is empowering the community. In addition, this model underscores the importance of tribal self-determination over cultural, social, and economic expansion of their own communities (United Nations General Assembly, 2007).

Existing research conducted in the United States hypothesizes that entrepreneurship education provides opportunities to build entrepreneurial knowledge, fosters connection to positive peers and caring adults, promotes adolescent skill-building, and may lead to decreases in substance use, self-injury, depression, and violence (Karcher, 2002, 2005; Karcher, Davis, & Powell, 2002; Karcher & Finn, 2005; Karcher & Lee, 2002; Karcher & Lindwall, 2003, Tingey et al., 2016a). Examples of U.S. entrepreneurship education, some of which have been developed by AI or First Nations communities, include Oregon Association of Minority Entrepreneurs Youth Entrepreneurship Program (Oregon Association of Minority Entrepreneurs, n.d.), First Nations Development Institute School Based Financial Education Program (First Nations Development Institute, 2019), Youth Entrepreneurs (Youth Entrepreneurs, 2018), The Diamond Challenge for Youth Entrepreneurs (Youth Entrepreneurs, 2018), Making Waves (Four Bands Community Fund, 2018), and Network for Teaching Entrepreneurship (Network for Teaching Entrepreneurship, 2018). Despite known disparities in substance use, self-injury, depression, and violence among reservation-based AI youth, rigorous longitudinal evaluations of programs rooted in a positive youth development framework, such as entrepreneurship education, with AI communities are rare (Substance Abuse and Mental Health Services Administration, 2015; Stiffman et al., 2007; Whitlock, Wyman, & Moore, 2014).

The White Mountain Apache (Apache) Tribe's tribal-academic partnership with Johns Hopkins University has developed a new culturally-driven strength-based entrepreneurship education model, called Arrowhead Business Group (ABG), described in detail elsewhere (Tingey et al., 2016b). Briefly, ABG is a highly experiential applied curriculum, comprised of 16 lessons taught by two adult Apache facilitators to mixed-gender groups of youth. The first 10 lessons are taught during a summer residential camp. The last six lessons are taught through workshops during the academic year. Approximately 60 hours of education are delivered via discussion, games, skill-building activities, and multimedia over an 8-month period. The curriculum centers on life skills including self-efficacy (i.e., problem solving, communication, and goal setting), cultural and community connectedness, entrepreneurship, and small business or social enterprise development. Several lessons incorporate content taught by Apache entrepreneurs, community leaders, and

Apache Elders, who speak about Apache culture and positive Apache identity. At the last lesson, youth present their small business plans and, based on merit, are awarded seed funding for startup.

Additional outside mentoring and business startup advice is provided by community volunteers and ABG staff for youth who launch their own businesses at the culmination of ABG programming. The cultivation of positive relationships between these youth and adults in the community may build and sustain feelings of emotional safety, which could buffer against suicidal thoughts and feelings as has been demonstrated through cross-sectional survey data collected with AI youth in New Mexico and the Northern Plains (Fitzgerald et al., 2017; Kenyon & Carter, 2011). In addition, intergenerational relationships and holding a purpose and role within the tribe underscores collective Indigenous values centered on the importance of community (Cajete, 2015).

Additionally, a complementary business Incubator and Arrowhead Café/Marketplace housed in adjoining spaces have been launched by Johns Hopkins and Apache partners that provide a workspace and meeting ground for product creation and idea generation; in-person and virtual retail opportunities; and apprenticeships in the Café and Marketplace in customer service, hospitality, and culinary arts. Some youth choose to stay after program graduation and may benefit from developing further entrepreneurship and job skills, while directly contributing to economic development in the Apache community (Graig, Owen, & Ritter, 2012; Lee, Chang, & Lim, 2005; Youth Entrepreneurship Strategy Group, 2008). Increasing participating youths' connection and commitment to their community and vision for their future may also deter substance use, suicide, and other high-risk behaviors (Wray-Lake et al., 2012; Donovan et al., 2015).

