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Randomized Controlled Trial of a Job Search Intervention for Adults who are Blind or Have Low Vision

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Abstract

Adults with blindness or low vision have lower employment rates and higher unemployment rates than the general population, highlighting the need for interventions to reduce employment barriers and improve outcomes. This study examined whether *The Job Search Blueprint*, a job search intervention, improves job search outcomes, mental health outcomes, and employment for blind and low vision adults compared to an information-only control group. In this two-group, parallel longitudinal randomized controlled trial, 86 participants (ages 18–72, 69.8% female) were assigned to either the intervention or control group. Data were collected at pretest, 1-month posttest, 6-month follow-up, and 18-month follow-up. Data analysis involved linear mixed models for job search outcomes (knowledge, behavior, self-efficacy) and mental health outcomes (anxiety, depression), and chi-square tests for employment. The intervention group had greater improvements in job search knowledge and anxiety than the control group at posttest, with knowledge gains maintained at 6-month follow-up. The intervention did not have significant effects on the other outcomes. These findings suggest *The Job Search Blueprint* can increase knowledge and reduce anxiety, but addressing barriers and improving employment outcomes may require a more comprehensive approach. Future research with larger samples, additional measures, and tailored approaches is necessary to better understand and enhance the intervention's effectiveness.

Keywords: blind or visual impairment, sensory impairments, career/vocational, rehabilitation counseling process or strategies

Randomized Controlled Trial of a Job Search Intervention for Adults who are Blind or Have Low Vision

For many years, employment rates for adults who are blind or have low vision (i.e., uncorrectable vision impairment that interferes with reading or other activities) have lagged behind those of the general population (McDonnall & Sui, 2019). Common causes of both blindness and low vision include cataracts, glaucoma, age-related macular degeneration, and diabetic retinopathy (Flaxman et al., 2017). As of 2023, the unemployment rate for working-age individuals (i.e., age 18 to 64 years) with blindness or low vision (B/LV) was 8.1%, compared to 4.2% for those without disabilities (U.S. Census Bureau, 2024). This disparity likely reflects, in part, the persistent barriers to employment faced by adults with B/LV. These employment barriers include employer bias; lack of accommodations or accessibility of systems; limited education, skills, or training; and scarcity of transportation options (Crudden et al., 1998; La Grow & Daye, 2005; Steverson, 2020). These barriers contribute to unemployment for individuals with B/LV, which is associated with adverse outcomes on a number of quality of life metrics, including financial and housing stability, social and community involvement and support, physical health, and measures of mental health and well-being such as self-esteem, depression, and anxiety (Ahn et al., 2004; Gousia et al., 2021; Jin et al., 1997; Linn et al., 1985). Because the problem of unemployment for people with B/LV is pervasive and persistent, there is a need for interventions to address the known barriers and improve employment outcomes for this population.

Job search interventions, defined as training programs that focus on teaching skills to help people obtain employment, have been shown to benefit various populations by improving employment outcomes (Liu et al., 2014). Job search interventions have also been identified by people with B/LV as beneficial for improving employment outcomes (Silverman et al., 2019),

and job search skills training has been shown to have a positive effect on job search outcomes for transition-age youth with B/LV (Cmar & McDonnall, 2019, 2021). However, no research has been conducted on the efficacy of job search interventions for adults with B/LV.

Liu et al. (2014) conducted a meta-analysis of job search intervention studies with various populations and found that participants in job search interventions had 2.67 times higher odds of employment than control groups. Additionally, these job search interventions were particularly effective for participants with additional barriers to employment, including health conditions or disabilities (Liu et al., 2014). Liu et al. also found that the most effective interventions focused on developing skills (i.e., learning job search skills and improving self-presentation) *and* boosting personal motivation (i.e., improving self-efficacy, promoting proactive behavior and goal setting, and incorporating social support). Hult et al. (2020) performed a systematic review of studies combining therapeutic interventions (e.g., psychological support, social support) with job search interventions and concluded that these studies provided moderate-quality evidence of effectiveness in increasing employment. However, it is important to note that job search interventions vary in their foundational approach, particularly whether they are empirically supported by research or are more practice-based, such as those implemented as administrative services in labor market programs. Considering this diversity, Malmberg-Heimonen et al. (2019) evaluated the effectiveness of research-based versus practice-based job search interventions and found that only research-based interventions were beneficial for long-term improvement in employment, particularly for participants at high risk for depression before the intervention.

One such research-based intervention that has been widely implemented and customized for diverse populations is the *JOBS* program. Created in the 1990s for unemployed adults by

Caplan et al. at the Michigan Prevention Research Center (Caplan et al., 1989; Curran et al., 1999), *JOBS* is a job search intervention with a strong empirical and theoretical foundation. Created to prevent poor mental health outcomes among unemployed adults and to promote high-quality reemployment (Caplan et al., 1989), the *JOBS* program's theoretical base comprises the critical components of active learning, trainer referent power, social support, self-efficacy enhancement, and inoculation against setbacks (Curran et al., 1999). Randomized experimental studies revealed that *JOBS* program participants had substantial increases in self-esteem, self-efficacy, and preparation to handle setbacks (Vinokur et al., 1995), and program engagement was associated with improved self-assessed job-seeking skills, knowledge, activities, and self-efficacy, as well as motivation and intention (Caplan et al., 1989). *JOBS* also showed evidence of reducing symptoms of depression in some populations (Price et al., 1992; Vinokur et al., 1995, 2000), although evidence has been mixed (Vuori et al., 2002). Additionally, the *JOBS* program improved employment rates and earnings for participants at 1 to 6 months after the intervention and at a 2-year follow-up (Caplan et al., 1989; Vinokur et al., 1995, 2000). Since these early studies, *JOBS* has also been successfully replicated in 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 addition to other adult populations, *JOBS* has been adapted for youth and young adults (Cmar & McDonnall, 2020, 2021; Koivisto et al., 2002; Nykänen et al., 2012, 2014). Koivisto et al. adapted the *JOBS* program for young adults in Finland who were vocational college graduates, a program called *School-to-Work* (Koivisto et al., 2002; Nykänen et al., 2012, 2014). The *School-to-Work* program was effective in improving employment self-efficacy, inoculation against setbacks, employment rates, and job quality for youth (Koivisto et al., 2007, 2010).

