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**Long-Term Effects of a Job Search Intervention for Transition-Age Youth  
With Visual Impairments**

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### **Abstract**

**BACKGROUND:** Research supports the short-term benefits of a job search intervention for youth with visual impairments, but its effectiveness over time has not been explored.

**OBJECTIVE:** We examined the long-term effects of a research-based job search intervention on job search knowledge, job search behavior, job search self-efficacy, and employment outcomes.

**METHODS:** We conducted a longitudinal study with 92 youth with visual impairments using a two-group, quasi-experimental repeated-measures design. The intervention group received 35-40 hours of job search skills training, and the comparison group received usual services. Data collection included telephone surveys at pretest, posttest, 8-month follow-up, and 14-month follow-up.

**RESULTS:** Intervention group participants had increases in job search knowledge, job search behavior, and job search behavior self-efficacy at posttest; they maintained increases in knowledge and self-efficacy, but not behavior. Comparison group participants also had increases in job search behavior and job search behavior self-efficacy at the end of the study. Changes in job search outcomes self-efficacy were not evident for either group; neither were differences in post-intervention employment.

**CONCLUSIONS:** The intervention had lasting effects on job search knowledge, but findings for other outcomes over time were mixed. Both groups had low employment rates throughout the study.

**Keywords:** blindness, visual impairment, low vision, employment, transition, job search training

## **Long-Term Effects of a Job Search Intervention for Transition-Age Youth With Visual Impairments**

### **1. Introduction**

Youth and young adults with visual impairments (i.e., those who are blind or have low vision) have persistently low employment rates compared to youth and young adults in the general population and those with several other disabilities (Cornell University, 2018; Newman et al., 2011; Sanford et al., 2011). Previous work experience has emerged as a prominent predictor of future employment outcomes for youth with disabilities (Landmark et al., 2010; Mazzotti et al., 2016; Test et al., 2009; Wehman et al., 2015) and for those with visual impairments (Connors et al., 2014; Giesen & Cavanaugh, 2012; McDonnall, 2011; McDonnall & Crudden, 2009; McDonnall & O'Mally, 2012). In fact, findings from a recent systematic literature review indicate that early paid work experience is among the most consistent predictors of post-high school employment for youth with visual impairments (Lund & Cmar, 2020). Despite this evidence, National Longitudinal Transition Study 2012 (NLTS 2012) findings indicate that many youth with visual impairments lack paid work experience (Lipscomb et al., 2017).

#### ***1.1 Importance of Teaching Job Search Skills***

The Workforce Innovation and Opportunity Act (WIOA, 2016) supports the need for and value of early work experiences and job-seeking skills instruction (which falls under workplace readiness training) for youth with disabilities, as evidenced by the inclusion of these activities in pre-employment transition services (pre-ETS). Accordingly, the provision of work-based learning experiences and workplace readiness training has expanded under WIOA (U.S. Government Accountability Office, 2018). Vocational rehabilitation (VR) agencies may differ in

how they deliver and prioritize pre-ETS (Honeycutt et al., 2019; Miller et al., 2018), but workplace readiness training was provided frequently across agencies, with about a quarter of students with disabilities receiving this service in Program Year 2017 (Honeycutt et al., 2019).

Research findings further support the benefits of teaching job-seeking skills to youth, including youth with disabilities. A review of interventions that included a work experience component yielded mixed evidence of effectiveness for youth; however, all youth programs with strong impacts (i.e., very likely to produce substantial changes in life outcomes) included job search and placement assistance (Sattar, 2010). Researchers have also found associations between job search skills and employment for youth with disabilities (Benz et al., 1997). People with visual impairments have identified job search skills training as an important facilitator of employment (Silverman et al., 2019), and correlational research supports the benefits of independent job-seeking specifically for youth with visual impairments (McDonnall & O'Mally, 2012). Still, some youth with disabilities lack opportunities to develop and practice job-seeking skills because parents, teachers, and VR counselors often help them obtain jobs (Carter et al., 2009, 2010). These youth may benefit from job search interventions, defined by Liu et al. (2014) as training programs that aim to assist job-seekers in obtaining employment.

### ***1.2 Effectiveness of Job Search Interventions***

In a meta-analysis of 47 experimental and quasi-experimental studies, Liu et al. (2014) found that job search interventions were effective in increasing participants' job search skills, job search behaviors, job search self-efficacy, employment, and starting salary. Across studies, the odds of employment were 2.67 times higher for intervention group participants compared to control group participants. Furthermore, job search skills, behaviors, and self-efficacy were associated with employment. Job search interventions were particularly effective for younger

people and for people with disabilities or health conditions (Liu et al., 2014). In a Cochrane systematic review of experimental studies of health-focused employment interventions, Hult et al. (2020) found moderate-quality evidence for the effectiveness of interventions that combined therapeutic methods (e.g., self-efficacy enhancement, social support) with training on job-seeking skills in improving employment.

The *JOBS* program, a widely-used evidence-based job search intervention for unemployed adults, was developed by researchers from the Michigan Prevention Research Center (Caplan et al., 1989; Curran et al., 1999). *JOBS* is a theory-driven intervention that includes the following key components: active learning, trainer referent power, social support, self-efficacy enhancement, and inoculation against setbacks (Curran et al., 1999). Researchers evaluated the effectiveness of the *JOBS* program in two randomized experimental studies conducted in the United States (Caplan et al., 1989; Vinokur, Price, & Schul, 1995). Immediately following the intervention, participants had substantial increases in self-esteem, self-efficacy, and preparation to handle setbacks (Vinokur, Price, & Schul, 1995). Furthermore, participant engagement was associated with improvements in self-perceived job-seeking skills, activities, self-efficacy, motivation, intention, and perceived knowledge about job-seeking methods (Caplan et al., 1989). Initial conservative analyses based on the intact randomized experimental design revealed that the intervention and control groups did not differ in job-seeking behavior at 1-month and 4-month posttests, although unemployed intervention group participants had higher self-efficacy than unemployed control group participants at both time points (Caplan et al., 1989). Subsequent, refined analyses indicated that greater exposure to the *JOBS* intervention was associated with higher job-seeking behavior and self-efficacy at both 1-month and 4-month posttests (van Ryn & Vinokur, 1992).

The *JOBS* program also has evidence of effectiveness in improving participants' employment rates and earnings 1 to 6 months following the intervention (Caplan et al., 1989; Vinokur, Price, & Schul, 1995). The beneficial effects on employment outcomes persisted long term; intervention group participants had higher employment rates than comparison group participants at the 2-year follow-up (Vinokur et al., 2000), in addition to higher earnings and longer duration of employment at 2-year (Vinokur et al., 2000) and 2.5-year follow-ups (Vinokur, Price, Caplan, et al., 1995). Researchers and community organization staff have successfully replicated the *JOBS* program in multiple countries, including the United States, Finland, and China (Choi et al., 2003; Lee & Vinokur, 2007; Price et al., 1998; Price & Fang, 2002; Vuori et al., 2002; Vuori & Vinokur, 2005). In the Finnish adaptation of *JOBS*, the *Työhön Job Search Program*, the intervention and control groups did not differ in employment rates at 6-month or 2-year follow-ups (Vuori et al., 2002; Vuori & Silvonen, 2005), but more intervention group participants were engaged in the labor market (i.e., employed, in a subsidized job, or participating in vocational training) than comparison group participants (Vuori & Silvonen, 2005).