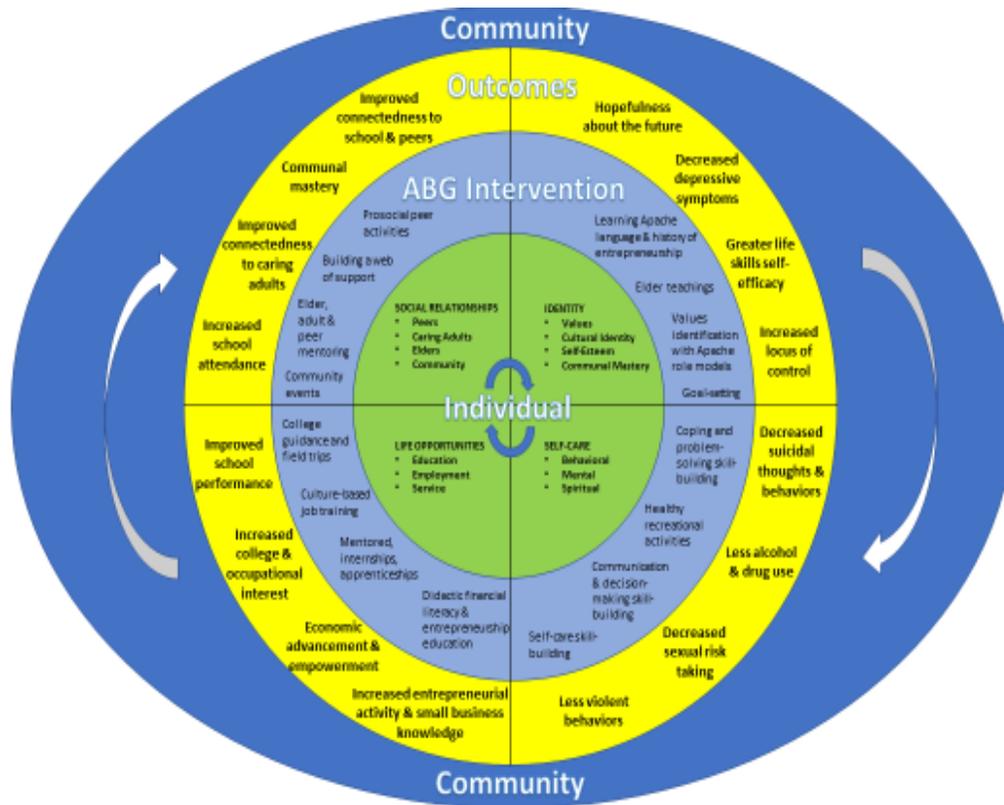
This research to rigorously evaluate the ABG program with longitudinal follow-up seeks to lend momentum to shift the AI behavioral and mental health prevention research paradigm from a focus on risk reduction to protective factor promotion. Other research has indicated that protective versus risk-reduction approaches may be more effective in preventing behavioral and mental health risks among AI youth (see Borowsky, Resnick, Ireland, & Blum, 1999). Our intervention design and outcome evaluation is informed by qualitative and quantitative data gathered with Apache adolescents in previous studies conducted over nearly 20 years through our tribal-academic research partnership. Through this research we learned that 1) low educational achievement and school dropout, 2) hopelessness about the future, and 3) negative peer influences and activities are all significant risk factors for Apache youth substance use, suicide, and other high risk behaviors (Barlow et al., 2012; Cwik et al., 2015, 2017, 2018; Tingey et al., 2012, 2014, 2016a, 2017b).

These findings are consistent with Jessor's (1991) "Problem-Behavior Theory," a long-standing social-psychological framework that explains the interactional person-environmental determinants affecting adolescent health, with a focus on alcohol and drug use and other problem behaviors (see Jessor, 2017). We used our community-engaged process which included: a) formation and guidance on program design from a Community Advisory Board (CAB), b) input from the Apache Elders Council, and c) intensive review and editing by Apache research staff and faculty to adapt Jessor's three major systems of explanatory variables. These systems are: 1) the perceived-environment system, 2) the personality system, and 3) the behavior system to design a conceptual framework for our ABG intervention.

First, our community-engaged process directed a departure from Jessor's model to focus on protective (vs. risk) factors that have potential to buffer Apache youth from school drop-out, unemployment, substance use, violence, and suicide. These protective factors are empirically supported and include: a) connection to Apache history and values through time spent with Apache Elders; b) teaching of essential life skills including decision-making, problem-solving, goal-setting, and self-care; c) fostering positive connections with peers and caring adults through healthy recreational and community-based activities; and d) hands-on learning opportunities including entrepreneurship education and business development, job training, mentored apprenticeships, and college guidance (Borowsky et al., 1999; Cwik et al., 2017, 2018; Kenyon & Carter, 2011; Stiffman et al., 2007; Tingey et al., 2014, 2016a, 2016b, 2017b).