Subsequently, Cmar et al. adapted the *School-to-Work* program for use with transition-age youth with B/LV, for a program called *Putting Your Best Foot Forward* (*PYBFF*; Cmar & McDonnall, 2020, 2021). *PYBFF* resulted in immediate increases in job search knowledge, job search behavior, and job search behavior self-efficacy, and lasting effects on job search knowledge (Cmar & McDonnall, 2019, 2021).

Despite the evidence of positive employment-related and mental health outcomes from job search interventions modeled after the *JOBS* program, no interventions based on this model have been implemented with adults with B/LV. To address this gap, we used the Planned Adaptation approach (Lee et al., 2008) to adapt the *JOBS* program for use with this population (Cmar & Antonelli, 2024b). Planned Adaptation provides a framework for adapting evidence-based programs for new populations while preserving the programs' core elements and mechanisms of change (Lee et al., 2008). Following this framework, we identified the key components and critical causal mechanisms of the original *JOBS* program to ensure they were preserved in the new intervention. We adapted activities, added new processes, revised the implementation procedures, and created an evaluation plan that included a pilot study of the updated procedures. Additionally, because of the widespread use of videoconferencing and other distance learning technologies and the advantages of using a distance format (e.g., lower cost, increased access, reduced travel/transportation barriers; Kentnor, 2015; Lopez et al., 2020), we adapted the intervention for implementation via videoconferencing. An advisory board of rehabilitation agency representatives and service providers reviewed the adapted intervention materials and provided feedback, and then we incorporated their recommendations. The adaptations resulted in a 5-day remote group job search intervention for adults with B/LV. Finally, we conducted a pilot study of the intervention with a small group of adult job seekers

with B/LV, and the findings supported the feasibility and acceptability of the intervention and its processes (Cmar & Antonelli, 2024a).

Building on those positive findings, the purpose of this study was to evaluate whether the adapted job search intervention improves outcomes for adults with B/LV. Specifically, we assessed its effects on job search outcomes (i.e., job search knowledge, behavior, and self-efficacy), mental health outcomes (i.e., anxiety and depression), and employment. We hypothesized that blind or low vision adults who received the job search intervention would (a) improve job search knowledge, job search behavior, job search self-efficacy, anxiety, and depression from pretest to posttest compared to a control group (Hypothesis 1); (b) maintain improvements in job search knowledge at 6-month follow-up, and in job search behavior, job search self-efficacy, anxiety, and depression at 6- and 18-month follow-ups, relative to the control group (Hypothesis 2); and (c) have higher employment rates by 18-month follow-up than the control group (Hypothesis 3). We also examined participants' perceptions of the acceptability of the job search intervention.

Method

Participants

Participants were recruited nationally in three cohorts via (a) social media posts on our organization's Facebook, Twitter/X, and LinkedIn accounts; (b) listservs of vocational rehabilitation and blindness rehabilitation professionals; (c) our national research registry of individuals with B/LV; (d) blindness rehabilitation organizations; (e) B/LV consumer groups and publications; and (f) professional contacts of the research team. The most common source of enrolled participants was the listservs (29.1%, $n = 25$), followed by B/LV consumer groups (26.7%, $n = 23$).

Study inclusion criteria included being 18 years or older, having B/LV, residing in the United States, being unemployed but seeking work, being able to participate in verbal group communication, and having access to the necessary technology and internet service for videoconferencing. As a broad assessment of job readiness, we also required participants to have basic computer skills, have a system for accessing printed materials (e.g., using braille, magnifiers, or other strategies to read labels, books, paper files, and other non-electronic materials), and not be currently enrolled or planning to begin additional education or vocational training. Individuals were excluded if they were not available to participate in the intervention or found a job before being randomized to a group. As depicted in Figure 1, recruitment efforts resulted in 240 individuals being assessed for eligibility. Of those 240 individuals, 96 did not meet eligibility criteria (e.g., due to being employed or unavailable for the intervention), and 58 did not complete the enrollment process or were excluded from the study for other reasons (i.e., reaching capacity for the study, not completing Survey 1), resulting in a sample size of 86.

At enrollment, participants' ages ranged from 18 to 72 years (M = 45.51, SD = 14.59). Over two-thirds of participants were female (69.8%, n = 60), followed by male (29.1%, n = 25), and non-binary (1.2%, n = 1). Most participants were White (65.1%, n = 56), followed by African American (17.4%, n = 15), and Asian (9.3%, n = 8), with the remainder reporting some other race (8.1%, n = 7). Nine participants were of Hispanic, Latino, or Spanish origin (10.5%). Thirty-four U.S. states were represented in the sample, with participants distributed throughout all four U.S. Census-defined regions: South (37.2%, n = 32), West (33.7%, n = 29), Northeast (18.6%, n = 16), and Midwest (10.5%, n = 9). The states with the largest numbers of participants included California (12.8%, n = 11), Colorado (7.0%, n = 6), New Jersey (5.8%, n = 5), and South Carolina (5.8%, n = 5); the remaining states had 1 to 4 participants each.

Research Design

The study was a two-group, parallel longitudinal randomized controlled trial. Participants were randomly assigned at a 1:1 ratio by cohort to either the intervention condition (n = 42) or the control condition (n = 44). The allocation sequence was generated with online randomization software (Sealed Envelope Ltd., 2024) using permuted block randomization with random block sizes of 2, 4, and 6. The researchers who generated the allocation sequence and implemented group assignments were not involved in participant screening or enrollment. No other research team members had access to the randomization scheme during the study.

Study Conditions

Intervention

The intervention group received the job search intervention, called *The Job Search Blueprint*, in a synchronous distance format over 5 days (Monday through Friday). Each day consisted of a 2-hour morning session, a 2-hour break, and a 2-hour afternoon session, for a total of 4 hours of session time per day. Two lead trainers implemented *The Job Search Blueprint*, supported by a support trainer and a session facilitator. The lead trainers were professionals with certifications in blindness rehabilitation disciplines and experience delivering group training, including implementing *The Job Search Blueprint* for the pilot study (Cmar & Antonelli, 2024a). Trainer 1 was a Certified Rehabilitation Counselor and Certified Psychiatric Rehabilitation Practitioner. Trainer 2 was a Certified Low Vision Therapist, Certified Orientation and Mobility Specialist, and teacher of students with visual impairments. During the adaptation process, the lead trainers provided recommendations that informed *The Job Search Blueprint*'s processes and implementation procedures (Cmar & Antonelli, 2024b). The support trainer was an experienced blind professional in the rehabilitation field (also a Certified Rehabilitation Counselor) who

brought the lived experience of blindness to the group discussions. The session facilitator was a researcher who handled the technical aspects of the sessions and assisted with technical issues or needs with the platform (e.g., creating breakout rooms, timing sessions), allowing trainers to focus on facilitating the activities and group dynamics. The intervention sessions were delivered and recorded (audio and video) using the Zoom videoconferencing platform.

