

Exploring the PROMISE of transition services for youth with disabilities receiving SSI

Catherine Ipsen^{a,*}, Noelle Kurth^b, Sara McCormick^c, Jean Hall^b and Cathy Chambliss^c

^aUniversity of Montana, Rural Institute for Inclusive Communities, Missoula, MT, USA

^bUniversity of Kansas, Institute for Health and Disability Policy Studies, Lawrence, KS, USA

^cDepartment of Family and Consumer Studies, University of Utah, Salt Lake City, UT, USA

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Abstract.

BACKGROUND: Transition-aged youth with disabilities lag behind same-aged peers without disabilities in education and employment outcomes, contributing to economic disparities across the lifespan.

OBJECTIVE: To address these disparities, federal partners jointly funded the PROMISE Initiative, which includes six demonstration research projects targeting youth with disabilities receiving Supplemental Security Income (SSI).

METHODS: This paper reports preliminary data ($n = 1,429$) from one of these projects called ASPIRE. Youth receiving SSI aged 14–16 were randomly assigned to a control or intervention condition. Intervention activities included ongoing case management and training opportunities in self-determination, financial literacy, transition planning, and benefits counseling.

RESULTS: Study participant data from enrollment, 12-months, and 24-months post-enrollment showed significantly better outcomes for intervention youth compared to control youth in terms of parent encouragement about having a job ($p = 0.008$), youth expectations of working ($p = 0.001$), and participation in employment activities ($p = 0.009$). These factors are associated with improved long-term economic outcomes.

CONCLUSIONS: Findings suggest that providing case management and self-determination services to youth on SSI might result in improved long-term outcomes.

Keywords: Transition, disability, employment, SSI, self-determination

1. Introduction

Transition-aged youth with disabilities lag behind same-aged peers without disabilities in education, employment, and independent living outcomes (Employment Disability Institute, n.d.; Stewart et al., 2010). American Community Survey data indicate that 21% of working age adults with disabilities did not complete high school compared to 10% of

people without disabilities. Further, only 14% of people with disabilities graduated from college compared to 32% of people without disabilities (Employment Disability Institute, n.d.).

Lower educational attainment translates into lower wages and lower employment rates over a lifetime. According to 2017 Bureau of Labor Statistics (BLS) data for adults aged 25 and over, people without a high school degree or equivalent had median weekly earnings of \$520, compared to \$712 for high-school graduates, and \$1,173 for college graduates. For the same aged cohort, high school dropouts experienced unemployment rates of 6.5%, compared to 4.6% for

*Address for correspondence: Catherine Ipsen, M.A., Ph.D., University of Montana, Rural Institute for Inclusive Communities, 52 Corbin Hall, Missoula, MT 59812, USA. Tel.: +1 406 243 4562; Fax: +1 406 243 2349; E-mail: Catherine.ipsen@mso.umt.edu.

high school graduates, and 2.5% for college graduates (Bureau of Labor Statistics, n.d.).

Differences are exacerbated for people with disabilities. For the population of adults with less than a high school education, 22% of people with disabilities were employed compared to 63% of people without disabilities. For high school graduates the employment disparity was 31% vs. 73%, and for college graduates it was 53% vs. 84%. Disparities are more exaggerated when based on full-year, full-time employment (Employment Disability Institute, n.d.).

Employment disparities begin while youth are still in high school. In July, a summer month when youth employment is at its peak, only 14.2% of youth with disabilities aged 16–19 were employed compared to 34% of youth without disabilities. This 20 percentage point disparity for 16 to 19 year olds grows to 32 percentage points for youth aged 20 to 24. Transition-aged youth receiving Supplemental Security Income (SSI) fare even worse in terms of employment outcomes, hours worked, and monthly incomes when compared with non-SSI participants with disabilities (Berry, 2000; Fabian, 2007; Honeycutt, Thompkins, Bardos, & Stern, 2017). Using data from the National Health Interview Survey Disability Supplement (NHIS-D), Berry found that 18–29 year olds with disability were employed at a rate of 56.8%, compared to a rate of 26.5% for same-aged SSI recipients. Similarly, Honeycutt et al., found that the employment closure rates of transition aged youth (age 16 to 24) receiving VR services was 15 percentage points lower for SSI versus non-SSI youth.

Early drop-out, low educational attainment, and youth unemployment are troubling because they represent lost opportunities for young people to gain the skills, experience, and connections that increase earnings and independence over a lifetime (Steinberg, 2013). Lower educational and employment outcomes are often attributed to individual deficits. However, evidence suggests that environmental barriers undermine successful transition outcomes for youth with disabilities (Stewart et al., 2010). Among these are limited opportunities to develop employment skills in high school (Benz, Lindstrom, & Yovanoff, 2000), limited opportunities for making choices in childhood through adolescence (Stewart et al., 2010), and attitudinal barriers including low family expectations regarding work and independence (Papay & Bambara, 2014). Transition-aged youth are at a critical developmental juncture for overcoming long-term income and quality of life disparities and steps to

overcome these barriers have led to positive outcomes.