Using 3-year follow-up data from participants in Finland, Malmberg-Heimonen et al. (2019) examined the long-term effects of research-based interventions based on the *JOBS* model and practice-based interventions that used another training method, no training method, or only a few components of the *JOBS* method. Individuals at high risk for depression at baseline who participated in research-based job search interventions had higher long-term employment rates and were less likely to leave the labor force than control group participants. However, practice-based interventions had detrimental effects on employment and labor force participation over time for at-risk participants.

Following the success of *JOBS* in the adult population, researchers in Finland created a version of the program for youth and young adults called *School-to-Work* (Koivisto et al., 2002; Nykänen et al., 2012, 2014). In a randomized controlled trial with young people who were transitioning from vocational college to work, the *School-to-Work* program was effective in improving employment rates and job quality at 10-month follow-up (Koivisto et al., 2007, 2010). Furthermore, *School-to-Work* program participants increased employment preparedness (i.e., employment self-efficacy, inoculation against setbacks) immediately following the intervention, and employment preparedness was significantly associated with employment at 10-month follow-up (Koivisto et al., 2010).

Job-seeking skills instruction for youth and adults with visual impairments has traditionally relied on practice-based methods that lack an empirical or theoretical foundation. These skills are often taught in conjunction with other related skills, such as through a pre-employment program for adults with visual impairments that includes some job-seeking content (McMahon et al., 2013; Wittich et al., 2013). For youth with visual impairments, job search skills may be covered through the Expanded Core Curriculum, workplace readiness training, and transition programs. Given the benefits of interventions based on the *JOBS* model, we developed and tested a research-based job search intervention for youth with visual impairments. Short-term findings indicated that intervention group participants had increases in job search knowledge, job search behavior, and job search behavior self-efficacy between the pretest and initial posttest (Cmar & McDonnall, 2019, 2020) and provided initial support for the effectiveness of the intervention.

The current article extends those findings by presenting follow-up data from that larger study. Follow-up data provide critical information about long-term intervention effects, and Hult

et al. (2020) recommended extended follow-up times (i.e., beyond 4 months) for studies of employment interventions. Despite the importance of examining long-term intervention outcomes, including employment, many studies focusing on youth with disabilities have not included such outcomes (Cobb et al., 2013), particularly for youth with visual impairments (Cavanaugh & Giesen, 2012). The purpose of this study was to examine the impact of a job search intervention over time on job search knowledge, job search behavior, job search self-efficacy, and employment. We hypothesized that youth who received job search skills training would have greater increases in job search knowledge, job search behavior, and job search self-efficacy over time than youth in a comparison group. We also hypothesized that youth who received job search skills training would have higher employment rates than youth in the comparison group. Considering the recent expansion of work-based learning experiences for youth with disabilities and that many youth in our study reported participating in school- or agency-sponsored work activities, we explored group differences in sponsored work participation.

## **2. Method**

### ***2.1 Participants***

Ninety-two youth with visual impairments participated in the study. Youth were eligible for participation if they (a) were between the ages of 15 and 22 years; (b) had a visual impairment that affected their education or employment (based on qualification for VR or special education services); (c) did not have a moderate to severe intellectual disability; and (d) received services through one of our collaborating agencies in three states, located in the Southeast, Southwest, and West regions of the United States. The Institutional Review Board for human subjects research at Mississippi State University approved the study protocol.



Approximately half of participants in the sample were female (52.2%,  $n = 48$ ). Most participants were White (48.9%,  $n = 45$ ) or African American (43.5%,  $n = 40$ ); an additional 3.3% ( $n = 3$ ) were Asian American, and 4.4% ( $n = 4$ ) indicated they were multiracial or of mixed race. Some participants (7.6%,  $n = 7$ ) were of Hispanic origin. Participants' average age at pretest was 17.41 years ( $SD = 1.50$ ), and their ages ranged from 15 to 22 years. The majority of participants (60.9%,  $n = 56$ ) had less than a high school diploma at pretest, followed by a high school diploma or equivalent (28.3%,  $n = 26$ ), some college but no degree (9.8%,  $n = 9$ ), and a bachelor's degree (1.1%,  $n = 1$ ). At pretest, nearly half of the sample (44.6%,  $n = 41$ ) received Supplemental Security Income (SSI), and an additional 2.2% ( $n = 2$ ) were unsure if they received SSI.

Most participants (70.7%,  $n = 65$ ) were legally blind; 16.3% ( $n = 15$ ) were totally blind, and 13.0% ( $n = 12$ ) had a less severe visual impairment. Some participants (39.1%,  $n = 36$ ) had additional disabilities: 28.3% ( $n = 26$ ) had one additional disability, 7.6% ( $n = 7$ ) had two, and 3.3% ( $n = 3$ ) had three. The most common types of additional disabilities among participants were physical disabilities (23.9%,  $n = 22$ ) and attention deficit hyperactivity disorder (7.6%,  $n = 7$ ). Twenty-five percent of participants ( $n = 23$ ) had at least one health condition, such as asthma, diabetes, autoimmune disorders, traumatic brain injury, epilepsy, and chronic migraines. More intervention group participants (36.4%,  $n = 16$ ) had health conditions than did comparison group participants (14.6%,  $n = 7$ ),  $\chi^2(1, N = 92) = 5.81, p = .02, \phi = 0.25$ . Participants did not differ significantly by group on any other baseline characteristics.

## **2.2 Research Design**

We utilized a quasi-experimental two-group repeated-measures design for this study (intervention group  $n = 44$ , comparison group  $n = 48$ ). Five cohorts of participants enrolled in the

study between 2016 and 2018. In two states, assignment to the intervention condition was dependent upon participation in a transition program or class in which staff from our partner agencies implemented the intervention. In the third state, group assignment was determined by geographical location. Given the low incidence of visual impairment among youth, this method of group assignment was necessary for logistical purposes to ensure staff availability and adequate numbers of participants in the intervention group.

### ***2.3 Procedure***

Staff from our partner agencies identified youth who met the eligibility criteria and shared information about the study with them and their parents or guardians. For interested youth, we then obtained consent or parental permission and assent. Trained research staff contacted youth individually and administered a 30- to 45-minute pretest survey by telephone up to 3 weeks prior to the start of the intervention. The pretest covered a variety of topics such as demographic information, job search knowledge, job search behavior, and job search self-efficacy. Our partner agency in one state provided additional supplementary data for participants from that state.