The trainers used a detailed agenda and trainer's manual to facilitate the sessions. Day 1 began with an overview of training guidelines and an icebreaker activity to introduce the trainers, staff, and participants. Each day thereafter included an opening icebreaker to foster group rapport and cohesion. The intervention covered many topics related to job seeking, such as identifying and presenting strengths and skills, creating effective resumes, preparing for interviews (e.g., responding to open-ended questions), overcoming perceived challenges, disclosing a disability, conducting informational interviews, identifying job leads through networking, communicating with employers (e.g., initiating contact to get interviews, anticipating and addressing concerns), and preparing to handle setbacks. The sessions included short lectures, role-play exercises, brainstorming, group discussions, and small-group activities in breakout rooms. Participants received accessible electronic Word documents via email before the sessions, including supplemental information, activity worksheets, and homework assignments. Trainers used a shared document as a "whiteboard" to take live notes during sessions and to read information aloud as it was added to the document. Day 5 concluded with a final ceremony, where participants celebrated their completion of the intervention and received a certificate of completion.

Control

The control group received job search information by email in accessible Word

documents (i.e., a resource document and tip sheet). The resource document contained links to (a) job-seeking information from blindness organizations (e.g., American Printing House for the Blind), (b) job boards and employment services available across the United States (e.g., websites where individuals could search for local job centers), and (c) guidance on disclosure, accommodations, and video interviews. The tip sheet focused on organizing one's job search, such as scheduling time and activities, planning, setting goals, and preparing for interviews.

Procedures

The institutional review board at Mississippi State University reviewed the study protocol and determined it to be exempt. Recruitment took place continuously from November 2022 to February 2023. Intervention dates for each cohort were pre-scheduled, and participants were assigned to a cohort based on their availability and session capacity. Information about the study, including a link to an online prescreening survey, was distributed to potential participants via the recruitment avenues described previously. Potential participants completed the online prescreening survey, which assessed their preliminary eligibility; availability to participate in the intervention, if assigned; and general job readiness. Researchers reviewed the completed prescreening surveys, identified individuals who met preliminary inclusion criteria, and contacted them by telephone to confirm their eligibility and discuss the study procedures. Individuals who were eligible and interested in participating received an email invitation to join the study, which included a link to the pretest survey (i.e., Survey 1) and a request for their current resume in electronic format.

Participants provided informed consent electronically before starting Survey 1. The survey covered topics such as demographic characteristics, job search knowledge, job search behavior, job search self-efficacy, anxiety, and depression. Most participants completed Survey 1

approximately 3 to 4 weeks before their cohort's scheduled job search intervention.

After completing Survey 1 and submitting their resume, participants were assigned to a group based on the randomization scheme described in the research design section and received an email with their group assignment. Control group participants received the job search information (i.e., resource document, tip sheet) when they were informed of their group assignment. Intervention group participants received the job search intervention as scheduled for their cohort, and a researcher with a degree in human resources provided individualized feedback on their submitted resumes via email during the week of the intervention. Any participants assigned to the intervention group who missed all intervention sessions or only attended some still received all materials (e.g., handouts, homework assignments) and resume feedback. Intervention group participants also completed an anonymous post-intervention acceptability survey at the end of Day 5.

Both groups completed a posttest survey (i.e., Survey 2) approximately 1 month after the job search intervention for their cohort. Survey 2 had similar questions as Survey 1, but with fewer demographic questions and additional questions about employment. Both groups then completed additional follow-up surveys 6 months after the intervention (Survey 3) and 18 months after the intervention (Survey 4). Surveys 2, 3, and 4 were similar, with two exceptions: (a) Surveys 3 and 4 included additional acceptability questions for the intervention group, and (b) Survey 4 excluded the job search knowledge measure. All surveys were conducted via an accessible online survey platform (i.e., Qualtrics). Participants received compensation of electronic gift cards based on which surveys they completed; $40 after completing Survey 2, and $20 each for Surveys 3 and 4.

Measures

Intervention Fidelity

The session facilitator observed all intervention sessions and monitored two aspects of fidelity: adherence (i.e., the extent to which the intervention was delivered as intended) and dosage (i.e., the amount of the intervention participants received, measured in hours). The session facilitator completed a fidelity checklist to document adherence (e.g., activity completion, deviations from the protocol) and used an attendance spreadsheet to track dosage (e.g., whether participants attended each session, reasons for absences).

Job Search Outcomes

Job Search Knowledge. The Job Search Knowledge Inventory (JSKI) is a measure of applied job search knowledge that includes six open-ended items covering various aspects of job-seeking, ranging from asking for job leads to ending an interview. A sample item is "The interviewer says, 'Tell me about yourself.' What would you say?" Participants were instructed to format their answers as direct quotes of how they would respond. A detailed rubric (available from the authors upon request) provides the criteria for scoring each item on a scale from 0 to 4, with a maximum possible total score of 24 (representing the sum of the scores for the six items). Our research team created the JSKI using the following process: generated the items and scoring rubric; tested the items and rubric using responses from 10 adults; revised the instructions, items, and rubric; tested the revised measure using responses from another 17 adults; had a business communications expert (a university instructor of upper-level management and business communication courses) review the measure for content validity; finalized the measure; and pilot-tested the final measure with 12 adults with B/LV.

Two trained raters independently scored all responses according to the rubric. Before scoring the study responses, the raters received training from the lead researchers on the scoring

procedures and practiced by scoring two sets of responses from pilot study participants (i.e., training data), with a calibration session after each set. To minimize bias, direct and indirect identifiers were removed from the responses before scoring, and the raters were masked to group assignment and time point. The raters met weekly to compare scores and reach a consensus on discrepancies. To minimize rater drift, the lead researchers randomly selected and scored 5% of the responses (i.e., expert scores) and held regular calibration sessions to compare the raters' scores with the expert scores, discuss difficult responses, and provide feedback. Interrater reliability for the total scores was excellent, ICC(3,1) = .922, 95% CI [.900, .940], based on a single-measurement, absolute-agreement, two-way mixed effects model.