1.1. Self-Determination

Successful transition outcomes are associated with a variety of youth behaviors including self-awareness, goal setting, perseverance, self-determination, and self-advocacy (Algozzine, Browder, Karvonen, Test, & Wood, 2001; Murray, 2003; Powers et al., 2007; Wehmeyer & Palmer, 2003). In particular, youth with higher self-determination scores are more likely to become employed, work for pay, attend post-secondary education, have a savings or checking account, and live independently in the community (Powers et al., 2007; Wehmeyer & Palmer, 2003). Evidence suggests that self-determination is an important and modifiable predictor of improved post-secondary outcomes (Test et al., 2009; Wehmeyer & Palmer, 2003).

1.2. Expectations

Post high school outcomes are also associated with parent expectations (Carter, Austin, & Trainor, 2012; Papay & Bambara, 2014). For instance, Papay and Bambara (2014) found that students whose parents expected them to be employed were significantly more likely to be employed two years after graduation, and students whose parents expected them to attend post-secondary education were significantly more likely to be enrolled two years after graduation. Doren, Gau, & Lindstrom (2012) found that parent expectations also predicted youth autonomy – a quality of self-determined behavior associated with improved outcomes.

1.3. Employment

Finally, an important stepping stone to economic self-sufficiency is paid employment during high school (Urban Alliance, 2014). Paid and unpaid work during adolescence has been shown to increase the odds of high school graduation, future employment, and continuing education among students with disabilities, regardless of disability severity (Benz et al., 2000; Carter et al., 2012; Joshi, Bouck, & Maeda, 2012; Karpur, Clark, Caproni, & Sterner, 2005; Landmark, Ju, & Zhang, 2010; McDonnell & Crudden, n.d.; Wagner, Newman, Cameto, Garza, & Levine, 2005).

1.4. The PROMISE Initiative

In order to improve outcomes among some of the most disadvantaged youth with disabilities, the U.S. Department of Education (ED), Department and Health and Human Services (DHHS), Department of Labor (DOL) and the Social Security Administration (SSA) jointly funded the Promoting Readiness of Minors in Supplemental Security Income (PROMISE) initiative to improve the education and employment outcomes of youth with disabilities receiving Supplemental Security Income (SSI) and their families (U.S. Department of Education, 2013). Through a competitive proposal process, five state-level projects and one consortium of states received funding in October, 2013 to conduct model demonstration projects to meet the goals of PROMISE. Each demonstration site was required to (1) develop a coordinated system of services focused on improving youth and family self-sufficiency, (2) conduct a randomized controlled trial of these coordinated services with a minimum of 2,000 youth aged 14 to 16 receiving SSI payments, (3) collect baseline data for all intervention and control group participants, and (4) conduct formative evaluation activities to assess project performance and progress.

1.5. The ASPIRE consortium

This paper reports on preliminary outcomes from the Achieving Success by Promoting Readiness for Education and Employment (ASPIRE) consortium, one of the six PROMISE sites. The ASPIRE consortium is comprised of six states, including Arizona, Colorado, Montana, North Dakota, South Dakota, and Utah, that are working collaboratively to deliver a consistent set of services to youth assigned to the intervention group and their families. ASPIRE intervention services include case management, self-determination training, transition training for parents/guardians, financial literacy training, benefits counseling, and pre-employment services to prepare youth for employment in competitive and integrated settings. Control group participants receive the current services offered by their respective state transition and education systems. This paper compares intermediate outcomes between intervention and control group youth for the first 12- and 24-months of post-enrollment services and explores possible mechanisms for change.

In alignment with the PROMISE Initiative, the long-term goal of ASPIRE is to improve youth

and family self-sufficiency. Intermediate outcomes for reaching this goal include high school graduation, employment, and post-secondary training and education. Intervention activities designed to reach these outcomes include (1) youth training in self-determination to promote more self-actualization, problem solving, and goal setting, (2) parent engagement to promote higher expectations for youth regarding post-secondary education, independent living, and employment, and (3) assistance and encouragement to obtain paid and unpaid work experiences prior to high school graduation, among others. As highlighted above, each of these factors has been associated with intermediate outcomes, which ultimately factor into long-term self-sufficiency.

In ASPIRE, the primary vehicle for connecting families to these opportunities is case management services. ASPIRE-supported case managers were hired through various systems including the Office of Public Instruction, Vocational Rehabilitation, and University Centers for Excellence in Disability (UCEDs) depending on state organizational parameters. Each youth and family in the intervention group ideally received monthly in-person case management services to (1) build rapport and understand the family's needs, concerns, and interests; (2) develop individualized education, employment and independent living goals, (3) link families to appropriate ASPIRE and non-ASPIRE services in the community, (4) deliver career exploration activities to promote future employment opportunities, and (5) increase family engagement through consistent follow-up and problem solving. Case management services align with transition best practices including person-centered and tailored services, ongoing and consistent support built on meaningful rapport, and outcome-focused goal-setting built on individual and family choice (Cobb & Alwell, 2009; Karpur et al., 2005).

2. Methods

The ASPIRE study received Institutional Review Board (IRB) approvals through the University of Utah and participating sovereign nations where youth were recruited. Between August 2014 and April 2016, ASPIRE staff recruited adolescents aged 14 to 16 who were receiving SSI benefits ($n = 2,051$) and their families. This group represents youth who have a physical and/or mental condition meeting Social Security's definition of disability and also fall within specific youth and family income or resource eligibility

guidelines. Youth were randomly assigned into control ($n = 1,018$) or intervention ($n = 1,033$) groups.