Comparison group participants received their usual school- and community-based services. In addition to usual services, intervention group participants received 35 to 40 hours of intensive job search skills training over five full days (in two states) or 10 half days (in one state). For the 10-day implementation, staff integrated the intervention into a summer transition program that lasted 3 weeks and included additional content in areas such as career exploration, independent living, and college preparation. Some intervention and comparison group participants from one state also completed a 6-week long community-based summer work experience with an employer, which was sponsored by the state-federal VR agency.

Participants then completed three additional telephone surveys: (a) an initial posttest, approximately 2 months after the pretest; (b) a follow-up survey, approximately 8 months after the pretest; and (c) a second follow-up survey, approximately 14 months after the pretest. The pretest, posttest, and follow-up surveys all had similar content; however, the posttest and follow-up surveys included additional questions about employment and did not include demographic questions. Youth received a \$20 gift card incentive upon completion of each survey and an additional \$20 gift card if they completed all four surveys. Figure 1 provides the number of participants in each group who completed the surveys at each time point.

#### ***2.4 Intervention Description***

We modified the *School-to-Work* program to develop our program, *Putting Your Best Foot Forward: Job Search Skills Training for Youth With Visual Impairments*. We added content specific to youth with visual impairments (e.g., examples particularly relevant to this population, content about disability disclosure) and removed some existing content. The original program included 20 hours of group sessions covered over a 5-day period; we retained this amount of group contact and added individual sessions to allow youth the opportunity to implement what they learned in the group sessions with support. Participants also completed some homework assignments. Two trainers implemented the group sessions, and additional facilitators provided assistance for the individual sessions, with a targeted 3-to-1 youth-to-facilitator ratio. Inclusion of the individual sessions allowed us to ensure that all six components of successful job search programs (Liu et al., 2014) were included in our curriculum.

The *Putting Your Best Foot Forward* program relies on five key learning processes: (a) active learning, (b) referent power, (c) self-efficacy, (d) social support, and (e) overcoming barriers, described in detail in the program manual. These learning processes serve as a

foundation for the program. Emphasis on incorporating these learning processes while implementing the curriculum is one thing that distinguishes this program, and the *School-to-Work* program, from others that have similar content. Because these learning processes are considered key to the success of the program, trainers are required to complete 8 hours of training to learn about these processes prior to implementing the program. *Putting Your Best Foot Forward* covers five broad topic areas, focusing on one during each group session: (a) Identifying strengths and skills and the employer's point of view, (b) Presenting your skills and thinking like an employer, (c) Finding job vacancies, (d) Preparing for a job interview, and (e) The job interview as a whole and starting a new job. It consists of 28 separate lessons that build on each other in a progressive process. Lessons include a (generally) brief content introduction and one or more group exercises or individual workbook activities related to the content. Group exercises include discussions, small-group exercises, brainstorming, role-play examples, role-play exercises, and an employer interview. A culminating event of the program is participant interviews with two employers, for which they receive feedback on their performance. Program materials include a trainer's manual, PowerPoint slides (to guide the trainers and increase fidelity), a facilitator's manual, and a student workbook.

## ***2.5 Measures***

### ***2.5.1 Job Search Knowledge***

We created a multiple-choice measure of job search knowledge that covered six topic areas: strengths and skills, finding job vacancies, resumes and cover letters, job applications, interviews, and disclosure and accommodations. We developed 38 potential items and pilot-tested them with nine adults who answered the questions and provided feedback on the items and response options. We edited the items based on this feedback and pilot-tested the revised items

with 20 high school and college students. We evaluated item difficulty and eliminated items that were too difficult or too easy. The final measure consisted of 22 items with varying levels of difficulty (e.g., The main purpose of a resume is to: (a) Let the employer know about your education and work experiences, (b) Let the employer know about your skills, (c) Help you get an interview, (d) Help you get a job offer). Scores were computed by assigning one point for each correct response and calculating the percentage correct.

### *2.5.2 Job Search Behavior*

We utilized a modified version of the job-seeking behavior scale previously used in *JOBS* program research (Caplan et al., 1989; van Ryn & Vinokur, 1992) to measure participants' job search behavior. This measure has adequate evidence of predictive validity (Vinokur & Caplan, 1987). We updated the scale by (a) including email contacts and internet searches, (b) combining two similar behaviors into one item, and (c) adding an item from another job search measure (Blau, 1994) to create a 10-item measure. Participants were asked, "how many times have you done each of these things [during the last 6 months (at pretest and 8- and 14-month follow-ups) or since the last survey (at 2-month posttest)]?" Sample job search behavior items are: (a) Called, emailed, or visited a potential employer and (b) Prepared or revised your resume. Because the time between our follow-ups varied (i.e., either 2 months or 6 months), we created a composite job search behavior index based on the number of behaviors the participant performed at least once during the time period, with possible scores ranging from 0 to 10. This type of index had good reliability in *JOBS* program research ( $\alpha = .83$ ; Vinokur & Price, 1999), and this measure had good reliability in our sample at each data collection point (i.e.,  $\alpha = .77, .86, .82, .87$ ).

### *2.5.3 Job Search Self-Efficacy*

We assessed job search self-efficacy in terms of behavior and outcomes, representing a

two-dimensional model that has evidence supporting its validity (Saks et al., 2015). *Job search behavior self-efficacy* is confidence in successfully performing specific job search behaviors, whereas *job search outcomes self-efficacy* is confidence in successfully obtaining positive job search outcomes such as job offers. Our 9-item job search behavior self-efficacy measure was developed from the scale utilized in *JOBS* program studies (Caplan et al., 1989; van Ryn & Vinokur, 1992). This scale was created using item and factor analysis and has evidence for reliability ( $\alpha = .87$ ; van Ryn & Vinokur, 1992). Participants rated their confidence on a scale from 0 to 10 in their ability to perform each of the behaviors (e.g., Contact potential employers to consider you for a job; Make the best impression in a job interview). Our 7-item job search outcomes self-efficacy measure was based on a modified version of a subscale from the Job Search Self-Efficacy Scale, which has evidence for reliability ( $\alpha = .96$ ; Saks et al., 2015). We eliminated three items that were not relevant to our population. Participants rated their confidence on a scale of 0 to 10 in their ability to accomplish the job-search related outcomes (e.g., Get a job quickly; Obtain more than one good job offer). Reliability was good at each time point for both the behavior ( $\alpha = .85, .88, .90, .91$ ) and outcomes ( $\alpha = .91, .91, .94, .95$ ) self-efficacy measures for our sample.