Job Search Behavior. The Job Search Behavior Scale is a 12-item self-report measure of preparatory and active job search behaviors (e.g., asking for job leads, submitting applications) that has research supporting its construct validity, internal consistency, and predictive validity (Blau, 1994). Consistent with previous studies (Chen & Lim, 2012; Harrison et al., 2021), we updated several items to reflect online job search methods (e.g., changed "telephoned a prospective employer" to "called or emailed a prospective employer"). Participants reported how frequently they did each behavior in the previous month using a 5-point scale (1 = *never [0 times]*, 5 = *very frequently [at least 10 times]*). The total score is based on the mean of the 12 items, with higher values reflecting more job search behaviors. Internal consistency was good to excellent at pretest ($\alpha = 0.86$), posttest ($\alpha = 0.88$), 6-month follow-up ($\alpha = 0.93$), and 18-month follow-up ($\alpha = 0.92$).

Job Search Self-Efficacy. The Job Search Self-Efficacy Scale is a two-dimensional 20-item self-report instrument that has evidence of construct and predictive validity and good to excellent internal consistency (Saks et al., 2015). The 10-item job search behavior self-efficacy

subscale measures confidence in performing job search behaviors (e.g., use social networks to obtain job leads). The 10-item job search outcomes self-efficacy subscale measures confidence in achieving positive job search outcomes (e.g., be invited to job interviews). Participants rated their confidence in each area on a 5-point scale (1 = *not at all confident*, 5 = *totally confident*). The total scores represent the mean of the items in each subscale, with higher values indicating higher confidence. Internal consistency was good to excellent for job search behavior self-efficacy at pretest (α = 0.85), posttest (α = 0.88), 6-month follow-up (α = 0.92), and 18-month follow-up (α = 0.89) and excellent for job search outcomes self-efficacy at pretest (α = 0.96), posttest (α = 0.97), 6-month follow-up (α = 0.97), and 18-month follow-up (α = 0.97).

Mental Health Outcomes

Anxiety. The Generalized Anxiety Disorder 2-item scale (GAD-2) is an ultra-brief screening tool for core anxiety symptoms (Kroenke et al., 2007) that has demonstrated good test-retest reliability and internal consistency; acceptable sensitivity, specificity, and discriminant validity; and responsiveness to treatment change (Staples et al., 2019). Using a 4-point scale (0 = *not at all*, 3 = *nearly every day*), participants reported how often they were bothered by the following over the last 2 weeks: (a) feeling nervous, anxious, or on edge and (b) not being able to stop or control worrying. The total score is the sum of the two items (range = 0–6), with a 3 or higher indicating a potential anxiety disorder. The GAD-2 had acceptable to good internal consistency at pretest (α = 0.77), posttest (α = 0.87), 6-month follow-up (α = 0.89), and 18-month follow-up (α = 0.82).

Depression. The Patient Health Questionnaire 8-item depression scale (PHQ-8) is a validated measure of depressive symptoms and severity that has good sensitivity, specificity, and predictive validity and is appropriate for self-administration in research studies where depression

is a secondary outcome (Kroenke et al., 2009; Kroenke & Spitzer, 2002). Using a 4-point scale (0 = *not at all*, 3 = *nearly every day*), participants reported how often they were bothered by eight symptoms over the last 2 weeks (e.g., little interest or pleasure in doing things). The items were summed to create a total score (range = 0–24), with scores of 10 and 20 indicating moderate and severe depressive symptoms, respectively (Kroenke & Spitzer, 2002). The PHQ-8 had excellent internal consistency at pretest (α = 0.90), posttest (α = 0.93), 6-month follow-up (α = 0.90), and 18-month follow-up (α = 0.92).

Employment

Surveys 2 to 4 included questions about participants' employment since the last survey (e.g., whether they worked for pay, start and end dates). Using all available employment data from these surveys, we created three dichotomous variables reflecting participants' employment status at posttest, 6-month follow-up, and 18-month follow-up (0 = *no*, 1 = *yes*), with a "yes" indicating they worked for pay since the previous survey for at least 10 hours per week in an employer job, a government job, or self-employment. For participants who provided employment data at 18-month follow-up, we created a fourth dichotomous variable indicating whether they worked *at any time* between pretest and 18-month follow-up (0 = *no*, 1 = *yes*).

Acceptability

The post-intervention acceptability survey covered trainer behavior (5 items), group processes (3 items), relevance (2 items), interactivity (1 item), and virtual format (1 item). Participants rated each aspect of the intervention on a 5-point scale (1 = *not at all*, 5 = *a great deal*). The trainer behavior (α = 0.71), group processes (α = 0.88), and relevance (α = 0.89) measures were adapted from the *JOBS* program evaluation (Vinokur & Price, 1999); the total scores represent the means of the items, with higher scores indicating higher acceptability. The

interactivity and virtual format items were developed for this project and tested in a previous pilot study (Cmar & Antonelli, 2024a). At 6-month follow-up, participants reported whether they had approached their job search differently based on what they learned during the job search intervention (*yes* or *no*). At 18-month follow-up, they indicated whether they would recommend the intervention to other people with B/LV (*yes* or *no*).

Data Analysis

We computed descriptive statistics (e.g., frequencies, means, standard deviations) to summarize the intervention fidelity and acceptability measures. To assess between-group differences in demographic characteristics, we conducted (a) *t*-tests for continuous variables and (b) chi-square tests of independence or Fisher's exact tests for categorical variables.

The job search and mental health outcomes used in the analyses were the total scores for each measure, obtained using the same methods for both groups (control and intervention), as described in the Method section. The total scores for the job search knowledge measure were based on the raters' consensus scores of the open-ended JSKI responses from Surveys 1–3. The total scores for job search behavior, job search self-efficacy, anxiety, and depression came from the self-report measures administered via Surveys 1–4.

To compare changes in the job search and mental health outcomes across time between the two groups, we performed linear mixed modeling with the Mixed procedure in SAS 9.4 using maximum likelihood estimation (MLE), the Kenward-Roger degrees-of-freedom adjustment, and a compound symmetry covariance structure to account for correlations among repeated measures. This procedure uses MLE to handle missing data, allowing inclusion of all available observations. The analyses followed an intention-to-treat approach, including all randomized participants in their original assigned groups. The models included *group* (i.e., control,

intervention); *time*, a categorical variable with three levels for job search knowledge and four levels for the other variables; and *group-by-time* interactions. To test Hypotheses 1 and 2, we used planned contrasts to examine between-group differences in changes in the job search and mental health outcomes from pretest to posttest, pretest to 6-month follow-up, and pretest to 18-month follow-up. Accordingly, the estimates of the intervention's effects on these outcomes reflect differences in the change over time between the control and intervention groups. Model diagnostic criteria included studentized residuals ± 3, large likelihood distance, Cook's $D > 4/n$, and covariance ratio < 0.8 for fixed effects and covariance parameters. We flagged and investigated observations exceeding these thresholds, resulting in the removal of highly influential observations from the job search knowledge ($n = 2$) and anxiety ($n = 1$) models. We used Cohen's f^2, a standardized local effect size measure, to assess practical significance (Selya et al., 2012) using benchmarks of 0.02 (small), 0.15 (medium), and 0.35 (large; Cohen, 1988).