Input from core Apache staff and faculty who were guided by the local CAB and Elders' Council led to further modification of Jessor's model to reflect the intra-personal domains that could be impacted within participating youth: cultural identity, self-care, social relationships, and opportunities. A final departure from Jessor's model was to replace the original linear pathway illustration with a circular, dynamic flow model showing constant reciprocal exchanges between an individual and ABG's targeted growth constructs (cultural identity, self-care, social relationships, and opportunities) and the way ABG seeks to engage community in a constant, evolving cycle to shape lifelong behavioral repertoires (see Figure 1). The final ABG theoretical model is a deep structure cultural adaptation (Okamoto, Kuli, Marsiglia, Holleran-Steiker, & Dustman, 2014), if not counter reaction, to Jessor's original model that is ingrained with Apache knowledge and aspirations for ABG's impact on youth development within a nurturing community context.

Figure 1. Conceptual Model



We are currently evaluating the impact of ABG on psychosocial, behavioral, educational, and economic outcomes with a sample of ($N = 393$) reservation-based Apache adolescents through a 2:1 randomized controlled trial with 24-months post-intervention follow-up. This manuscript describes: 1) the trial design, 2) sociodemographic, sociocultural, and family/household characteristics of participants at baseline, and 3) baseline differences in key outcome indicators between study groups. To our knowledge, this trial is one of the most rigorous evaluations of an entrepreneurship education program conducted with any racial/ethnic group of U.S. adolescents.

METHODS

Sample & Study Procedures

Self-identified AI youth ages 13-16 years living on the Fort Apache Indian Reservation and who were enrolled in a partnering middle or high school were eligible to participate in the trial to evaluate the ABG intervention. Participants were required to be enrolled in school because

primary outcomes of interest in this trial pertain to academic performance. Participants were recruited annually in three cohorts at public events and at participating schools. Written permission was obtained from parents or legal guardians and youth provided assent. The study was approved by the relevant Tribal and University research review boards. This manuscript and all data included from past and current evaluations was approved for publication by the governing bodies of the Apache community. There is no data safety and monitoring board for this study.

Intervention & Data Collection

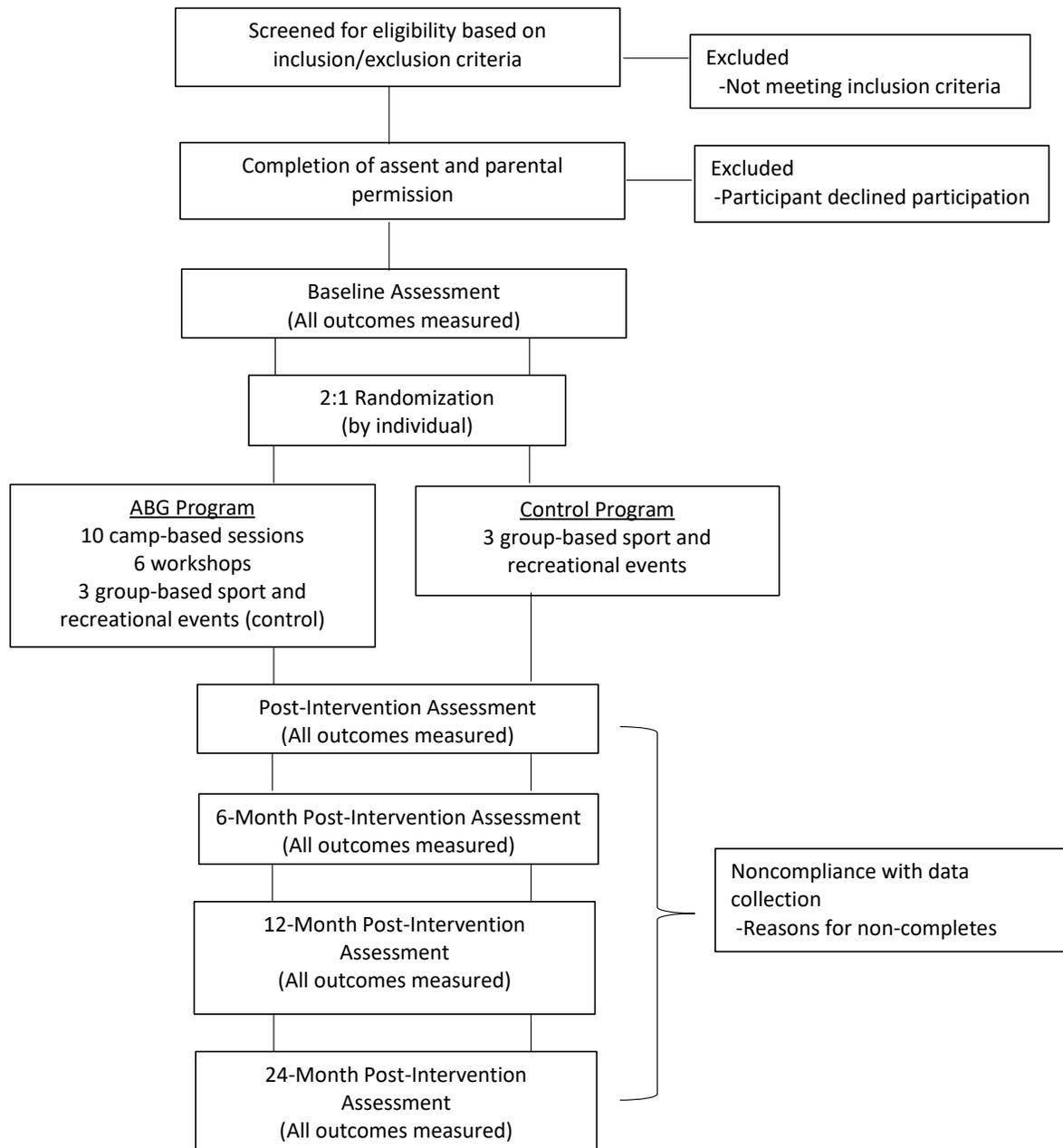
Youth were individually randomized 2:1 to receive either ABG plus a control program, or the control program alone (to determine the additive effects of ABG on primary outcomes). The control condition consisted of recreational activities hosted three times during the academic year. Baseline data were collected through a battery of self-report surveys administered via hard-copy or by Audio Computer Assisted Self-Interview (ACASI) technology on laptop computers and tablets. Assessments covered four domains of adolescent health and well-being hypothesized to be impacted by the ABG intervention: psychosocial, behavioral, educational, and economic. (See Tingey et al. 2016b for a complete description of all assessments utilized for evaluation in this trial). Assessments were selected for their past use in trials of entrepreneurship education interventions and/or for past use with AI adolescent populations. All assessments were pilot tested with Apache youth and revised to reflect local language, clarity, and flow. Participants received a \$100 gift card after completing the baseline assessment. Data was collected from May 2014 through June 2016 (see Figure 2).