2.1. Data collection

We collected survey data from control and intervention youth participants at enrollment and at 12-months and 24-months post-enrollment. The baseline survey was completed during the enrollment meeting. Follow-up surveys were administered over the telephone by an external survey call center. Surveys were completed by youth themselves, or with proxy raters, as needed. The call center made call attempts at multiple times (e.g. days, nights, weekends and weekdays) across a three-month window. In addition, non-respondents received a hard copy of the survey with a postage-paid envelope after two-months.

A total of 704 control and 725 intervention participants provided data at enrollment (baseline) and at 12-months post-enrollment. These 1,429 represent the study sample for this paper. There were no significant differences between 12-month completers and non-completers in terms of disability, ethnicity, race, or having a proxy rater. However, completers were younger than non-completers ($\chi^2 = 16.59, p < 0.001$). Disposition codes from the call center indicated that 25% of the sample was never reached due to unreturned messages (16%), unanswered calls (4.2%), busy signals (1.8%) and disconnected or out-of-date phone numbers (2.6%). Approximately 5% of the sample refused to complete the survey, of which 23 intervention and 8 control group participants formally withdrew, in writing, from the study.

2.2. Study participants

The study sample control ($n = 704$) and intervention ($n = 724$) participants were similar at baseline in terms of age, gender, race, ethnicity, gender, disability type, and having a proxy rater. At baseline, 40.7% of youth were age 14, 30.8% were age 15, and 28.6% were age 16. The majority were male (65.9%) with the following racial/ethnic composition: Caucasian (63.1%), Black (13.3%), Native American (7.1%), and of Hispanic/Latino(a) descent (36.3%). Common SSA disability determination categories for the study sample included development disorders (such as learning disabilities and speech and language delays; 18.3%), personality and impulse control disorders (13.8%), autistic disorders (13.9%), intellectual disabilities (8.2%), and mood disorders

(5.9%). Table 1 provides youth responses to the six American Community Survey (ACS) disability questions.

2.3. Measures

The surveys asked about factors associated with post-high school education, employment, and independent living outcomes. In addition to basic demographic information, we asked about current living arrangements, disability status using the six standard federal disability questions currently used in the American Community Survey (U.S. Census Bureau, 2017), SSI status, and behaviors related to self-determination and expectations.

2.3.1. AIR-SDS

We measured level of youth self-determination using the student version of the American Institutes for Research Self-Determination Scale (AIR-SDS) (Wolman, Campeau, DuBois, Mithaug, & Stolarski, 1994). The 24-item scale is based on the process through which students become self-determined over time in terms of internal capacity (things you do and how you feel) and opportunity (what happens at school and what happens at home). The scale is described as measuring the factors or conditions that lead to self-determined behavior rather than self-determined behaviors themselves, such as autonomy, self-regulation, psychological empowerment, and self-realization (Shogren et al., 2008). Capacity and opportunity subscales range from 12 to 60, where higher scores indicate higher levels of conditions supporting self-determined behavior. A confirmatory

Table 1
Youth Responses to ACS Disability Questions

Disability Determination ($n = 1,429$)	n	Percent
Are you deaf or do you have a serious hearing difficulty?	126	8.8%
Are you blind or do you have serious difficulty seeing even when wearing glasses?	156	10.9%
Because of a physical, mental or emotional condition, do you have serious difficulty concentrating, remembering or making decisions?	974	68.2%
Do you have serious difficulty walking or climbing stairs?	237	16.6%
Do you have difficulty dressing or bathing?	241	16.9%
Because of a physical, mental or emotional conditions, do you have difficulty doing errands alone, such as shopping?	551	38.6%

Note: Totals more than 100%, as youth could answer yes to more than one question.

319 factor analysis supports the AIR-SDS factor structure and the scale showed good overall reliability
 320 (Cronbach's $a = 0.88$) (Wong, Wong, Zhuang, & Liu, 2017). We selected the AIR-SDS over the ARC Self-
 321 Determination Scale based on evidence that suggests the AIR-SDS is more sensitive to immediate changes
 322 in skills and opportunities for self-determined behavior (Wehmeyer, Palmer, Shogren, Williams-Diehm,
 323 & Soukup, 2013).
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328 2.3.2. *Expectations*

329 We asked youth about how they perceived the expectations of their parents/guardians, school personnel
 330 (teachers/counselors), and case workers in terms of the youth's future employment, continued
 331 education, and financial management. First, we included two questions about parent and school
 332 encouragement to find employment. Youth indicated their level of agreement based on a five-point Likert-
 333 type scale to the questions "I have been encouraged by my family to have a job or career as an adult"
 334 and "In school, I have been encouraged to plan for a job or career as an adult." We also included a series
 335 of nine "yes" or "no" questions about planning for the future. Youth were asked if conversations had
 336 occurred with (1) family members, (2) school personnel, or (3) caseworkers about (a) having a job or career
 337 after school, (b) going to college or other education after high school, and (c) how to manage money and
 338 finances. This series of questions is similar to questions posed to parents in the National Longitudinal
 339 Transition Study 2 (IES National Center for Special Education Research, n.d.). On the NLTS2, parents
 340 were asked about expectations they held for their child with a disability. We adapted these for youth
 341 responses about perceived expectations from parents, school personnel, and case workers.
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355 Finally, youth responded on a four point Likert-type scale about agreement with the statement "I see
 356 myself holding a paying job in the next year." This question is part of a work motivation scale used in
 357 other transition-age focused studies, including the multi-site Employment Intervention Demonstration
 358 Project (Cook et al., 2008). We did not use the entire scale due to survey length and misalignment of several
 359 of the items.
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364 2.3.3. *Employment and education*