To test Hypothesis 3, we conducted chi-square tests of independence (or Fisher's exact test) to examine relationships between group and the employment measures (participants' responses to the employment questions in Surveys 2–4). We used the phi coefficient as an effect size measure, with benchmarks of 0.10 (small), 0.30 (medium), and 0.50 (large; Cohen, 1988).

Results

Intervention Fidelity

Adherence to the intervention protocol was high across cohorts, with activity completion rates ranging from 94.4% to 98.6%. The few activities that were not completed as planned involved the trainers skipping or shortening non-essential content, primarily due to time constraints. Additionally, the trainers moved one activity from Day 1 to Day 2 for each cohort. Participants attended an average of 8.10 sessions ($SD = 3.53$, range = 0–10) out of 10 possible 2-

hour sessions, for an overall average dosage of 16 hours and 12 minutes. Most participants (n = 25, 59.5%) attended all 10 sessions; 23.8% (n = 10) attended 8–9 sessions; 4.8% (n = 2) attended 1–2 sessions; and 11.9% (n = 5) attended 0 sessions, including one person who withdrew after randomization. Participants' absences were due to illness, prescheduled appointments, confusion about time zones, internet issues, other technical difficulties, and an undisclosed emergency.

Demographic Characteristics by Group

Age did not differ significantly between the control group (M = 43.89 years, SD = 14.56, range = 18–72) and intervention group (M = 47.21 years, SD = 14.59, range = 20–71), $t(84) = -1.06$, $p = .293$. Additionally, the groups did not differ in the number of years since onset of B/LV, with means of 29.00 years (SD = 16.60, range = 2–71) for the control group and 26.83 years (SD = 19.84, range = 1–71) for the intervention group, $t(83) = 0.55$, $p = .585$. There were no significant between-group differences on any other demographic characteristics (Table 1).

Job Search Outcomes

Adjusted means for the job search outcomes (job search knowledge, behavior, and self-efficacy) by group and time point are presented in Table 2. The intervention group significantly increased job search knowledge relative to the control group from pretest to posttest, $F(1,139) = 5.44$, $p = .021$, $f^2 = 0.04$, and maintained that gain from pretest to 6-month follow-up, $F(1,139) = 4.18$, $p = .043$, $f^2 = 0.03$. The intervention group did not significantly increase job search behavior relative to the control group from pretest to posttest, $F(1,216) = 0.59$, $p = .445$, $f^2 = 0.00$; from pretest to 6-month follow-up, $F(1,217) = 0.01$, $p = .928$, $f^2 = 0.00$; or from pretest to 18-month follow-up, $F(1,217) = 0.94$, $p = .333$, $f^2 = 0.00$. The change in job search behavior self-efficacy did not differ significantly between groups from pretest to posttest, $F(1,211) = 2.97$, $p = .087$, $f^2 = 0.01$; from pretest to 6-month follow-up, $F(1,212) = 2.23$, $p = .137$, $f^2 = 0.01$; or from

pretest to 18-month follow-up, $F(1,212) = 0.08$, $p = .783$, $f^2 = 0.00$. Similarly, the job search outcomes self-efficacy contrasts yielded no significant between-group differences in the change from pretest to posttest, $F(1,208) = 0.63$, $p = .429$, $f^2 = 0.00$; from pretest to 6-month follow-up, $F(1,208) = 2.78$, $p = .097$, $f^2 = 0.01$; and from pretest to 18-month follow-up, $F(1,208) = 0.23$, $p = .629$, $f^2 = 0.00$.

Mental Health Outcomes

Adjusted means for the mental health outcomes (anxiety and depression) by group and time point are displayed in Table 2. The intervention group significantly decreased anxiety relative to the control group from pretest to posttest, $F(1,209) = 5.02$, $p = .026$, $f^2 = 0.02$, but did not maintain that decrease at 6-month follow-up, $F(1,210) = 0.08$, $p = .773$, $f^2 = 0.00$, or 18-month follow-up, $F(1,210) = 0.13$, $p = .717$, $f^2 = 0.00$. The change in depression did not differ significantly between the intervention and control groups from pretest to posttest, $F(1,209) = 0.00$, $p = .950$, $f^2 = 0.00$; from pretest to 6-month follow-up, $F(1,209) = 0.12$, $p = .734$, $f^2 = 0.00$; or from pretest to 18-month follow-up, $F(1,209) = 0.54$, $p = .463$, $f^2 = 0.00$.

Employment

Employment rates by group at each post-intervention time point are presented in Table 2. The proportion of employed participants did not differ by group at posttest, Fisher's exact test ($N = 75$), $p = 1.00$, $\varphi = 0.00$; 6-month follow-up, $\chi^2(1, N = 72) = 0.02$, $p = .89$, $\varphi = 0.02$; or 18-month follow-up, $\chi^2(1, N = 68) = 0.30$, $p = .58$, $\varphi = 0.07$. Of the 68 participants with 18-month follow-up employment data, 52.8% ($n = 19$) of the intervention group worked at any time between pretest and 18-month follow-up, compared to 43.8% ($n = 14$) of the control group. The proportion of participants who worked at any time during the study did not differ by group, $\chi^2(1, N = 68) = 0.55$, $p = .457$, $\varphi = 0.09$.

Acceptability

Of the 42 intervention group participants, 36 (85.7%) completed the post-intervention acceptability survey. On a 5-point scale, average scores were 4.61 for trainer behavior (*SD* = 0.45, range = 3.40–5.00), 4.65 for group processes (*SD* = 0.60, range = 3.00–5.00), and 4.33 for relevance (*SD* = 0.88, range = 2.00–5.00). Average ratings for the two individual items were 4.75 for interactivity (*SD* = 0.55, range = 3.00–5.00) and 4.36 for the virtual format (*SD* = 0.99, range = 1.00–5.00). At 6-month and 18-month follow-up, 34 and 35 participants, respectively, responded to the acceptability questions. Most participants (*n* = 22, 64.7%) reported approaching their job search differently based on what they learned from the intervention, and 91.4% (*n* = 32) indicated they would recommend the intervention to other people with B/LV.