Retention

To facilitate retention during ABG program implementation, several key decisions were made. First, the decision was made to deliver the first 10 of 16 ABG lessons during a summer residential (overnight) camp, with transportation provided to and from camp. Camp-based program delivery has proven a highly efficacious retention model among youth in the Apache community and has been well-received by the community and participating youth in past programs (Tingey et al., 2015; Tingey et al., 2017a). Second, post-camp workshops were offered at mutually convenient times for youth and alternated between after-school and weekend options. ABG staff provided transportation to and from workshops, and meals and beverages were also provided to improve

intervention engagement and retention. High retention in data collection was achieved by the delivery of assessments either at home or school. Study staff scheduled surveys based on youths' convenience and availability. Incentives given in the form of gift cards in denominations commensurate with the time required to complete the assessment also facilitated retention throughout follow-up data collection.

Figure 2. Trial Design



Quality Assurance

Prior to recruitment, Apache paraprofessional research staff received extensive training (> 80 hours) in trial protocol and policies, protection of human subjects in research, and intervention delivery (for facilitators). ABG facilitators had to demonstrate mastery of the curriculum through written exam. In addition, during the first year of employment, supervisors observed facilitators conducting lessons and rated them on professionalism, rapport, interpersonal skills, and protocol adherence—providing feedback for continuous quality improvement. As previously described, all data continues to be collected through ACASI and is automatically stored in an accompanying database called Warehouse Manager which eliminates the need for separate data entry and coding. ACASI data can be easily downloaded and transferred into various data analysis software (Excel, Stata, SPSS, etc.) for analyses. All study data are stored on a secure, web-based server that allows for uploading and checking of data in real time. Quarterly quality assurance checks (including validation of participant ID, data collection dates, and checking of missing values) was conducted on data collected at all time points. Regular email updates and cross-site phone conferences were used to review and correct identified errors.