365 We measured employment experience by asking youth if within the last 30 days they had worked
 366 part-time, worked full-time, looked for work, or volunteered with yes or no responses. Similarly, we
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369 asked if in the last 30 days youth had attended middle or high school, job training or vocational school,
 370 attended college part-time, or attended college full-time. These yes/no questions were adapted from a
 371 single item on the Youth Risk Factor Surveillance System (YRFSS) (Centers for Disease Control and
 372 Prevention, 2018) that asked if in the past 30 days, youth were enrolled in school/college, working part-
 373 time or full-time, or volunteering (Centers for Disease Control and Prevention, 2018b). Our modification
 374 of the YRFSS item allowed us to gain more specific information about the variety of post-secondary
 375 employment and education activities.
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382 2.3.4. *Intervention group case data*

383 In addition to comparing control and intervention group participants, we were also interested in learning
 384 how intervention group employment outcomes were associated with different levels of intervention service
 385 delivery. Intervention case managers recorded case data on a monthly basis for all intervention
 386 youth, including number and type of successful and unsuccessful contacts, youth's current education and
 387 employment status, and participation in ASPIRE and non-ASPIRE services (e.g. ASPIRE-sponsored self-
 388 determination training or meeting with a Vocational Rehabilitation counselor). To compare these types of
 389 inputs and outcomes, we aggregated data from youth case records regarding participation in employment
 390 and pre-employment activities, average number of in-person case management meetings conducted, and
 391 hours of participation in ASPIRE-related training, such as self-determination or financial literacy.
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401 2.4. *Data analyses*

402 We aggregated data sources into SPSS V. 22 (IBM Corp., 2013), which included baseline, 12-
 403 month, 24-month control and intervention group data and also added aggregated case management
 404 data for intervention participants. We used independent samples t -tests, nonparametric U-tests,
 405 Chi-square, repeated measures ANOVA, and Friedman test-statistics to compare group data, and logistic
 406 regression to explore factors associated with intervention outcomes. We included effect size measurements
 407 including Cohen's d for t -test comparisons, Eta squared (η^2) for nonparametric U-tests, Cramer's V
 408 for Chi-square comparisons, and 95% confidence intervals for logistic regressions.
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3. Results

3.1. Control and intervention group comparisons

We compared baseline, 12- and 24-month differences between control and intervention groups. Results for baseline and 12-months were based on the sample completing the baseline and 12-month surveys ($n = 1,429$). Results for 24-month data include the subset of those who also completed the 24-month survey ($n = 781$), or all three data collection points.

3.1.1. Self-determination

Table 2 shows independent samples *t*-test results for the opportunity and capacity subscales of the AIR at baseline, 12-months, and 24-months.

Repeated measures ANOVAs showed significant changes in self-determination *capacity* scores over time (Wilks' Lambda = 0.987, $F(2,667) = 4.30$, $p = 0.014$), and a trend in time by group differences

(Wilks' Lambda = 0.992, $F(2,667) = 2.78$, $p = 0.063$). There was a significant increase in self-determination *opportunity* scores over time (Wilks' Lambda = 0.881, $F(2,692) = 46.53$, $p < 0.001$) but not time by group differences (Wilks' Lambda = 1.00, $F(2,692) = 0.01$, $p = 0.995$).

3.1.2. Encouragement and expectations

Youth rated their agreement with statements about parent and school encouragement to have a job or career as an adult on a 5 point Likert-type scale where 1 = strongly disagree and 5 = strongly agree. Youth rated their own expectations about working at a job in the next year on a 4 point Likert type scale where 1 = disagree to 4 = agree. Table 3 shows comparisons between control and intervention groups based on nonparametric independent samples Mann-Whitney U-tests. There were significant differences at 24-months between the control and intervention groups for family encouragement and youth

Table 2
AIR Self-Determination – *T*-test Group Comparisons

	Baseline Group Comparisons				12-month Group Comparisons				24-months Group Comparisons			
	Control <i>M(SD)</i>	Int. <i>M(SD)</i>	<i>p</i>	Cohen's d	Control <i>M(SD)</i>	Int. <i>M(SD)</i>	<i>p</i>	Cohen's d	Control <i>M(SD)</i>	Int. <i>M(SD)</i>	<i>p</i>	Cohen's d
AIR – Capacity Subscale (things you do, how you feel, 12-items)	43.3 (9.59)	42.6 (9.17)	0.159	0.077	44.5 (9.14)	43.9 (9.21)	0.316	0.056	43.8 (11.11)	44.4 (10.37)	0.388	0.063
AIR – Opportunity Subscale (what happens at school and home, 12-items)	45.8 (9.22)	45.2 (9.30)	0.248	0.063	48.2 (8.83)	48.4 (8.30)	0.742	0.018	49.1 (8.77)	49.0 (8.90)	0.860	0.013

*significant at $p \leq 0.05$. †significant at $p \leq 0.01$.