Discussion

The purpose of this study was to evaluate the efficacy of *The Job Search Blueprint*, an adaptation of the *JOBS* program for a new population (i.e., blind and low vision adults) and new delivery method (i.e., videoconferencing). This study was the first known randomized controlled trial of (a) a job search intervention for blind and low vision adults and (b) an intervention based on the *JOBS* model delivered virtually. The results provide partial support for Hypothesis 1, as participants who received the intervention significantly increased job search knowledge and decreased anxiety from pretest to posttest compared to an information-only control group. Intervention participants maintained the increase in knowledge at 6-month follow-up, although no other sustained effects of the intervention were evident at 6-month or 18-month follow-up, providing limited support for Hypothesis 2. Employment rates did not differ by receipt of the intervention, which does not support Hypothesis 3.

The Job Search Blueprint had lasting effects on job search knowledge, as found in a study

of an in-person *JOBS* adaptation for youth with B/LV (Cmar & McDonnall, 2021). Our results provide initial evidence of the efficacy of a videoconference-based *JOBS* adaptation in improving knowledge among adults with B/LV. The intervention's group training methods (Vuori et al., 2005), particularly its active teaching and learning methods, likely supported participants' knowledge gains and retention (Lucas et al., 2013). Given the nature of our knowledge measure, these gains suggest that participants applied the strategies they learned during the intervention to their own situations rather than memorizing facts, which may contribute to better future employment outcomes (Liu et al., 2014).

Intervention participants did not significantly increase their job search behavior compared to control participants, aligning with the initial study of the *JOBS* intervention (Caplan et al., 1989). These findings differ from the youth-focused study, in which intervention participants had large increases in job search behavior at posttest, likely due to receiving one-on-one job-seeking support during the intervention (Cmar & McDonnall, 2021). Changes in the self-efficacy outcomes did not differ significantly between groups, as found among youth with B/LV (Cmar & McDonnall, 2021). However, intervention participants tended to have larger increases than control participants in job search behavior self-efficacy from pretest to posttest (12.6% vs. 4.3%, $p < .10$) and in job search outcomes self-efficacy from pretest to 6-month follow-up (14.8% vs. 3.8%, $p < .10$), which are promising trends that warrant further investigation. Although the *JOBS* intervention resulted in significantly higher self-efficacy for unemployed intervention versus control participants 1 and 4 months post-intervention (Caplan et al., 1989), those findings may not be comparable to ours due to methodological differences.

Intervention and control group participants exhibited significantly different patterns of change in anxiety from pretest to posttest. Specifically, the intervention group had a 17.6%

decrease in anxiety compared to a 42.3% *increase* for the control group. This finding suggests that *The Job Search Blueprint* had a protective effect on anxiety, in line with the trends observed in Caplan et al.'s (1989) study and the *JOBS* model's focus on preventing adverse mental health outcomes. The lack of lasting effects on anxiety may reflect the influence of external stressors, indicating the need for ongoing, targeted intervention. The change in depressive symptoms did not differ significantly over time between groups. Although prior research yielded mixed findings regarding the overall effects of the *JOBS* intervention and its Finnish adaptation on depression (Caplan et al., 1989; Vinokur et al., 2000; Vuori et al., 2002), subgroup analyses indicated that participants at high risk for depression benefited the most from the *JOBS* intervention in terms of reducing future depressive symptoms (Price et al., 1992; Vinokur et al., 1995). These results may be influenced by differences in baseline depression levels and depression risk across samples, as the *JOBS* studies likely included a higher proportion of high-risk participants.

Post-intervention employment rates did not significantly differ between the intervention and control groups, consistent with findings among youth with B/LV (Cmar & McDonnall, 2021). These results also align with Malmberg-Heimonen et al.'s (2019) findings that Finnish interventions based on the *JOBS* model only improved employment outcomes for people at high risk for depression. Studies of the original *JOBS* intervention in the United States showed more positive employment outcomes, which may relate to participants experiencing shorter periods of unemployment (i.e., less than 4 months; Caplan et al., 1989; Vinokur et al., 1995, 2000). Conversely, our participants had longer periods of unemployment, which might explain the lack of between-group differences in employment, aligning with Vuori et al.'s (2002) findings. Returning to work after long periods of unemployment is inherently challenging, especially for

people with B/LV, due to myriad factors such as health concerns, outdated skills, lack of social support, and economic issues (Crudden et al., 2024)—all of which could have reduced participants' responsiveness to *The Job Search Blueprint*. Moreover, inaccurate perceptions of job readiness, limited awareness of career options, and geographic restrictions (e.g., inability to relocate) might have hindered some participants' job-seeking efforts and reduced the extent of their search. Another potential contributing factor was the intervention's scope. The intervention covered many aspects of job seeking, including overcoming perceived employment barriers and addressing employers' concerns, but it did not address broader contextual factors that could impact employment prospects, such as labor market conditions and hiring trends. Some participants might have benefited from one-on-one support to navigate these varied employment-related issues.

Most participants (83%) assigned to the intervention group attended 8–10 of the 10 sessions, with only 12% not attending any sessions. The *JOBS* studies had higher no-show rates of 46% and 59% (Caplan et al., 1989; Vinokur et al., 1995). Vinokur et al. (1991) found that, compared to participants who attended at least one session, the no-shows had *better* posttest employment rates and did not differ on any other outcomes, suggesting they might not have needed the intervention. The higher participation rates in our study could indicate a strong perceived need for *The Job Search Blueprint*. Furthermore, the virtual format likely contributed to these high rates by lowering barriers to participation, as documented in previous research (Lopez et al., 2020). Participants had positive perceptions of the intervention, with most saying they would recommend it to their peers. These findings coincide with the pilot study of the intervention (Cmar & Antonelli, 2024a) and provide further evidence of its feasibility and acceptability.

Strengths and Limitations

The strengths of this study include its longitudinal randomized controlled trial design with an 18-month follow-up, which is uncommon with blind and low vision populations. Moreover, the study used masking procedures to minimize potential biases, strengthening the rigor and credibility of the results. Another key strength was the intention-to-treat analysis, which preserved the integrity of the experimental design by including all participants in their original groups regardless of their level of participation. Although this approach may yield more conservative estimates of an intervention's effects, it provides a realistic view of how the intervention might perform under real-world conditions with variations in participant engagement and intervention dosage.