Statistical Analyses

Baseline analyses were carried out using Stata version 14. Participants' sociodemographic, sociocultural, and family/household characteristics were examined at baseline to determine whether randomization had achieved comparability between study groups (intervention vs. control). We also examined any significant differences in key outcome variables between participants at baseline for three of the four targeted domains (psychosocial, behavioral health, and economic). Educational outcomes, the fourth domain, are being obtained through retrospective school record review and were not available at the time of writing for inclusion in this analysis. Outcomes analyzed at baseline included: 1) psychosocial (connectedness, depression, locus of control, life skills self-efficacy, hopelessness, and Apache hopefulness), 2) behavioral health (alcohol use, substance use, lifetime sexual experience, condom use at last sex, weapon carrying, fighting, fighting at school, and suicide attempt), and 3) economic (expansion of current economic abilities, economic agency and participation, economic confidence and security, and future planning and aspirations). T-tests were used with continuous variables and Chi-Squared tests with categorical variables.

RESULTS

Sociodemographic Characteristics

A total of 393 participants completed their baseline assessment and were randomized, with 267 in the ABG intervention and 126 in control group (see Table 1). Mean age of participants was 14.3 years old ($SD = 0.81$), 57.8% were female, and 38.4% reported speaking their tribal language at home (Apache or Navajo). Just over 5% of participants randomized to receive the ABG program speak Spanish compared with 1.6% of control participants; this difference was close to being statistically significant ($p = 0.087$). No significant differences in sociodemographic characteristics were found between groups at baseline.

Sociocultural Characteristics

Nearly one-third of all youth said they live a traditional Apache way of life (32.7%), 39.0% live a modern Apache way of life, 5.6% a Hispanic or Mexican American way of life, and 9.5% reported living an 'Other' way of life. At baseline, 66.2% of youth said it is important to follow traditional AI/AN beliefs, while 79.6% stated it is important to follow Christian beliefs (53.2% said yes to both). Almost all participating youth (93.0%) said it is important to have traditional AI/AN values and practices, and 66.8% said it is important to participate in traditional practices and ceremonies. Slightly less than half (49.0%) said it is important to marry someone who is AI/AN. Approaching statistical significance was the difference between study groups in youth who reported living an 'Other' way of life (intervention = 11.3% vs. control = 5.6%; $p = 0.074$). Examples of how youth responded in this 'Other' category include living a Navajo or Christian way of life. No other differences in sociocultural characteristics were approaching statistical significance or significantly different between groups at baseline.

Family/Household Characteristics

The majority of youth in this study are cared for at home by both their mother and father (59.6%), with 19.2% cared for by one parent (mother or father), 10.0% by grandparent(s), and 5.9% by 'Others' (such as by siblings or step parents). More than half have lived in the same home for more than five years (55.1%). Nearly one-quarter (24.7%) have moved in the last 1-5 years, and 20.2% have moved in the last year. On average, youth moved 0.23 times in the last year (SD

= 0.94). No significant differences in family/household characteristics were found between groups at baseline.

Table 1
Participant Characteristics at Baseline

	Intervention (n=267)	Control (n=126)	Total (N=393)	p-value
Sociodemographic				
Age, Mean (SD)	14.32 (0.81)	14.35 (0.91)	14.33 (0.84)	0.7354
Gender, n (%)				
Male	114 (42.7%)	52 (41.3%)	166 (42.2%)	
Female	153 (57.3%)	74 (58.7%)	227 (57.8%)	0.7893
Language spoken at home, n (%)				
AI Language	99 (37.1%)	52 (41.3%)	151 (38.4%)	0.4253
English	249 (93.3%)	116 (92.1%)	365 (92.9%)	0.6673
Spanish	14 (5.2%)	2 (1.6%)	16 (4.1%)	0.0870
Sociocultural				
Youth lives a.... n (%)				
Traditional Apache way of life ¹	89 (33.3%)	39 (31.2%)	128 (32.7%)	0.6747
Modern Apache way of life ¹	105 (39.3%)	48 (38.4%)	153 (39.0%)	0.8610
Hispanic or Mexican American way of life ¹	17 (6.4%)	5 (4.0%)	22 (5.6%)	0.3426
Other ²	30 (11.3%)	7 (5.6%)	37 (9.5%)	0.0736
Important to follow traditional AI beliefs, n (%) ³	178 (66.7%)	81 (65.3%)	259 (66.2%)	0.7937
Important to follow Christian beliefs, n (%) ¹	213 (79.8%)	99 (79.2%)	312 (79.6%)	0.8952
Importance of having traditional AI values & practices, n (%) ⁴	247 (93.9%)	112 (91.1%)	359 (93.0%)	0.3047
Importance of marrying someone AI, n (%) ⁵	117 (48.8%)	56 (49.6%)	173 (49.0%)	0.8874
Currently participate in traditional practices and ceremonies, n (%) ⁶	179 (69.4%)	75 (61.5%)	254 (66.8%)	0.1265
Family/Household				
Who cares for you in your home, n (%) ³				
Both parents	160 (59.9%)	73 (58.9%)	233 (59.6%)	
One parent (mother or father)	50 (18.7%)	25 (20.2%)	75 (19.2%)	
Grandparent(s)	28 (10.5%)	11 (8.9%)	39 (10.0%)	
Aunt/uncle/other relative	11 (4.1%)	10 (8.1%)	21 (5.4%)	
Other	18 (6.7%)	5 (4.0%)	23 (5.9%)	0.4284
Years since last move, n (%) ¹				
In last year	54 (20.2%)	25 (20.0%)	79 (20.2%)	
1-5 years ago	71 (26.6%)	26 (20.8%)	97 (24.7%)	
> 5 years ago	142 (53.2%)	74 (59.2%)	216 (55.1%)	0.4241
Number times moved in last year, Mean (SD) ²	0.23 (0.99)	0.23 (0.82)	0.23 (0.94)	0.9498