Table 3
Encouragement and Expectations – Nonparametric Mann-Whitney Group Comparisons

	Baseline Group Comparisons				12-month Group Comparisons				24-months Group Comparisons			
	Control <i>M(SD)</i>	Int. <i>M(SD)</i>	<i>P</i>	η^2	Control <i>M(SD)</i>	Int. <i>M(SD)</i>	<i>p</i>	η^2	Control <i>M(SD)</i>	Int. <i>M(SD)</i>	<i>p</i>	η^2
I have been encouraged by my family to have a job or career as an adult.	3.93 (1.10)	3.96 (1.05)	0.781	<0.001	3.24 (0.94)	3.32 (0.93)	0.088	0.002	4.10 (0.95)	4.27 (0.86)	0.008†	0.009
At school, I have been encouraged to have a job or career as an adult.	3.73 (1.13)	3.75 (1.14)	0.656	<0.001	3.28 (0.95)	3.38 (0.91)	0.059	0.003	4.00 (0.96)	4.07 (0.95)	0.242	0.001
I see myself working at a paying job in the next year	2.84 (1.16)	2.83 (1.16)	0.806	<0.001	2.67 (1.24)	2.74 (1.22)	0.333	0.009	2.73 (1.24)	3.05 (1.12)	0.001†	0.016 ^s

*significant at $p \leq 0.05$. †significant at $p \leq 0.01$. ^ssmall effect (Lenhard & Lenhard, 2014).

expectations about having a job. Reported effect sizes (η^2), however, were non-existent to very small for all comparisons (Lenhard & Lenhard, 2014). The means for all variables and groups dropped at the 12-months data collection period, before increasing at 24-months.

For the variables in Table 3, we also conducted non-parametric Friedman tests of differences among repeated measures for the control and intervention groups. Family encouragement increased over time for both the control ($\chi^2 = 199.6, p < 0.001$) and intervention ($\chi^2 = 240.15, p < 0.001$) groups. Similarly, school encouragement increased over time for control ($\chi^2 = 120.34, p < 0.001$) and intervention ($\chi^2 = 149.32, p < 0.001$) groups. Youth expectations of working in the next year were not significant for the control group ($\chi^2 = 2.29, p = 0.317$), but were for the intervention group ($\chi^2 = 7.75, p = 0.021$).

Table 4 reports Chi-square group comparisons for nine yes/no questions about conversations between youth and parents, school personnel, and case managers about having a job, going on to college or further education, and managing money or finances. *P*-values are reported for 1-sided significance tests because we hypothesized that ASPIRE services would increase opportunities for discussions about the future. There were significant group differences between parent, school, and caseworker conversations about jobs and education after high school. There were not significant group differences about parent and school personnel conversations with youth about money management, but there were for case managers. Reported effect sizes (Cramer's V) were small for caseworker conversations at the 24 month follow-up period and negligible for other significant findings (Fort Collins Science Center, 2018).

We conducted non-parametric Friedman tests of differences among repeated measures for the control and intervention groups for the variables in Table 4. For all variables, conversations about jobs, education, and money management increased over time ($p \leq 0.01$).

3.1.3. Employment activities

Table 5 reports Chi-square group comparisons for four yes/no questions about participation in employment related activities including working part-time, working full-time, looking for work, and volunteering. *P*-values are reported for 1-sided significance tests, because we hypothesized that intervention services would increase participation in employment

Table 4
Future Discussions – Chi-Square Group Comparisons

	Baseline Group Comparisons			12-month Group Comparisons			24-months Group Comparisons		
	Control %	Int. %	Cramer's V	Control %	Int. %	Cramer's V	Control %	Int. %	Cramer's V
Parents/guardians talked with youth about:									
Having a job or career after high school	74.4%	75.6%	0.321	82.9%	86.8%	0.014	84.2%	89.6%	0.080
Going to college or other education after high school	72.4%	75.0%	0.157	78.1%	82.4%	0.029	77.3%	84.1%	0.087
How to manage money or finances.	65.4%	66.9%	0.309	69.9%	73.2%	0.015	77.1%	81.5%	0.055
Teachers, guidance counselor or school talked with youth about:									
Having a job or career after high school	68.6%	70.2%	0.279	78.8%	82.2%	0.017	81.9%	87.7%	0.080
Going to college or other education after high school	64.3%	68.5%	0.055	75.0%	80.1%	0.045	74.2%	82.0%	0.094
How to manage money or finances.	46.6%	48.9%	0.208	55.7%	56.5%	0.023	62.8%	64.3%	0.016
Caseworkers or case managers talked with youth about:									
Having a job or career after high school	28.1%	28.6%	0.443	58.0%	73.1%	0.006	56.7%	80.9%	0.262 ^s
Going to college or other education after high school	25.7%	27.7%	0.222	53.4%	69.7%	0.023	51.4%	72.0%	0.212 ^s
How to manage money or finances.	15.8%	16.1%	0.456	32.6%	39.0%	0.005	34.1%	56.1%	0.221 ^s

* significant at $p \leq 0.05$. [†] significant at $p \leq 0.01$. ^s small effect (Fort Collins Science Center, 2018).