Despite its strong design and methodological rigor, this study had several limitations. The study was underpowered to detect small effects, particularly for the employment analyses, which limited our ability to identify subtle yet potentially meaningful differences. The nature of the intervention (a week-long interactive training) and the longitudinal design may have contributed to variations in intervention dosage (e.g., missed sessions) and overall study participation, although intervention participation rates were higher than in similar studies. The sample was predominantly female and highly educated, so it may not represent the broader population of job seekers with B/LV. Additionally, participation in the study required internet access and technology skills, which restricted the pool of potential participants and may limit the generalizability of the results. Although we screened participants for job readiness and interest in working, some might have overestimated their readiness or lacked motivation to seek employment. Vocational rehabilitation service receipt tended to be higher for control versus intervention participants at baseline, despite not reaching statistical significance; however, details

about the nature and quality of these and other services that participants might have received throughout the study were unavailable. These unmeasured factors could have influenced the outcomes, although they reflect typical variation in services, and the randomized design minimizes their impact. Lastly, the self-reported outcome measures may be subject to social desirability bias.

Implications for Research and Practice

Several directions for future research could clarify and extend our findings. First, further studies are needed that include larger samples, more robust indicators of job readiness, and additional measures (e.g., job search motivation, ongoing employment-related services). Second, examining whether participants' baseline characteristics (e.g., duration of unemployment, depression risk) moderate the intervention's effects could identify subgroups who benefit the most from the intervention and guide targeted recruitment efforts. Third, exploring whether a hybrid approach (e.g., combining group training with one-on-one job-seeking support and targeted feedback) improves the intervention's effectiveness would be valuable. Fourth, given the heterogeneity of the blind and low vision population, implementing the intervention with more homogeneous groups (e.g., based on vision loss onset, career field, life stage, recency of previous employment) might increase relevance and improve outcomes by fostering focused discussions about shared experiences and barriers. Fifth, the intervention's theoretical foundation and empirical support provide a strong basis for additional adaptations and research targeting other disability groups. Researchers or practitioners who are interested in implementing, evaluating, or adapting *The Job Search Blueprint* can contact the authors for information about accessing it.

Our findings suggest that a short, intensive virtual job search intervention can equip blind and low vision adults with lasting knowledge and skills for obtaining employment and protect

against increased anxiety. Implementing group interventions via videoconferencing with adults with B/LV requires advance preparation to minimize technical barriers and promote learning. The following recommendations for rehabilitation counselors are grounded in implementation lessons from the current study and previous pilot study (Cmar & Antonelli, 2024a). Practical strategies to minimize technical barriers and promote learning include providing accessible handouts ahead of time, offering a brief pre-intervention orientation session, having a dedicated technical support person, reading on-screen information aloud, and scheduling extra time for troubleshooting technology issues. Methods for fostering social support and group cohesion during virtual sessions include establishing group norms, allocating unstructured time for informal interactions and networking, and incorporating icebreakers and other interactive activities.

However, a more comprehensive, long-term approach might be needed to address additional barriers and improve employment outcomes. For some job seekers with B/LV, a longer intervention that covers topics more thoroughly and offers extra practice opportunities could be advantageous, giving participants more time to develop and refine their skills. Moreover, individuals who do not find a job quickly may become discouraged and lose momentum in their job search without a strong support system. Providing the intervention alongside vocational rehabilitation services or pairing it with one-on-one coaching or peer mentoring could provide tailored guidance and encourage sustained job-seeking efforts. Finally, interventions implemented in practice settings should be regularly reviewed, evaluated, and adjusted to ensure they are relevant, informative, and effective.

Conclusion

This study evaluated the efficacy of a job search intervention called *The Job Search*

Blueprint in improving job search outcomes (job search knowledge, behavior, and self-efficacy), mental health outcomes (anxiety and depression), and employment among blind and low vision adults. The intervention yielded lasting gains in applied job search knowledge and short-term reductions in anxiety, and it was highly acceptable and implemented with fidelity. However, it did not have significant effects on the other outcomes. These results provide initial evidence that *The Job Search Blueprint* can improve knowledge and reduce anxiety for blind and low vision job seekers, although it may require adaptations to impact other outcomes. The findings highlight the complexity of job-seeking for adults with B/LV and suggest that improving employment outcomes for this population may require a more comprehensive approach with ongoing support. Future research should examine individual factors associated with differential outcomes and consider adaptations to enhance the intervention's effectiveness.

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Table 1

Demographic Characteristics by Group

Variable	Control (n = 44)		Intervention (n = 42)		χ^2	p
	n	%	n	%		
Gender					–	1.000
Female	30	68.2	30	71.4		
Male	13	29.6	12	28.6		
Non-binary	1	2.3	0	0.0		
Hispanic or Latino	5	11.4	4	9.5	–	1.000
Race					–	.981
White	29	65.9	27	64.3		
Black or African American	7	15.9	8	19.1		
Asian	4	9.1	4	9.5		
Other race	4	9.1	3	7.1		
Education level [a]					3.76	.289
High school diploma, GED, or some college	8	18.2	13	31.7		
Vocational, technical, or associate degree	8	18.2	8	19.5		
Bachelor's degree	20	45.5	11	26.8		
Master's degree or higher	8	18.2	9	22.0		
Vision level					0.39	.531
Totally blind or minimal functional vision	26	59.1	22	52.4		
Low vision or some functional vision	18	40.9	20	47.6		

Onset of vision loss [a]					3.75	.153
Early onset (birth to 3 years)	16	36.4	13	31.7		
Middle onset (4 to 24 years)	19	43.2	12	29.3		
Adult onset (25 years or older)	9	20.5	16	39.0		
Had other disability or chronic condition [b]	22	50.0	20	47.6	0.05	.825
Received vocational rehabilitation services	32	72.7	23	54.8	3.01	.083
Received Supplemental Security Income	17	38.6	14	33.3	0.26	.609
Received Social Security Disability Insurance	22	50.0	20	47.6	0.05	.825
Last worked for pay					–	.740
More than 1 year ago	28	63.6	26	61.9		
Within the last year	12	27.3	14	33.3		
Never	4	9.1	2	4.8		
Preferred way to access written materials					–	.351
Audio	23	52.3	17	40.5		
Braille	11	25.0	8	19.1		
Large print or magnification	9	20.5	14	33.3		
Standard print	1	2.3	3	7.1		

Note. All variables were measured in the prescreening or pretest survey. A dash (–) in the χ^2 column signifies the use of Fisher's exact test.