#### 2.5.4 Employment

Employment status at the posttest, 8-month follow-up, and 14-month follow-up was determined by a series of questions on the survey. We asked whether each participant had held a paid job during the time period between surveys: How many paid jobs have you had since the last survey? For each paid job reported, we asked a follow-up question: Was this a short-term work activity sponsored by your school or VR agency? If youth responded ‘no’ to the second question, we considered it a non-sponsored job and collected additional information about it

(e.g., job title, type of employer). Interviewers asked additional questions, as needed, to confirm that these jobs were not sponsored by an agency or the youth's school because some youth had difficulty differentiating between a sponsored and non-sponsored job. We also utilized data from one partner agency to determine whether youth who received services from that agency had participated in their summer work experience program. If youth participated in the summer work experience program or another short-term school- or agency-sponsored work activity, we coded them as having a sponsored job.

## 2.6 Data Analysis

We utilized descriptive statistics to summarize participants' scores for each measure at each time point. We presented the group means for job search knowledge, job search behavior, job search behavior self-efficacy, and job search outcomes self-efficacy in graphical format to illustrate the changes in these outcomes across time. To examine changes in those four outcomes over time, we used multilevel modeling with SAS PROC MIXED using restricted maximum likelihood (REML) estimation and Kenward Roger adjustment. Because these analyses involved longitudinal data, repeated measures (level 1) were nested within participants (level 2). Each analysis included 92 participants with a maximum of four observations per participant for a total of 360 observations (with eight missing observations). The models included *month* (i.e., months since pretest) as a categorical within-subjects factor, *group* (i.e., intervention vs. comparison) as a between-subjects factor, and the interaction between month and group. We conducted analyses of simple effects for significant interactions. We used Cohen's  $f^2$  as an effect size for the fixed effects (Lorah, 2018; Selya et al., 2012), using the benchmarks of small = 0.02, medium = 0.15, and large = 0.35 (Cohen, 1988).

To determine if employment rates (for both sponsored and non-sponsored jobs) were

associated with group at posttest, 8-month follow-up, and 14-month follow-up, we conducted chi-square tests of independence or Fisher's exact test (when 50% of expected cell frequencies were  $< 5$ ) with phi coefficients for effect sizes. We followed Cohen's guidelines for interpretation of phi: small = 0.10, medium = 0.30, and large = 0.50 (Cohen, 1988).

### 3. Results

The observed means for job search knowledge, job search behavior, job search behavior self-efficacy, and job search outcomes self-efficacy are displayed in Figures 2, 3, 4, and 5, respectively. The adjusted means for each outcome by group are provided in Table 1.

#### 3.1 Job Search Knowledge

Average job search knowledge scores did not differ by group at pretest. As shown in Table 1, significant group differences in knowledge were evident at posttest and 8-month follow-up. Intervention group participants had 0.10 higher knowledge scores than comparison group participants at posttest and 0.08 higher scores at 8-month follow-up, with effect sizes in the small-to-medium range at both time points ( $f^2 = 0.12$  and  $0.10$ , respectively). Group differences in knowledge were no longer apparent at 14-month follow-up.

The multilevel model for job search knowledge utilized a Toeplitz covariance structure. The Month X Group interaction was significant,  $F(3, 142) = 4.65, p < .01, f^2 = 0.07$ , which indicates that knowledge scores changed differentially over time for the two groups. The main effects of Group,  $F(1, 90) = 5.62, p = .02$ , and Month,  $F(3, 142) = 5.37, p < .01$ , were also significant. Simple effects analyses indicated that knowledge scores changed over time for the intervention group,  $F(3, 143) = 8.35, p < .0001$ , but not for the comparison group,  $F(3, 140) = 1.36, p = .26$ . Intervention group participants had significant increases in knowledge from pretest to posttest,  $t(103) = 4.57, p < .0001$ ; from pretest to 8-month follow-up,  $t(165) = 3.83, p < .001$ ;



and from pretest to 14-month follow-up,  $t(188) = 3.84, p < .001$ .

### **3.2 Job Search Behavior**

Job search behavior did not differ by group at pretest; however, significant group differences in behavior were evident at posttest and 8-month follow-up (see Table 1). At posttest, intervention group participants performed 3.51 more types of job search behaviors than did comparison group participants, which is a large effect ( $f^2 = 0.44$ ). At 8-month follow-up, intervention group participants performed 1.26 more types of behaviors than did comparison group participants, which is a small effect ( $f^2 = 0.06$ ). The two groups did not exhibit differences in job search behavior at 14-month follow-up.

The covariance structure for the job search behavior multilevel model was compound symmetry. The Month X Group interaction was significant,  $F(3, 263) = 10.06, p < .0001, f^2 = 0.12$ , as were main effects of Group,  $F(1, 90) = 10.70, p < .01$ , and Month,  $F(3, 263) = 8.12, p < .0001$ . Although changes in behavior over time were evident for both the intervention group,  $F(3, 264) = 11.06, p < .0001$ , and the comparison group  $F(3, 262) = 7.08, p < .001$ , the changes varied across time by group. Intervention group participants had a significant increase in behavior from pretest to posttest,  $t(262) = 5.48, p < .0001$ , but not from pretest to 8-month follow-up,  $t(265) = 1.17, p = .24$ , or from pretest to 14-month follow-up,  $t(265) = 1.88, p = .06$ . Comparison group participants' behavior did not change from pretest to posttest,  $t(262) = -0.05, p = .96$ , or from pretest to 8-month follow-up,  $t(262) = 0.45, p = .65$ , but it increased significantly from pretest to 14-month follow-up,  $t(262) = 3.89, p < .001$ .

### **3.3 Job Search Behavior Self-Efficacy**

As indicated in Table 1, average job search behavior self-efficacy scores did not differ significantly by group at pretest, posttest, 8-month follow-up, or 14-month follow-up. However,

job search behavior self-efficacy scores were 0.59 higher for the intervention group than the comparison group at posttest ( $p = .06, f^2 = 0.04$ ) and 0.53 higher at 8-month follow-up ( $p = .09, f^2 = 0.04$ ).

The job search behavior self-efficacy multilevel model had a compound symmetry covariance structure. The Month X Group interaction was not significant,  $F(3, 262) = 1.69, p = .17, f^2 = 0.02$ , nor was the main effect of Group,  $F(1, 90) = 1.86, p = .18$ . The main effect of Month was significant,  $F(3, 262) = 7.82, p < .0001$ , indicating that job search behavior self-efficacy scores changed over time for both groups combined. Across groups, job search behavior self-efficacy scores increased by 0.46 ( $SE = 0.11$ ) from pretest to posttest,  $t(262) = 4.10, p < .0001$ ; by 0.36 ( $SE = 0.11$ ) from pretest to 8-month follow-up,  $t(263) = 3.12, p < .01$ ; and by 0.49 ( $SE = 0.11$ ) from pretest to 14-month follow-up,  $t(263) = 4.23, p < .0001$ . The two groups exhibited different patterns of change across time (see Figure 4 and Table 1). The intervention group had significant increases in job search behavior self-efficacy from pretest to posttest,  $t(262) = 4.03, p < .0001$ ; from pretest to 8-month follow-up,  $t(263) = 3.12, p < .01$ ; and from pretest to 14-month follow-up,  $t(263) = 2.89, p < .01$ . For the comparison group, changes in job search behavior self-efficacy scores were not significant from pretest to posttest,  $t(262) = 1.72, p = .09$ , or from pretest to 8-month follow-up,  $t(262) = 1.23, p = .22$ , but they increased significantly between the pretest and 14-month follow-up,  $t(262) = 3.10, p < .01$ .

