

Review Article

Evidence-based job retention interventions for people with disabilities: A narrative literature review

Faith Thomas^{a,1,*} and Robert L. Morgan^b

^a*Utah Center for Persons with Disabilities, Utah State University, Logan, UT, USA*

^b*Department of Special Education and Rehabilitation Counseling, Utah State University, Logan, UT, USA*

Received 13 January 2020

Accepted 18 May 2020

Abstract.

BACKGROUND: When linking the employment rate, retention rate, and the cost of turnover, the data suggest educators, rehabilitation counselors, and employment providers need to teach people with disabilities job retention skills to improve employment outcomes.

OBJECTIVE: The purpose of this narrative literature review was to (a) identify evidence-based job retention interventions for people with disabilities and (b) identify specific skills which may be beneficial to teach to adults with disabilities in postsecondary education, adult education or employment services to improve the employment retention outcomes.

METHODS: A systematic review of peer-reviewed quantitative research published from 1994 – June 2019 resulted in 6 articles meeting the inclusion criteria.

RESULTS: Four intervention strategies showed statistically significant improvement in job retention for people with disabilities. The first strategy was developing and applying individuals' self-determination/self-advocacy skills in discussing accommodations and resolving work-related challenges. Other intervention strategies with statistically significant impacts on job retention included social skills, learning how to manage medications, and receiving natural supports on the job.

CONCLUSIONS: Implementation of job retention interventions may result in valuable skill sets for people with disabilities. Discrete intervention strategies and skill sets were found in the review of literature. A replication of studies with participants from diverse socio-economic backgrounds is needed to fully understand the potential of these job retention intervention strategies to improve employment outcomes for individuals with disabilities.

Keywords: Job retention, employment skills, disabilities, maintaining employment, narrative review

1. Background

Low employment rates for people with disabilities and the disparity between employment rates with their non-disabled peers has shaped the development and implementation of rehabilitation services. The U.S. Bureau of Labor Statistics report for 2018 indicated that 19.1% of people with disabilities

¹Faith Thomas <https://orcid.org/0000-0003-0862-0151>

*Address for correspondence: Faith Thomas, Utah Center for Persons with Disabilities, Utah State University, 6800 Old Main Hill, Logan, UT 84322, USA. E-mail: faith.thomas@usu.edu.

between the ages of 16–65 years were employed compared to 65.9% employment rate of their non-disabled peers (BLS, 2019). Because of the low employment rate, the focus of Vocational Rehabilitation Services' (VRS) funding for supported employment has been front-loaded to incentivize the job discovery process, job development, job placement, and the 90th day of employment (Maryland Division of Rehabilitation Services, 2016). Consequently, employment providers and rehabilitation counselors may often overlook job retention skills as an essential training component of their services. Job retention is defined as a continuously held position at the same employer earning a competitive wage for more than 1 year.

Not only is job retention a concern for young adults with disabilities, but also for their non-disabled peers. In a longitudinal study conducted from 1981–2013, Holzer and Martinson (2005) found that adults between the ages of 18–28 years averaged 7.2 different jobs. Job retention data indicated that 37% of the participants maintained employment for less than 6 months, 18% maintained jobs between 6–12 months, 16% retained their jobs between 1–2 years, and only 15% maintained their jobs for 2 years or more (Holzer & Martinson, 2005). While this study did not specify differences for young adults with disabilities, the results indicated that job retention skills for all young adults are needed.

Job retention is also a business concern. For example, recruiting, hiring, and training a new employee in a fast food restaurant cost the employer between \$1,500–\$3,600 (Kacmar et al., 2006) and a new front office clerk in New York City hotel cost between \$11,500 – \$13,000 (Hinkin & Tracey, 2000). Accounting for inflation, in 2019, the turnover costs for those positions would be between \$1,909 – \$4,582 and \$17,135 – \$19,369 respectively per employee turnover. With the high cost of turnover, employers focus on ways to increase job retention of employees in order to increase their efficiency and profit.

When linking the employment rate, retention rate, and the cost of turnover, the data would suggest postsecondary education, adult education, Vocational Rehabilitation Counselors (VRC), and employment service agencies need to provide people with disabilities job retention skills. Multiple qualitative studies have been published regarding job retention for adults with specific disabilities such as visual impairment, mental illness, and multiple sclerosis (e.g. Malakpa, 2007; Roessler, 2002; Schaff, 2014), however, this literature review focused on quantitative studies of

job retention interventions for adults with disabilities. The purpose of this literature review was to (a) identify evidence-based job retention interventions for people with disabilities and (b) identify specific skills which may be beneficial to teach to adults with disabilities in postsecondary education, adult education or by VRC or employment service providers to improve the employment outcomes for adults with disabilities.