[a] One missing value. [b] Representative examples include anxiety, mobility impairment, depression, diabetes, hearing impairment, and brain injury.

Table 2

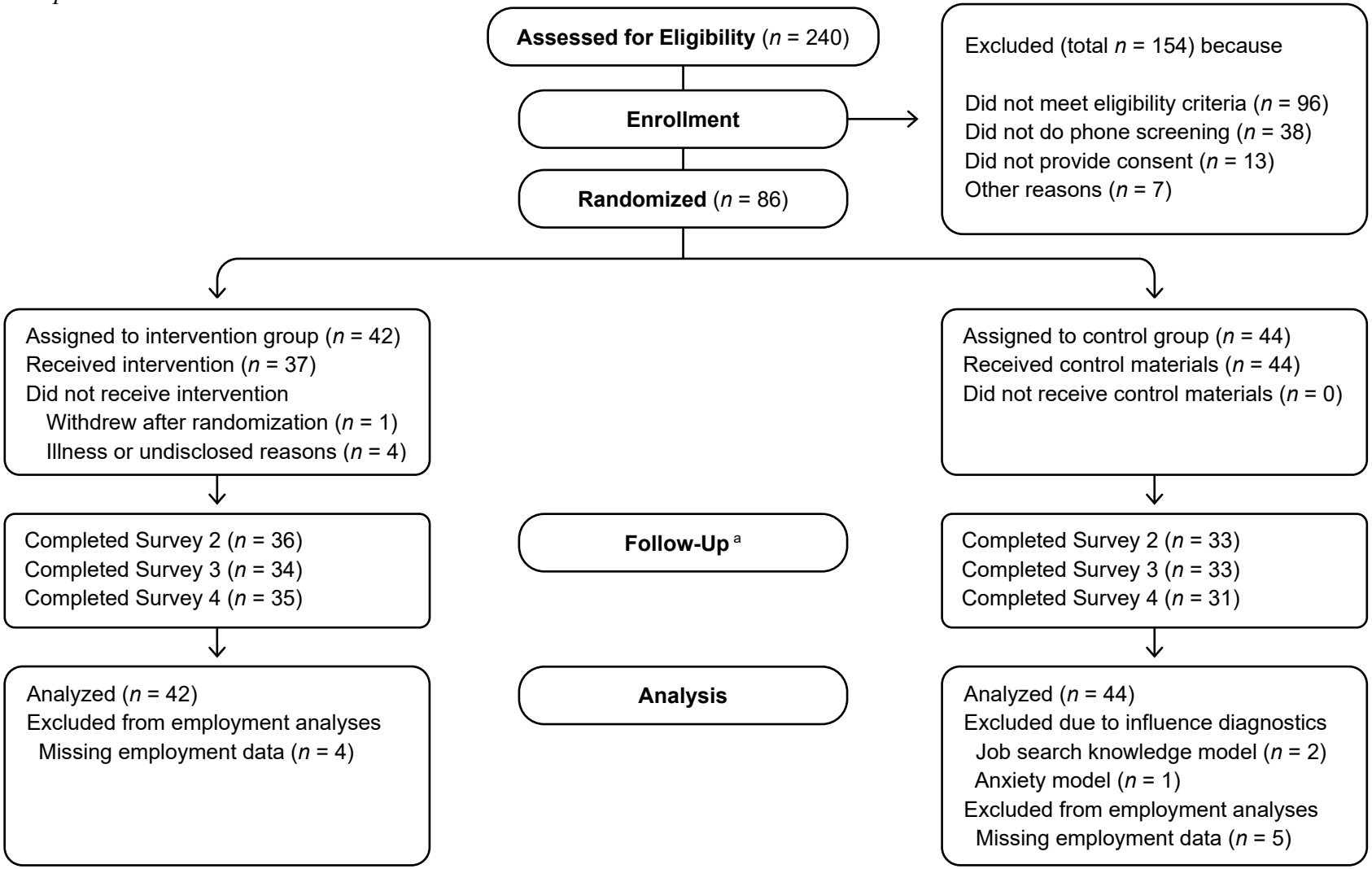
Descriptive Statistics for Job Search Outcomes, Mental Health Outcomes, and Employment by Group

Variable	Control (n = 44)				Intervention (n = 42)			
	T1	T2	T3	T4	T1	T2	T3	T4
Job search outcomes								
Job search knowledge	8.43 (0.43)	8.11 (0.49)	8.00 (0.49)	–	8.36 (0.43)	9.61 (0.46)	9.32 (0.47)	–
Job search behavior	2.38 (0.13)	2.50 (0.14)	2.48 (0.14)	2.05 (0.14)	2.48 (0.13)	2.45 (0.14)	2.56 (0.14)	2.33 (0.14)
Job search behavior self-efficacy	3.01 (0.12)	3.14 (0.13)	3.20 (0.13)	3.23 (0.14)	3.09 (0.13)	3.48 (0.13)	3.50 (0.14)	3.36 (0.13)
Job search outcomes self-efficacy	2.61 (0.16)	2.69 (0.17)	2.71 (0.17)	2.79 (0.17)	2.71 (0.17)	2.93 (0.17)	3.11 (0.17)	2.81 (0.17)
Mental health outcomes								
Anxiety	1.30 (0.26)	1.85 (0.28)	1.23 (0.28)	1.34 (0.29)	1.19 (0.26)	0.98 (0.27)	1.21 (0.28)	1.35 (0.27)
Depression	5.39 (0.85)	5.14 (0.91)	4.45 (0.91)	4.19 (0.93)	5.00 (0.87)	4.81 (0.91)	4.41 (0.92)	4.55 (0.91)
Employment, n (%)	–	3 (8.1)	9 (25.7)	13 (40.6)	–	3 (7.9)	9 (24.3)	17 (47.2)

Note. Values for job search outcomes and mental health outcomes represent adjusted means from linear mixed models with standard errors in parentheses. T1 = pretest (Survey 1); T2 = posttest (Survey 2); T3 = 6-month follow-up (Survey 3); T4 = 18-month follow-up (Survey 4). Job search knowledge was not measured at T4.

Figure 1

Participant Flowchart



[a] Values exclude participants who partially completed Survey 2 ($n = 4$), Survey 3 ($n = 2$), and Survey 4 ($n = 2$).