Table 5
Employment Chi-Square Group Comparisons

	Baseline Group Comparisons			12-month Group Comparisons			24-months Group Comparisons		
	Control %	Int. %	Cramer's V	Control %	Int. %	Cramer's V	Control %	Int. %	Cramer's V
Within the past 30 days or right now are you:									
Working part-time (less than 30 hours per week)	5.2%	4.0%	0.185	5.7%	8.7%	0.018*	11.7%	15.0%	0.107
Working full-time	0.1%	0.0%	0.492	0.6%	1.2%	0.144	2.7%	3.0%	0.490
Looking for a job	20.5%	24.2%	0.056	30.5%	31.7%	0.335	34.9%	39.7%	0.099
Doing volunteer work	15.6%	15.3%	0.454	20.2%	23.4%	0.076	20.8%	18.7%	0.261
Any employment activity	34.9%	36.9%	0.223	44.2%	51.3%	0.004†	55.2%	63.8%	0.009†

* significant at $p \leq 0.05$. † significant at $p \leq 0.01$.

related activities. We also computed a yes/no variable for any “yes” response to the four working variables, since participation in one activity, may preclude participation in another activity. The chart shows that with the exception of part-time work at 12-months, differences between specific work activities were not significant. There were significant differences between control and intervention groups when participation in any work activity was compared, but the effect size was negligible (Fort Collins Science Center, 2018)

3.2. Engagement with intervention services

Group analyses showed the intervention group out-performed the control group in terms of expectations and pre-employment activities, although effects were small. These analyses followed an intention-to-treat model, where all intervention participants were included in group comparisons, regardless of their level of engagement with intervention services. The remaining analyses focus on the intervention group alone to explore how different levels of intervention engagement were associated with youth employment outcomes.

We used binary logistic regression to predict the contributions of demographics and intervention engagement variables to part- or full-time employment participation. Variables to measure level of engagement included number of in-person meetings in Year 1 (during 1–12 months) and Year 2 (during months 13–24) of intervention delivery, and receipt of two or more hours of self-determination training in Year 1 and Year 2. The average number of in-person meetings was 6.53 in year 1 and 4.95 in year 2, with a possible range of 0 to 12 in person meetings per year.

Employment outcomes were based on case management records, which recorded employment experience every time case managers and families had in-person meetings. Case management data provided a more complete record of employment experience relative to youth self-reported 12- and 24-month data, which only queried about employment experience in the last 30 days. Correlations between youth self-reported data and case management records were significant for both the 12-month ($r(725)=0.381$, $p < 0.001$) and 24-month ($r(406)=0.476$, $p < 0.001$) time spans.

Model 1 tested employment outcomes during Year 1 of intervention delivery and Model 2 tested employment outcomes during Year 2 of intervention

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553 delivery. Explanatory variables were grouped into
 554 demographic and intervention engagement blocks.
 555 The dependent variable in both models was partic-
 556 ipation in part- or full-time employment during the
 557 12-month study period (Year 1 or Year 2). Although
 558 intervention services also included parent training,
 559 financial capability training, and benefits counseling,
 560 we did not include these variables because few youth
 561 or their family members participated in them during
 562 the study period.

563 Block 1: Demographic variables included:

- 564 • Age at baseline – two indicator variables for
 565 being 15 or 16, relative to age 14 at baseline.
- 566 • Gender – indicator variable for being female,
 567 relative to male
- 568 • Nonwhite – indicator variable for non-white
 569 race, relative to white
- 570 • Hispanic – indicator variable for Hispanic, rela-
 571 tive to non-Hispanic
- 572 • Functional disability – indicator variables for
 573 each of the six ACS questions (at the 12-month
 574 data collection period) including: difficulty hear-
 575 ing; difficulty seeing; difficulty remembering
 576 or making decisions; difficulty climbing stairs;
 577 difficulty with ADLs (bathing, toileting, etc.);
 578 difficulty with IADLs (shopping, cleaning, etc).

579 Block 2: Intervention Engagement variables
 580 included:

- 581 • In-person meetings with case manager – number
 582 of reported meetings in 12 month study period
- 583 • Participation in self-determination training –
 584 indicator variable for two or more hours of

585 self-determination training during the 12 month
 586 study period.

587 For Model 2, we also added variables to mea-
 588 sure past engagement with intervention services to
 589 see if Year 1 engagement explained variance in
 590 Year 2 employment outcomes. For each model,
 591 we report two measures of model fit. Nagelkerke
 592 pseudo R^2 ranges from 0 to 1. Although it cannot
 593 be strictly interpreted as the proportion of explained
 594 variance, it can be used to proportionately compare
 595 the amount of variance explained between different
 596 models (Nagelkerke, 1991). The Chi-square statistic
 597 for each block of variables measures the contribu-
 598 tion of each block against the null model. For both
 599 measures, a higher value implies more explanatory
 600 power in the block. Tables 6 through 9 report results
 601 of model statistics for Model 1 and Model 2.

602 4. Discussion

603 4.1. Self-Determination

604 The literature highlights youth self-determination
 605 as a stepping stone to improved employment and post-
 606 secondary outcomes (Powers et al., 2007; Wehmeyer
 607 & Palmer, 2003). The AIR self-determination capac-
 608 ity and opportunity subscales were used to detect
 609 changes in self-determination scores over time, and
 610 were hypothesized to show group differences based
 611 on self-determination training for the intervention
 612 group. While scores did increase for both control and
 613 intervention group participants showing a maturation
 614 effect, there were not significant group by time

Table 6
 Logistic Regression of Model 1: Employment Participation in Year 1 ($n=631$)