2. Method

The method for this review was based on the PICOS (participants, intervention, criteria, objective, and study design) criteria (Liberati et al., 2009). Those criteria were participants, individuals with disabilities; intervention, strategy implemented for competitive employment job (not in sheltered, volunteer, or school-based setting); criteria, data collection on the length on the original job or at the original employer; objective, identification of effective intervention for maintaining job at the same employer; and sample, quantitative studies.

2.1. Literature search

The lead author conducted database searches on Academic Search Ultimate, Education Source, PsychInfo, and Google Scholar to identify peer-reviewed journal articles using a combination of search terms including the following: job retention, employee retention, youth, handheld (for technology), and disabil* (to search disabled, disabilities, and disability simultaneously). These searches returned a total of 1,405 journal articles for further screening. After the journal articles' titles and abstracts were screened for this study's inclusion criteria, 151 articles remained. The articles were placed into Zotero software and 98 duplicates were removed. The resulting 46 articles' abstracts were screened for the study's inclusion criteria, leaving 23 studies for review. The application of the inclusion/exclusion criteria are described in greater detail in a subsequent section. The lead author performed an ancestral search on the reference lists for each selected article. This method generated two unique peer-reviewed articles to include. In an attempt to identify additional information sources, the lead author also conducted a forward search using Google Scholar on the selected articles which generated eight additional articles. This process resulted in 33 articles for full-text coding.

2.2. Inclusion and exclusion criteria

Research articles published in peer-reviewed journals from 1994–2019 in English or could be translated to English without a fee were included for further analysis. We reviewed the articles generated in the initial searches to determine if they met additional criteria. Articles were included if they met the following criteria: (a) participants were adults with disabilities, (b) job retention intervention(s) were implemented, (c) employment was defined as competitive integrated paid employment (excluded school-based jobs, volunteer work, enclave and sheltered employment), (d) quantitative research design, and (e) articles were published in peer reviewed journals. Eighteen articles were eliminated for the following reasons: 4 were dissertations, 2 were position papers and not research studies, 4 were not peer reviewed, 3 were not in English, 2 were studies conducted in segregated settings, 2 did not implement an intervention, and 1 did not include participants with disabilities.

The exclusion criteria for research articles included the following: (a) identified predictors of job loss only, (b) focused on person's characteristics, (c) failed to list the intervention package's components, and (d) defined job retention as employment status rather than length on the same job or at the same employer. Implementing the exclusion criteria resulted in another 9 articles being removed from the literature review.

2.3. Narrative summaries

The following six articles met the inclusion criteria for the literature review. Because this is an exploratory literature review, each article's content will be summarized to provide a foundation of information on the quantitative studies implementing job retention strategies. Each article's summary includes information on participants, the intervention, measurement, results, limitations, and notation on the article's contribution to the literature.

2.3.1. Rehabilitation counselor intervention

Allaire et al. (2005) conducted a random control trial in Massachusetts with 242 people with autoimmune diseases which had resulted in disabling conditions such as rheumatoid arthritis. The study's purpose was to "determine if job retention VR services to employed persons with chronic disease at risk for work disability would prevent or reduce subsequent work disability" (p. 101). A secondary research

question was whether the participants' job satisfaction would vary between the two groups. For the purpose of this systematic literature review, we are only including the job retention data.

Participants ranging in age from 24–66 years were identified by doctors and randomly assigned to the control or intervention group based on their "age, type of rheumatic disease, and location of residence within the economically diverse area" (p. 102). All of the participants were working when they began the study but were at risk for job loss. Although all participants would have met the criteria for VRS, because the participants were working, they needed flexible appointment times such as before work, during lunch, after work, on weekends with meeting locations outside of the VRS office. Traditional VRCs were unable to accommodate these needs. Therefore, the study employed two rehabilitation counselors to provide the two 1.5-hour intervention sessions over 5–9 months. During the job retention service meetings, the counselors administered the Work Experience Survey (WES) to participants in order to implement four interventions: (a) identify work-related barriers such as the ability to perform the essential job functions, accessibility concerns getting to and from work, and employers' overtime requirements; discuss individualized solutions based on the participants' needs and if necessary write an accommodation plan, (b) provide vocational counseling for exploring alternative careers if the participant was unable to perform the essential job functions and/or give guidance on requesting employer accommodations, (c) educate participants on legal rights under the ADA, self-disclosure, requesting accommodations, and self-advocacy, and (d) include written materials on the Americans with Disabilities Act (ADA), managing employment issues related to their autoimmune disease, job accommodations, and VRS. The control group was mailed the same written materials given to the intervention group but no other job retention service was provided.