¹N=392, Int: 267, Cont: 125; ²N=391, Int: 266, Cont: 125; ³N=391, Int: 267, Cont: 124; ⁴N=386, Int: 263, Cont: 123;

⁵N=353, Int: 240, Cont: 113; ⁶N=380, Int: 258, Cont: 122

Trial Outcomes at Baseline**Psychosocial**

Average connectedness scores were measured with a Likert Scale from 1-5 where higher scores equal greater connectedness. Scores for the total sample were: friends = 3.66 ($SD = 0.74$); self (e.g., identity, values, worth) = 3.44 ($SD = 0.68$); future self (e.g., goals, aspirations) = 3.89 ($SD = 0.70$); peers (e.g., classmate, teammate) = 3.33 ($SD = 0.62$); school = 3.58 ($SD = 0.72$); and teachers = 3.43 ($SD = 0.73$). An additional measure of connectedness that assessed youth's awareness of how connected they are to their community (range: 0-60; higher score = greater connectedness) had an average score of 32.8 ($SD = 10.9$). Slightly more than one-quarter (26.7%) of the sample screened positive for depression at baseline. Other average scores in the psychosocial domain included locus of control = 16.58 ($SD = 4.5$; range: 0-40; higher score = greater control); life skills self-efficacy = 6.84 ($SD = 1.66$; Likert Scale: 1-10; higher score = greater efficacy); hopelessness = 3.95 ($SD = 2.83$; range: 0-16; higher score = greater hopelessness), and Apache hopefulness = 3.78 ($SD = 0.55$; Likert Scale: 1-5; higher score = greater Apache hopefulness). One between-group difference within the psychosocial domain was detected. Intervention participants had higher average scores than control participants on connectedness to self (3.50 vs. 3.32, $p = 0.0165$). There were no other significant between-group differences in psychosocial outcomes at baseline.

Behavioral Health

At baseline, the total sample reported having ever used the following substances in their lifetime: alcohol = 29.0%; cigarettes = 33.1%; marijuana = 33.6%; illicit or prescription drugs = 14.5%; and poly-drug use = 37.9%. Regarding sexual behaviors, 18.1% of the entire sample reported having ever had sex at baseline, and 70.1% endorsed use of a condom at last sex. In terms of violent behavior and intentional injury, 19.1% reported carrying a weapon in the last 30 days; 34.6% reported engaging in a fight in the last 12 months; 20.6% reported engaging in a fight on school property in the last 12 months; and 15.5% reported making a suicide attempt in the last 12 months. There were no significant between group differences in any of the behavioral health outcomes at baseline.

Economic

Average scores within the economic domain (Likert Scale: 1-4; higher score = greater agency) for the entire sample at baseline were: expansion of current economic abilities = 2.5 ($SD = 0.48$); economic agency and participation = 2.62 ($SD = 0.48$); economic confidence and security

= 2.48 ($SD = 0.37$); and future planning and aspirations = 3.03 ($SD = 0.50$). There were no significant between group differences in any of the economic outcomes at baseline.