	B	SE	Wald	df	Sig.	Exp (β)	95% CI Lower	95% CI Upper
Block 1: Demographics								
Baseline age 15	0.906	0.364	6.184	1	0.013*	2.473	1.211	5.050
Baseline age 16	1.760	0.334	27.801	1	0.000 [†]	5.814	3.022	11.185
Female	-0.422	0.291	2.099	1	0.147	0.656	0.371	1.160
Nonwhite	0.044	0.284	0.025	1	0.875	1.045	0.600	1.823
Hispanic	-0.241	0.319	0.571	1	0.450	0.786	0.421	1.468
ACS.hearing	-0.063	0.519	0.015	1	0.903	0.939	0.339	2.596
ACS.seeing	0.542	0.419	1.675	1	0.196	1.720	0.757	3.908
ACS.remembering	0.302	0.295	1.048	1	0.306	1.352	0.759	2.411
ACS.climbing stairs	-0.396	0.458	0.748	1	0.387	0.673	0.274	1.650
ACS.ADLs	-0.863	0.577	2.236	1	0.135	0.422	0.136	1.307
ACS.IADLs	-1.018	0.333	9.361	1	0.002 [†]	0.361	0.188	0.694
Block 2: Engagement Variables								
Y1: Face to Face Meetings	0.242	0.049	24.657	1	0.000 [†]	1.274	1.158	1.402
Y1 : 2+ hrs SD training	0.358	0.337	1.125	1	0.289	1.430	0.738	2.771
Constant	-4.307	0.555	60.203	1	0.000	0.013		

*significant at $p \leq 0.05$. [†]significant at $p \leq 0.01$.

differences (see Table 2). One explanation for this non-finding is that few youth in the intervention group participated in self-determination training. Case management records showed that only 15% participated in 2 or more hours of self-determination training in year 1, only 16.7% participated in 2 or more hours in year 2, and over the two years combined, only 26% had participated in 2 or more hours of prescribed training.

4.2. Expectations

Higher levels of expectations have been shown to correlate with improved employment and post-secondary education outcomes among youth (Papay & Bambara, 2014). Our data showed both maturation and group effects for expectations (see Tables 3 and 4). To measure parent expectations we asked youth to report on encouragement from family to have a job after school. Family encouragement was significantly higher for the intervention group at 24-months. Likewise, group differences were significant in terms of youth conversations with parents or guardians about

having a job or career after school and going on to post-secondary education. Intervention youth also reported significantly higher rates of discussions with case managers about future careers, education, and money management. These discussions align closely with intervention goals and are likely the driving force behind higher reported parent expectations for the intervention group as well.

Encouragement by school personnel about a job or career after school was not significantly different between control and intervention groups, but intervention youth did report higher rates of discussions with school personnel about having a job after high school and post-secondary education. It is possible that these differences relate to case manager participation in IEP and transition related meetings, where they helped shape meeting discussions towards post-secondary outcomes. Overall, parent encouragement and discussions with parents, school personnel, and case managers about the future likely contributed to significant group differences in youth expectations about themselves (i.e. higher rates of agreement with the statement “I see myself working at a paying job in the next year”). Interpretation of these results, however, should be tempered by the low reported effect sizes.

Table 7
Model 1 Summary Statistics

	Δ in Nagelkerke R^2	χ^2
Block 1 – Demographics	0.154	52.924
Block 2 – Intervention Engagement	0.098	36.067
Full Model	0.252	88.991

Table 8
Logistic Regression of Model 2: Employment Participation in Year 2 ($n = 606$)

	B	SE	Wald	df	Sig.	Exp (β)	95% CI Lower	95% CI Upper
Block 1: Demographics								
Baseline age 15	1.045	0.307	11.617	1	0.001 [†]	2.844	1.559	5.188
Baseline age 16	1.449	0.302	22.962	1	0.000 [†]	4.259	2.354	7.703
Female	0.173	0.252	0.471	1	0.493	1.189	0.726	1.947
Nonwhite	-0.097	0.264	0.135	1	0.713	0.908	0.541	1.522
Hispanic	-0.270	0.291	0.865	1	0.351	0.763	0.432	1.349
ACS1_hearing	-0.691	5.13	1.810	1	0.179	0.501	0.183	1.371
ACS2_seeing	0.656	0.377	3.019	1	0.082	1.927	0.920	4.036
ACS3_remembering	-0.005	0.265	0.000	1	0.985	0.995	0.592	1.672
ACS4_climbing stairs	-0.422	0.453	0.867	1	0.352	0.656	0.270	1.594
ACS5_ADLS	-0.841	0.461	3.326	1	0.068	0.431	0.175	1.065
ACS6_AIDLs	-0.803	0.293	7.496	1	0.006 [†]	0.448	0.252	0.796
Block 2: Engagement with Intervention Services – Current								
Y2: Face to Face Mtgs	0.221	0.046	23.101	1	0.000 [†]	1.247	1.140	1.365
Y2:2+ hrs SD training	0.077	0.299	0.067	1	0.796	1.080	0.602	1.939
Block 2: Engagement with Intervention Services – Past								
Y1: Face to Face Mtgs	0.055	0.053	1.068	1	0.301	1.56	0.952	1.172
Y1:2+ hrs SD training	0.897	0.306	8.599	1	0.003 [†]	2.451	1.346	4.463
Constant	-3.780	0.479	62.409	1	0.000	0.023		

*significant at $p \leq 0.05$. [†]significant at $p \leq 0.01$.