Participants' employment data were collected at baseline and every 6 months for 4 years. Results revealed that 12 intervention participants had permanent job loss compared to 22 control-group participants. Poisson regression analysis determined that when comparing the intervention group to the control group, there was a 49% reduction ($p = .007$) in permanent or temporary job loss in the intervention group (p. 105). The analysis found no other statistically significant independent variable including age, physical limitations, or job type (p. 105).

Results of a log-rank test showed the greatest differences between the two groups occurred between 18–42 months ($p = .03$). At 18 months, 93% of the intervention group retained their jobs compared to 80% of the control group. Similarly, at 42 months, 83% of the intervention group had retained their job compared to 70% of the control groups.

The researchers concluded that the job retention services were successful in maintaining employment for individuals at risk for job loss. The researchers hypothesized the job retention services were successful because the participants possessed work skills but were unfamiliar with disability-related accommodations and VRS.

The study's limitations related to the generalizability of its findings. Because this study was conducted in one state with people who have a disability from autoimmune diseases, the findings may not be generalizable to other locations/states or disabilities. In addition, the researchers acknowledged there was limited racial diversity among participants. Therefore, it is uncertain if the intervention would have similar outcomes with individuals from other states/communities people with racially and culturally diverse backgrounds, and/or with people with other disabilities.

This study contributed to the job retention literature by providing a research model which could be replicated with other participants, disabilities, and locations. If the intervention was provided by other staff working with people with disabilities, researchers would be able to determine if the intervention had the potential to be applied by VRCs, adult employment providers, postsecondary educators and/or adult educators.

2.3.2. Vocational rehabilitation counselor intervention

This study conducted by Allaire et al. (2011) replicated the job retention intervention from Allaire et al. (2005) with some modifications. This research involved a one-group pretest-posttest design (Creswell, 2014) with an employment baseline measurement, followed by the intervention, and posttest data collection at 2 weeks and 6 months after the intervention. Although the 57 participants had an autoimmune disease, recruitment occurred through a variety of outlets and individuals self-selected to participate because they were concerned about their health's impact on employment. The average age of participants was 46.9 years and all lived within one large metropolitan area of Massachusetts. The

specific job retention services replicated those from the 2005 study, except these services were provided by state VRC.

During the study, the researchers modified the intervention in three ways. First, during the initial meeting with the VRC, participants were asked what they wanted to get out of the study. Second, VRCs provided an additional 30 minutes to the job retention services intervention by making a 6-month follow-up contact via telephone or email. Third, questions related to medication, overall health and wellness, and mental health were added to the WES instrument.

The job retention results showed that 88% of participants retained their jobs ($p = .03$). In addition, participants reported the intervention increased their confidence to disclose their disability ($p = .03$) and to discuss their health issues with their employer ($p = .08$).

The study's limitations may have impacted the generalizability of its findings. First, the study was conducted in a single metropolitan area. Therefore, findings may not be generalizable to rural communities or to other metropolitan areas. Second, the majority of participants identified themselves as women; and it is unknown if participants who do not identify as women would have the same results. Third, the VRCs providing the intervention were tenured professionals who may have used their prior experiences to provide additional intervention strategies beyond those outlined by the researchers. Therefore, the fidelity of the intervention cannot be assured. Finally, the study did not maintain statistical power through follow-up due to 15% attrition rate.

Despite the limitations of the study, this article contributed to the job retention literature by showing the intervention package can have a positive impact on job retention outcomes when the intervention is provided by traditional VRCs.

2.3.3. Intervention package

Brooke et al. (2018) conducted a retrospective exploratory study of 104 participants with autism of data compiled from 2009–2017. The participants were VRS clients ranging in age from 19–66 years who were referred to customized employment services at a university program. Seventy-four percent of the study's participants had no work history. Study participants had a successful VRS closure after achieving 90-day stabilization on the job.