### **3.4 Job Search Outcomes Self-Efficacy**

Average job search outcomes self-efficacy scores did not differ significantly by group at pretest, posttest, 8-month follow-up, or 14-month follow-up (see Table 1), but they tended to be 0.75 higher for the intervention group than the comparison group at posttest ( $p = .06, f^2 = 0.05$ ).

The multilevel model for job search outcomes self-efficacy utilized a Toeplitz covariance

structure. The Month X Group interaction was not significant,  $F(3, 142) = 0.36, p = .78, f^2 = 0.01$ , nor were the main effects of Group,  $F(1, 89) = 2.80, p = .10$ , or Month,  $F(3, 142) = 0.94, p = .42$ . Neither group exhibited significant changes in job search outcomes self-efficacy over time.

### **3.5 Employment**

Frequencies and percentages of sponsored and non-sponsored jobs for the full sample and for each group at posttest, 8-month follow-up, and 14-month follow-up are provided in Table 2. A large percentage of participants had a sponsored job between the pretest and posttest, which tended to decrease at later time points. The proportion of participants who had a sponsored job did not differ significantly by group at the posttest,  $\chi^2(1, N = 92) = 0.56, p = .45, \phi = 0.08$ , or at the 8-month follow-up,  $\chi^2(1, N = 88) = 3.30, p = .07, \phi = 0.19$ . At the 14-month follow-up, a significantly larger proportion of intervention group participants had a sponsored job than did comparison group participants,  $\chi^2(1, N = 89) = 4.73, p = .03, \phi = 0.23$ .

Very few participants had any type of non-sponsored job between the pretest and posttest. Non-sponsored job obtainment remained low at the 8- and 14-month follow-ups but tended to increase slightly over time, although the percentage of participants who obtained a paid job with an employer did not exceed 15.0% at any time point (see Table 2). The proportion of participants with a non-sponsored job did not differ by group at the posttest ( $p = .42$ , Fisher's exact test,  $\phi = 0.10$ ); 8-month follow-up,  $\chi^2(1, N = 88) = 0.09, p = .76, \phi = -0.03$ ; or 14-month follow-up,  $\chi^2(1, N = 88) = 0.32, p = .57, \phi = -0.06$ .

## **4. Discussion**

The purpose of this study was to evaluate the effectiveness over time of a job search skills training program for youth with visual impairments. We investigated two hypotheses

related to the effectiveness of the program. The first hypothesis predicted greater increases in job search knowledge, behavior, and self-efficacy for program participants than in the comparison group over time. Our study provided limited support for this hypothesis; greater increases over time in the intervention group versus the comparison group were observed at posttest and 8-month follow-up for job search knowledge and at posttest for job search behavior. Furthermore, knowledge and behavior scores were significantly higher for the intervention group than the comparison group at posttest and 8-month follow-up. However, no significant differences between groups were evident for any outcome variable at 14 months post-intervention. The second hypothesis predicted higher employment rates for program participants versus youth in the comparison group; this hypothesis was not supported by the data.

The outcome variable with the most support for a lasting effect was job search knowledge. The intervention group had significant increases in job search knowledge that were retained throughout the 14-month study, while the comparison group did not have a significant increase in knowledge during the study. Although the intervention group's increases in knowledge were not large (perhaps due in part to the first posttest being 2 months after the pretest), their ability to retain the knowledge gained is important and supports the value of the intervention. Having greater knowledge about effective job search approaches can be expected to improve the effectiveness of job search efforts in the future. This assertion is supported by Liu et al.'s (2014) meta-analysis, which documented that procedural job search knowledge/skills have a mediating effect on obtaining employment. The active learning method as a foundation of the program may have contributed to this knowledge gain and maintenance over the course of the study, as active learning has been associated with better knowledge retention (Lucas et al., 2013; Michael, 2006; Prince, 2004).

Job search behavior increased significantly for the intervention group at the posttest and remained higher than the comparison group at the 8-month follow-up. These differences were not retained at the end of the study due to a large increase in job search behavior in the comparison group at the 14-month follow-up. The comparison group also exhibited increases, albeit smaller, in the other outcome measures between the third and final data collection points. Reasons for the improvements in the outcomes exhibited by the comparison group between the 8-month and 14-month follow-ups are not apparent. One possibility is that participation in other job search skills training may have contributed to these changes; almost one-third of the comparison group members reported receiving such training after the posttest. The substantial increase in job search behavior of these group members may have facilitated their increase in job search self-efficacy.

The intervention group's largest increase exhibited in job search behavior occurred between the pretest and the posttest, and may be attributed to the emphasis on completion of these activities during the intervention with guidance as needed. Ideally, after a job search intervention, increased job search behaviors would continue until participants obtain a job. Behavior changes can be difficult to maintain long-term, potentially for a number of reasons. Many theories relate to maintenance of behavior change, and common themes among the theories include (a) motivation to maintain behavior and (b) environmental influences and social support (Kwasnicka et al., 2016). Motivation to engage in job-seeking behavior could have been high during and after the intervention, but it could have decreased if the youth didn't find a job right away, or if they participated in a sponsored work experience, which a majority of youth did. Encouraging social support from family members, in addition to the support provided by the group, was a component of the intervention. However, intervention group youth reported

receiving slightly lower levels of support from family members for job search efforts than comparison group youth, particularly at the 14-month follow-up. The intervention group's reported level of support for job search efforts decreased over the course of the study, while the comparison group's levels were highest at pretest and 14-month follow-up. Inoculation against setbacks, another foundational component of the program, may be an important factor in promoting sustained job search behavior if youth experience rejection or disappointment with their job search efforts (van Ryn & Vinokur, 1992).

Our findings do not support that the intervention had an impact on either job search behavior self-efficacy or job search outcomes self-efficacy. Differences between groups closely approached significance at the posttest on both measures, but effect sizes were small, and ultimately, there were no differences at the end of the study. Lack of differences in job search outcomes self-efficacy, or substantial changes by either group on this measure, are not surprising given that few participants in either group attained a non-sponsored job during the study. Lack of differences in job search behavior self-efficacy are more surprising, given that youth in the intervention group exhibited a large increase in job search behavior at posttest. Although there were no significant differences between the groups, the intervention group exhibited significant increases over time in job search behavior self-efficacy and maintained this increase through the end of the study. The comparison group did not initially exhibit increases on this outcome, but job search behavior self-efficacy significantly increased at the 14-month follow-up for this group, again, perhaps associated with their increase in job search behavior during that time period.