Table 2
Key Trial Outcomes Among Participants at Baseline, by Study Group

	Total (N = 393)	ABG (n = 267)	Control (n = 126)	p-value
Connectedness				
Connectedness-friends, Mean (SD)	3.66 (0.74)	3.70 (0.73)	3.57 (0.77)	0.1039
Connectedness-self, Mean (SD)	3.44 (0.68)	3.50 (0.66)	3.32 (0.72)	0.0165
Connectedness-future self, Mean (SD)	3.89 (0.70)	3.91 (0.69)	3.83 (0.72)	0.2458
Connectedness-peers, Mean (SD)	3.33 (0.62)	3.33 (0.61)	3.32(0.66)	0.9275
Connectedness-school, Mean (SD)	3.58 (0.72)	3.58 (0.71)	3.57 (0.73)	0.8452
Connectedness-teachers, Mean (SD)	3.43 (0.73)	3.42 (0.76)	3.44 (0.67)	0.8728
Awareness of connectedness, Mean (SD)	32.76 (10.88)	33.01 (10.67)	32.22 (11.35)	0.5010
Psychosocial				
Depression, N (%)	105 (26.7%)	67 (25.1%)	38 (30.2%)	0.2896
Locus of control, Mean (SD)	16.58 (4.50)	16.82 (4.53)	16.06 (4.41)	0.1199
Life skills self-efficacy, Mean (SD)	6.84 (1.66)	6.89 (1.62)	6.74 (1.74)	0.3795
Hopelessness, Mean (SD)	3.95 (2.83)	4.00 (2.88)	3.85 (2. 75)	0.6146
Apache Hopefulness, Mean (SD)	3.78 (0.55)	3.80 (0.54)	3.73 (0.57)	0.2189
Substance Use & Sexual Behaviors				
Lifetime alcohol use, N (%)	114 (29.0%)	75 (28.1%)	39 (31.0%)	0.5595
Lifetime cigarette use, N (%)	130 (33.1%)	90 (33.7%)	40 (31.7%)	0.6997
Lifetime marijuana use, N (%)	132 (33.6%)	96 (36.0%)	36 (28.6%)	0.1481
Lifetime illicit/prescription use, N (%)	57 (14.5%)	38 (14.2%)	19 (15.1%)	0.8239
Lifetime poly-drug use, N (%)	149 (37.9%)	107 (40.1%)	42 (33.3%)	0.1986
Lifetime sexual experience, N (%)	71 (18.1%)	50 (18.7%)	21 (16.7%)	0.6203
Condom use at last sex, N (%) ¹	49 (70.0%)	35 (71.4%)	14 (66.7%)	0.6903
Violence & Intentional Injury				
Carried a weapon-last 30 days, N (%)	75 (19.1%)	55 (20.6%)	20 (15.9%)	0.2658
Fight-last 12 months, N (%)	136 (34.6%)	98 (36.7%)	38 (30.2%)	0.2030
Fight on school property-last 12 mon, N (%)	81 (20.6%)	61 (22.8%)	20 (15.9%)	0.1107
Suicide attempt-last 12 months, N (%)	61 (15.5%)	42 (15.7%)	19 (15.1%)	0.8679
Economic				
Expansion economic abilities, Mean (SD) ²	2.50 (0.48)	2.52 (0.46)	2.47 (0.51)	0.2826
Economic agency & participation, Mean (SD) ²	2.62 (0.48)	2.62 (0.49)	2.62 (0.46)	0.9104
Economic confidence & security, Mean (SD) ³	2.48 (0.37)	2.47 (0.38)	2.49 (0.34)	0.7272
Future planning & aspirations, Mean (SD) ²	3.03 (0.50)	3.04 (0.50)	3.03 (0.52)	0.8765
Educational (not available at writing)	---	---	---	---

¹ N=70; Missing 1 value – 71 reported ever having sex.

² N=392; Missing 1 value.

³ N=388; Missing 5 values.

DISCUSSION

Results demonstrate AI/AN adolescents participating in this trial have baseline characteristics appropriate for the aims of the impact evaluation of a youth entrepreneurship education program. There were no statistically significant sociodemographic, sociocultural, or family/household differences between intervention and control groups at baseline. Only one outcome of interest was significantly different at baseline (connectedness to self; psychosocial domain) and will be adjusted in future longitudinal analyses. Overall, the 2:1 randomization scheme appears to have been effective.

Our study sample has some similarities and differences in sociodemographic, sociocultural, and family/household differences from the larger White Mountain Apache community, which are expanded upon here. Roughly half the sample is female, with nearly 40% speaking their tribal language at home (Apache or Navajo). This proportion speaking their tribal language at home is lower than that found in the entire White Mountain Apache community, of whom 52% speak Apache (White Mountain Apache Tribe [WMAT] Regional Partnership Council, 2016). Nearly 60% of youth were living with both parents, while the remainder were living with a single parent or other family member. The proportion of participants living with both parents (60%) was greater than the proportion of children in the entire White Mountain Apache community (25%; WMAT Regional Partnership Council, 2016). The proportion of participating youth with a grandparent as a caregiver (10%) was approximately the same as found for the entire community (9%; WMAT Regional Partnership Council, 2016). Over half (55.1%) had lived in their current home for more than five years. (Note: data on the proportion of youth living in their current home for more than five years was not available for the entire community at the time of writing).