Table 9
Model 2: Model Summary Statistics

	Δ in Nagelkerke R^2	χ^2
Block 1 – Demographics	0.111	43.028
Block 2 – Current Intervention Engagement	0.166	70.538
Block 3 – Past Intervention Engagement	0.026	11.590
Full Model	0.303	125.156

2012). We compared participation in employment activities between intervention and control groups (see Table 5). With the exception of part-time work at 12-months, group differences were not evident when comparing part-time work, full-time work, job-seeking, and volunteering in the past 30 days as self-reported by youth. There was a statistical group difference at 12 months and 24 months when comparing participation in at least one of these four employment activities, but the effect size was negligible.

Intervention case managers were charged with promoting pre-employment activities, such as resume development, job shadowing, informational interviews, volunteer events, job fairs, and career exploration. These activities likely contributed to cumulative group differences between control and intervention youth, but we anticipated greater effects. In part, the smaller than expected effect may be explained by low rates of youth engagement with intervention services.

For this reason, we used binary logistic regression to explore employment outcomes as a function of intervention engagement, after controlling for youth demographic and disability characteristics (see Tables 6 to 9). Not surprisingly, older age was positively associated with employment. This finding is logical given that many businesses are unable or unwilling to hire employees until they are aged 16 due to state laws or maturation considerations. Employment outcomes were also lower for youth who indicated yes to the question “because of a physical, mental or emotional condition, do you have difficulty doing errands alone, such as shopping.” Since employment often requires a level of competence for getting to work and performing tasks independently, the contribution of this disability indicator made sense.

Both Model 1 (Year 1) and Model 2 (Year 2) showed that the probability of employment increased based on the number of in-person case management meetings during the model year. Interestingly,

there appeared to be a lagged effect in terms of participation in self-determination training, where self-determination training in Year 1 was not associated with Year 1 employment outcomes, but was associated with Year 2 outcomes (see Table 8). This provides some evidence about the benefit of providing self-determination classes prior to work opportunity.

We were concerned that the models may include a specification error, where case managers may not know about employment experiences for youth who had few to no in-person meetings. To explore this possibility, we ran the models for the subset of youth who had at least three in-person case management meetings in each model year. The results were consistent for this subset, providing confidence the model was measuring contributions from youth engagement.

4.4. Limitations

There are limitations to the data presented. First, participants were recruited and enrolled across a 20-month period. Youth who enrolled earlier in this time period did not receive the same level of services in terms of case-manager experience and availability of various training components as youth who enrolled later in the enrollment period, due to delays in contracts for training sessions. This difference may have introduced outcome variations that were not sufficiently controlled for with between group comparisons. Additionally, there was non-response bias, where a significant subset of the study population did not complete 12- and 24-month follow-up surveys. In part, this concern was mitigated by random assignment. Control and intervention groups were similar across time, so group comparisons likely measured true group differences. We compared 12-month survey respondents to non-respondents for baseline characteristics and found that non-respondents were statistically more likely to be non-white and older, but were otherwise similar.

Youth survey responses may not have been accurate in some cases. For instance, we used the ACS standard disability questions to measure disability, but these questions have not been widely tested with adolescents and many not have sufficiently captured disability prevalence (Ipsen et al., 2017). Also, surveys were often completed by proxy raters, and this rate increased over the study timespan, where 17%, 42% and 36% of youth had proxy raters at the baseline, 12-month, and 24-month surveys respectively. Large variations may be related to data collection

757 methods, where the first survey was completed in-
 758 person during intake meetings and follow-up surveys
 759 were administered over the phone, by an external sur-
 760 vey call center. Both control and intervention groups
 761 had similar rates of proxy raters over time.

762 Other limitations relate to the study sample, which
 763 was drawn from the Rocky Mountain West and Mid-
 764 west. Findings may not be representative of other
 765 geographic regions that have different economic and
 766 population characteristics.

767 5. Conclusion

768 The six PROMISE Initiative demonstrations are
 769 charged with providing the services and coordination
 770 necessary to help youth SSI recipients and their fam-
 771 ilies achieve career and educational outcomes. These
 772 demonstration projects are designed to test services
 773 for reducing long-term reliance on SSI. Practically,
 774 the strategies for reaching financial independence
 775 target short-term and intermediate outcomes asso-
 776 ciated with employment and educational success,
 777 such as youth self-determination skills, high parent
 778 expectations, and pre-employment and employment
 779 readiness skills. The ASPIRE study begins to estab-
 780 lish evidence for how these outcomes can be reached
 781 and provides compelling evidence about how inter-
 782 vention case management and self-determination
 783 training contribute to youth employment outcomes.
 784 In particular, more in-person meetings with case man-
 785 agers and self-determination training early in the
 786 intervention delivery were both significant predic-
 787 tors of employment for youth. These findings suggest
 788 that providing such services to youth on SSI might
 789 result in improved long-term outcomes. Long-term
 790 outcomes for all PROMISE participants are being
 791 monitored by a national evaluator.

792 The ASPIRE data presented in this manuscript
 793 represent just one PROMISE site. Evidence from
 794 other demonstrations will increase our understand-
 795 ing of the various pathways and strategies to success,
 796 with the goal of ensuring that all youth achieve their
 797 educational and career goals for long-term financial
 798 independence.

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 the U.S. Department of Education of any product,
 commodity, service or enterprise mentioned in this
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Uncorrected Author Proof