Few participants from either group attained a non-sponsored job during the 12 months following the posttest. Over this time period, 26.7% of youth reporting having a non-sponsored

job at some point, which compares to 38% of youth with visual impairments in the NLTS 2012 sample who reported having a job in the past year (Lipscomb et al., 2017). Given the importance of early work experiences to future employment (Connors et al., 2014; Giesen & Cavanaugh, 2012; Lund & Cmar, 2020; McDonnall, 2011; McDonnall & O'Mally, 2012), this low rate of employment for our study participants is concerning. Considering that NLTS 2012 youth were all in high school and generally younger (between the ages of 13 and 21 years), this difference between their rates of paid employment and those of our sample is even more concerning. One potential reason for our participants' lack of participation in non-sponsored jobs is the pervasiveness of participation in sponsored work activities. The easy availability of sponsored jobs may dissuade youth from seeking non-sponsored jobs. Sponsors of jobs (e.g., VR agencies, schools, community rehabilitation providers) likely see sponsored work activities as important opportunities for youth, but they may not be considering the potential negative impact in terms of doing for youth something (i.e., find a job) that youth can learn to do for themselves and ultimately benefit from doing themselves (Benz et al., 1997; McDonnall & O'Mally, 2012).

Other potential reasons for limited non-sponsored jobs in both groups of youth are that the people around them (family members, service providers) may not expect them to search for a job on their own and therefore do not support their job-seeking efforts, as documented in studies of youth with other disabilities (Carter et al., 2009, 2010). Some participants in our study raised concerns about the possibility of losing SSI benefits should they obtain a non-sponsored job, and this concern may be pertinent to many participants as almost half received SSI. In addition, youth in the intervention group who received the intensive job search skills training may view job-seeking as a skill they will need only in the future, not the present, particularly given the availability of non-sponsored jobs.

In their meta-analysis, Liu and colleagues (2014) documented that job search interventions are effective at increasing the likelihood of employment for participants. Increased employment rates for participants were found for the *JOBS* program (Caplan et al., 1989; Vinokur, Price, & Schul, 1995) and the *School-to-Work* program (Koivisto et al., 2007, 2010), on which our intervention was based. One possible reason for the lack of positive employment findings in our study is the age and stage of development of our sample compared to the *JOBS* and *School-to-Work* studies. The *JOBS* studies were implemented with unemployed adults who were receiving unemployment benefits; given that these benefits are temporary and less than earnings provided from their previous jobs, it was expected that these adults would be motivated to return to the workforce as soon as possible. Although the *School-to-Work* program studies involved youth as our study did, all youth in those studies were graduating from vocational college and transitioning to work. The majority of youth in our study (74%) were still in high school or college at the time the study ended; hence, most were likely not ready to seek a permanent post-school job and begin their careers. Some evidence indicates that the positive effects of job search interventions on employment may emerge or strengthen years after the intervention (Liu et al., 2014), suggesting that the employment benefits for our participants may not have had time to emerge in our study.

#### **4.1 Limitations and Directions for Future Research**

A limitation of the current study is that we were not able to randomly assign participants to groups due to logistical limitations of partner agencies. Random assignment would strengthen future research on the effectiveness of job search interventions for youth with visual impairments. It is relevant to note that random assignment did not influence intervention effectiveness in Liu et al.'s (2014) meta-analysis, although effect sizes tended to be larger for



studies that utilized random assignment. Another limitation is that we do not have data on employment-related services that participants received throughout our study, and some participants could have received additional training or instruction in areas related to our study outcomes.

Because we focused our data collection efforts on learning about non-sponsored jobs of participants and did not ask specific questions related to sponsored jobs, we may be underreporting the rates of sponsored work participation. We also did not ask about non-paid sponsored work, only focusing on collecting information about paid jobs. Additionally, participants had difficulty differentiating between non-sponsored and sponsored jobs; frequently they reported a non-sponsored job that, upon further questioning, was determined to be a sponsored job. Given that so many youth in our sample had sponsored jobs and were still completing their education, it would be valuable to replicate this study with a sample of young adults with visual impairments who have completed their education and are motivated to search for a job to begin their careers.

#### **4.2 Implications for Practice**

Our findings document that short-term, intensive job search skills training can have benefits for youth with visual impairments, but long-term change in behavior may require ongoing support and an expectation that youth search for their own jobs rather than be provided with sponsored jobs. Ongoing support could consist of one-on-one follow-up sessions with a service provider who could provide encouragement and guidance on job search efforts. Other options would be follow-up group sessions with the original trainers or facilitators of the program or peer support through ongoing communication with group members (e.g., via job clubs, online forums, or listservs). For job search skills training to be effective, it is also

important that family members be supportive of the youth working; concerns about loss of SSI benefits expressed by youth in this study are often shared by parents, and both parents and youth must be provided with accurate information about available work incentives for SSI recipients, including those specifically for students, and how working affects SSI benefits.

When providing job search skills training, service providers should consider the timing of training, the characteristics and skills of youth, and the desired outcomes of the training. If youth are not ready to begin their job search or lack prerequisite skills, they may not take the training seriously and could be less likely to retain what they learn. Students may not be able to devote sufficient time to job search efforts when classes are in session, and therefore may be less likely to retain their knowledge and skills. For these youth, providing the training at the very beginning of summer (or the end of the school year) may be an ideal time to allow them to learn job-seeking skills and then implement what they learn to find a summer job. Providing ongoing sponsored work experiences to youth after they have participated in the training is likely to have adverse effects on their job search efforts.

Providing the *Putting Your Best Foot Forward* program over an extended time, rather than the intensive training provided in our study, could naturally build in needed supports and provide additional opportunities for practicing job search behaviors. Several trainers asked about the possibility of using the curriculum as part of a semester- or year-long class (e.g., in a specialized school for children who are blind), and one trainer has implemented the program in this way. Presenting the information over an extended time period may be particularly helpful for youth with additional disabilities.

Once youth have received job search skills training, service providers who work with them to prepare them for employment should focus on increasing youth's motivation for job

seeking. Encouragement for finding their own jobs, rather than relying on sponsored work experiences, is a first step. Service providers must be prepared to support youth in their job search efforts as needed and should encourage families to provide similar support.

The *Putting Your Best Foot Forward* program can be used to provide pre-ETS as required under WIOA. The content directly addresses several pre-ETS requirements and was positively evaluated by trainers and participants. The curriculum is comprehensive and includes very specific instructions for implementation, making it easy to use for trainers. Because the program relies on several key learning processes for its effective implementation, completion of a trainer workshop is required for people interested in accessing the curriculum. To learn more about the program and the trainer workshop, visit <https://www.blind.msstate.edu/training/training-activities>.