The majority of participants reported living either a traditional or modern Apache way of life (e.g., someone who practices and participates exclusively in traditional Apache activities vs. someone who participates in traditional Apache practices and activities but also has Christian beliefs and engages in Christian activities, such as going to church), and 93% said it is important to have traditional AI values and practices. Future analyses will explore how these sociodemographic, sociocultural, and family/household characteristics were associated at baseline with the primary and secondary outcomes of the evaluation.

Our sample also has important similarities and differences between 9th-grade youth in Arizona who completed the 2015 Youth Risk Behavior Survey (YRBS), which are discussed here. More than one quarter (26.7%) of our sample endorsed depression, compared with 32.1% of

Arizona YRBS participants (YRBS, 2015). Regarding alcohol and substance use, our sample was relatively in line with general Arizona youth (lifetime alcohol 29% vs. 25%; lifetime cigarette use 33% vs. 30.4%; and lifetime marijuana use 34% vs. 33.4%; YRBS, 2015). Just over 18% of our participants had ever had sex in their lifetime compared with 22% of all-Arizona 9th grade youth; whereas 70% of our Apache youth reported using a condom at last sex, compared with just 45% of all-Arizona youth (YRBS, 2015). While those reporting carrying a weapon in the last 30 days were identical to all-Arizona youth (19% vs. 19%), a greater proportion of our sample reported a fight in the past 12 months (35% vs. 26%) and a fight on school property in the last 12 months (12% vs. 10%; YRBS, 2015). Finally, a slightly greater proportion of our sample reported ever making a suicide attempt in their lifetime compared with all-Arizona 9th-grade students (15.5% vs. 12.2%; YRBS, 2015).

One limitation of the study design may be that youth were required to be currently enrolled in school in order to be eligible for the study. The rationale was that ABG focuses on keeping youth in school and promoting aspirations for high school completion and college attendance. However, exclusion of those not currently enrolled in school may miss opportunities to engage youth at potentially higher psychosocial or behavioral risk in positive entrepreneurship education. Also, some of the last six curricular sessions were taught at school to accommodate participants' schedules. This eligibility criterion may limit the generalizability of our findings to the larger Apache community, as higher-risk youth (i.e., those not enrolled in school) may not have been accurately represented in the study sample. However, nationally, the AI/AN high school graduation rate is 69%, far below the national average of 81%, and for AI/AN youth attending Bureau of Indian Education schools, the average graduation rate is 53% (Bureau of Indian Organization, 2018). In the White Mountain Apache community, just 33% of adults over age 25 have a high school diploma or GED (White Mountain Apache Tribe Regional Partnership Council, 2016). Given these marked disparities, and that one goal of the ABG program is to boost high school graduation rates, this inclusion criterion is justified.

Our trial is unique in its utilization of a summer residential camp and follow-on applied workshops as an implementation and retention strategy in a hard-to-reach population. It also demonstrates the feasibility of conducting a large randomized controlled trial in a community-based setting. Reliance on paraprofessionals from the Apache community to serve as facilitators is innovative. They comprise an eager workforce in a community with high unemployment who in partnership with local entrepreneurs and Apache Elders can harness cultural teachings and

practices relevant to entrepreneurship while building a local work force – an implicit goal of an entrepreneurship program (Barlow & Walkup, 2008; Barlow et al., 2013; Miller & Pylypa, 1995; Mullany et al., 2012; O’Keefe, Cwik, Haroz, & Barlow, in press).

CONCLUSION

The ABG program and trial evaluating its efficacy aim to demonstrate a protective factors approach for reducing key behavioral health disparities affecting AI/AN adolescents, including substance use and suicide, by promoting education, entrepreneurship, and employment skills. If proven successful, the White Mountain Apache will have developed a novel, multi-faceted strength-based approach that is practical, feasible, and culturally and contextually appropriate— with potential ripple effects on community development and self-determination for other communities throughout Indian Country. Future research will be warranted to explore how the model can serve other communities seeking strengths-based approaches who have been historically oppressed throughout the United States.

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