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**Tables**

Table 1  
*Adjusted Means and Group Differences*

Month	Comparison		Intervention		<i>df</i>	Difference		
	Est.	<i>SE</i>	Est.	<i>SE</i>		<i>t</i>	<i>p</i>	<i>f</i> <sup>2</sup>
Job search knowledge								
0	0.36	0.02	0.36	0.02	169	-0.1	.899	0.00
2	0.35	0.02	0.45	0.02	169	-3.4	.001	0.12
8	0.35	0.02	0.43	0.02	175	-2.7	.007	0.10
14	0.38	0.02	0.43	0.02	175	-1.7	.089	0.03
Job search behavior								
0	3.42	0.41	4.32	0.43	244	-1.5	.129	0.03
2	3.40	0.41	6.91	0.43	244	-5.9	<.0001	0.44
8	3.62	0.41	4.88	0.44	252	-2.1	.037	0.06
14	5.19	0.41	5.23	0.44	252	-0.1	.949	0.00
Job search behavior self-efficacy								
0	7.17	0.21	7.37	0.22	137	-0.7	.519	0.00
2	7.44	0.21	8.03	0.22	137	-1.9	.059	0.04
8	7.36	0.21	7.89	0.23	141	-1.7	.092	0.04
14	7.66	0.21	7.85	0.23	141	-0.6	.534	0.00
Job search outcomes self-efficacy								
0	6.72	0.27	7.25	0.28	147	-1.4	.174	0.02
2	6.75	0.27	7.50	0.28	147	-1.9	.056	0.05
8	6.70	0.27	7.27	0.28	152	-1.4	.154	0.02
14	6.95	0.27	7.38	0.28	152	-1.1	.271	0.01

*Note.* Months 0, 2, 8, and 14 = pretest, posttest, 8-month follow-up, and 14-month follow-up, respectively.

Table 2

*Sponsored and Non-Sponsored Jobs at Posttest and Follow-Ups*

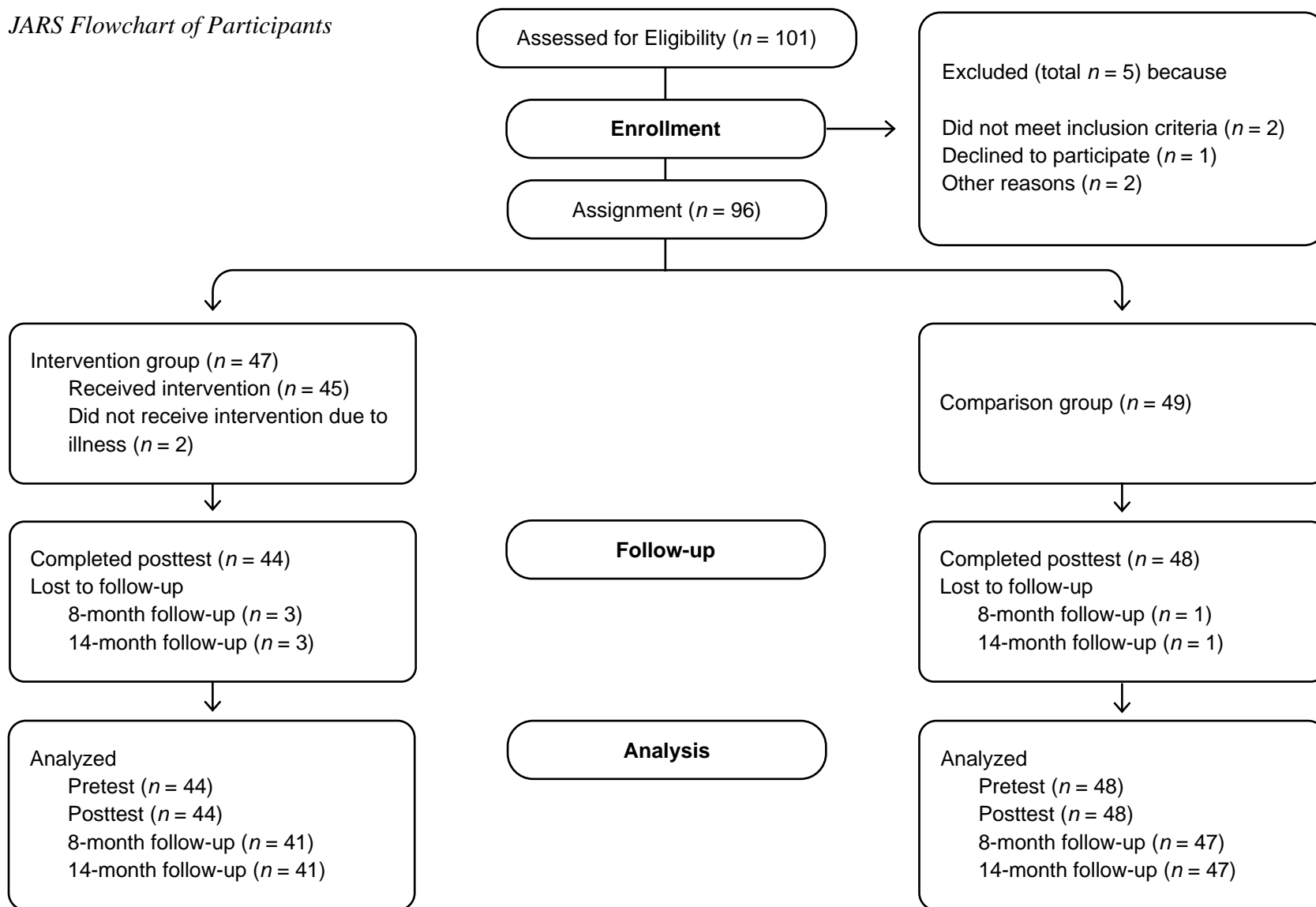
Type of job	Comparison		Intervention		Full sample	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Posttest						
Sponsored	28	58.3	29	65.9	57	62.0
Non-sponsored	2	4.2	4	9.1	6	6.5
Employer	1	2.1	1	2.3	2	2.2
Other	1	2.1	3	6.8	4	4.4
8-month follow-up						
Sponsored	13	27.7	19	46.3	32	36.4
Non-sponsored	8	17.0	6	14.6	14	15.9
Employer	6	12.8	4	9.8	10	11.4
Other	2	4.3	2	4.9	4	4.6
14-month follow-up						
Sponsored	15	31.9	23	54.8	38	42.7
Non-sponsored	9	19.2	6	14.6	15	17.1
Employer	7	14.9	6	14.6	13	14.8
Other	2	4.3	0	0	2	2.3

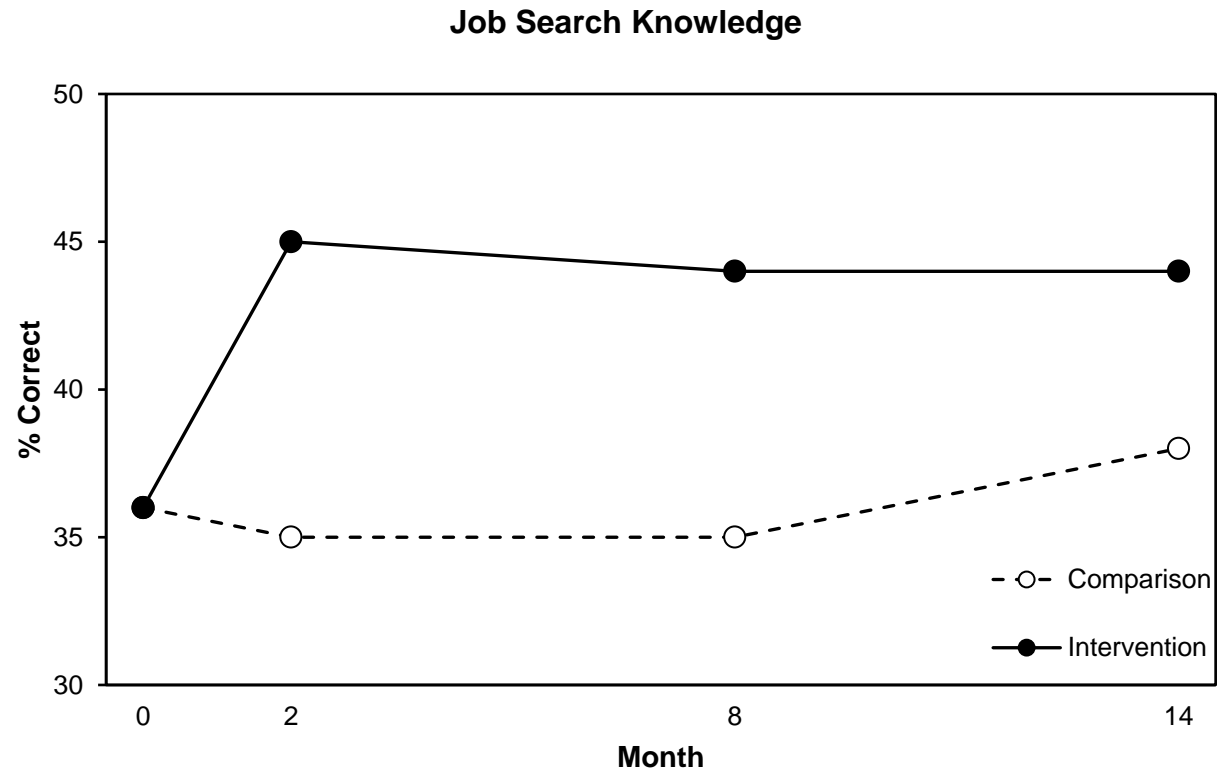
*Note.* “Other” types of non-sponsored jobs include working for parents or family members, self-employment, informal jobs (e.g., lawn care for neighbors, dog-walking), and paid internships.

**Figures**

**Figure 1**

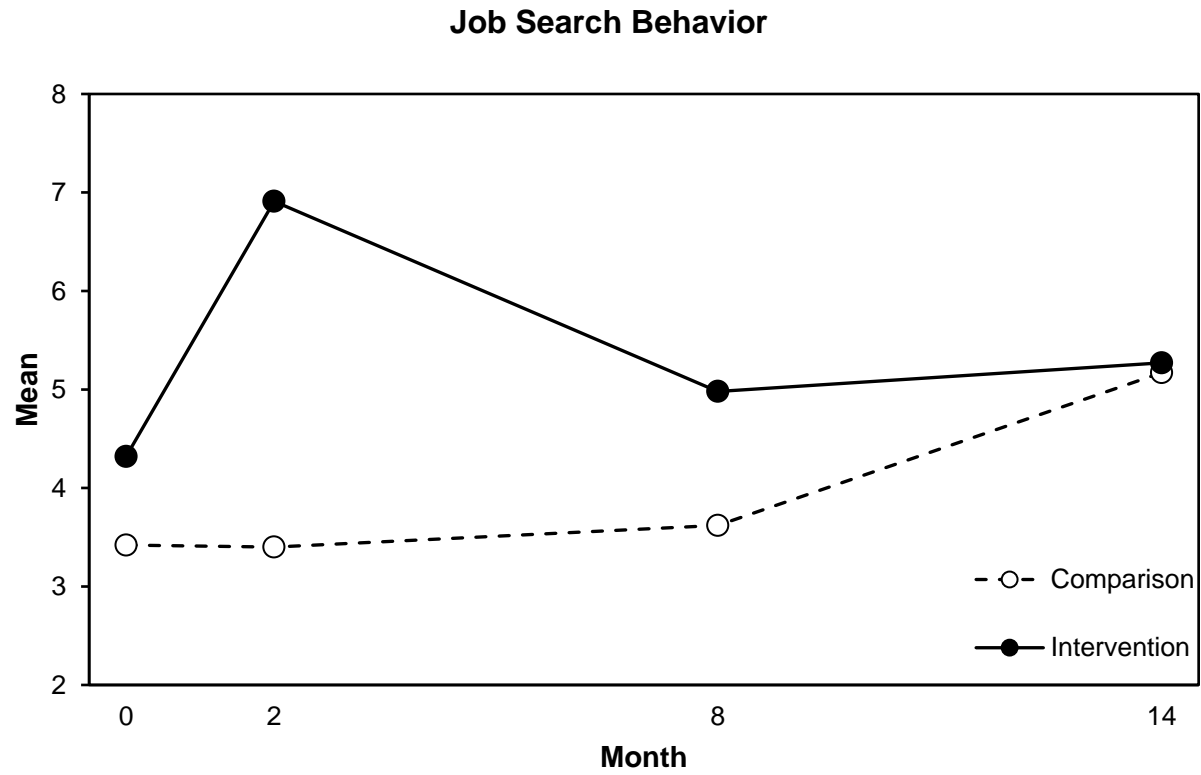
*JARS Flowchart of Participants*



**Figure 2***Mean Job Search Knowledge Scores Over Time by Group*

*Note.* Months 0, 2, 8, and 14 = pretest, posttest, 8-month follow-up, and 14-month follow-up, respectively.



**Figure 3***Mean Job Search Behavior Scores Over Time by Group*

*Note.* Months 0, 2, 8, and 14 = pretest, posttest, 8-month follow-up, and 14-month follow-up, respectively.

**Figure 4**

*Mean Job Search Behavior Self-Efficacy Scores Over Time by Group*



*Note.* Months 0, 2, 8, and 14 = pretest, posttest, 8-month follow-up, and 14-month follow-up, respectively.

**Figure 5**

*Mean Job Search Outcomes Self-Efficacy Scores Over Time by Group*



*Note.* Months 0, 2, 8, and 14 = pretest, posttest, 8-month follow-up, and 14-month follow-up, respectively.