Brooke et al. (2018) analyzed their data to answer three research questions. Two of the research questions were relevant to this systematic literature

review. First, “What is the job retention and employment retention of employees with autism spectrum disorder following stabilization on the job at 3, 6, 9, 12 and 18 months?” Second, “What is the intervention pattern (hours of direct support provided to the employee to maintain employment) required by employees with ASD at 3, 6, 9, 12 and 18 months post stabilization to maintain employment?” (p. 184).

Data were collected on employment status at baseline and 3, 6, 9, 12 and 18 months after the successful placement on the job. Collection of data was based on the retention of the initial job placement. Detailed data were also maintained on the amount of support the participant received on the job. The support received was classified as minimum (less than 4 hours per month), moderate (more than 4 up to 7 hours per month), or intensive (more than 7 hours per month). The intervention package was provided by Association of Community Rehabilitation Educators (ACRE) certified job coaches/employment specialists. The intervention package components were provided on the job site and were varied based on the individual’s support needs. For participants receiving a moderate level of support, the intervention included work-related feedback, problem-solving, daily organization, and conflict resolution with co-workers. Participants receiving an intensive level of support were provided social skills training to deal with conflicts with co-workers and supervisors, mental health counseling, positive behavior intervention support plans, and training on medication management.

The job retention rates at the same employer of the initial job placement was 100% at 3 months, 96.6% at 6 months, 94% at 9 months, 93.3% at 12 months, and 87.1% at 18 months. The percentage of individuals who were unemployed during the study gradually increased over time. The unemployment rate at 6 months was 3.4% of respondents, 6% unemployed at 9 months, 6.6% at 12 months and 12.9% at 18 months (p. 188).

The amount of intervention support needed was shown to decrease over time. At 3 months after job placement, approximately 80% of participants received only minimal support, while 10% of respondents received moderate and 10% of respondents received intensive support. While data trended towards less support over time, at 6 months the participants required more support with 75% receiving minimal support, 15% moderate support and 10% intensive support. The researchers’ hypothesized that participants required more support at this time due to 2.2% of participants receiving a job advancement and

would require more support to learn their new duties. A second hypothesis for an increase in support was the attempt of job coaches to prevent participants’ job loss because, at 6 months, 3.4% of the participants were unemployed. From 9 months on, the level of support trended downward. At 18 months after initial job placement, 90% of participants were receiving only minimal support, 5% moderate support, and 5% intensive support (p. 189).

The researcher described three limitations of the study. First, there was no control group which would have allowed comparison across conditions. Second, a standardized intervention was not implemented, instead the intervention was individualized based on the participant’s support needs. Therefore, the fidelity of intervention’s implementation could not be measured. Third, the intervention package was implemented by highly-qualified staff and thus would be difficult to generalize due to variation of highly-qualified staff across agencies.

This article contributed to the literature by tracking the shifting intensity of job retention supports for individuals with autism who maintained a job at the same employer for 18 months. This was the only study which included social skills training in the intervention package. Social skills training may be an integral component for individuals with autism who have difficulty with interpreting social cues and interacting with their peers.

2.3.4. *Intervention package*

In a randomized controlled trial study conducted in the Netherlands, deBuck et al. (2005) provided a collaborative interdisciplinary intervention for individuals with autoimmune disease(s) who were at risk for job loss. Doctors recruited 140 participants ages 18–63 years. All participants entering the study were on sick leave from their jobs. The intervention group received support from a multidisciplinary team comprised of a rheumatologist, social worker, physical therapist, occupational therapist, and psychologist. In addition, an occupational physician consulted the team when requested. The control group received the usual outpatient care and were referred to other health professionals for work-related challenges or concerns.

The intervention consisted of two visits in a hospital setting over 4–12 weeks. During these intervention sessions, participants received an assessment of health factors related to their autoimmune illnesses. Participants also received education regarding social security disability and sick leave; counseling

on current employment challenges; and, if needed, assistance from other team members to gather more information or provide treatment (p. 683). The team generated a report on each participant regarding their health, work challenges and recommendations for treatment and employment support.

Data collection began at baseline and continued at 6, 12, 18 and 24 months. Multiple measurements were taken of job satisfaction, pain, fatigue, mental and physical health. For this literature review, we are only including information regarding job retention. Although statistical power was maintained throughout the study, there was no statistically significant difference between the intervention and control groups' job loss over the 24 months of data collection.

The researchers' rationale for the lack of statistically significant differences between the two groups was that all participants started the study on sick leave and had more severe disabling conditions than the Allaire et al. (2005) study. deBuck et al. argued the participants were more disabled because rheumatologists recruited and confirmed their disability rather than participants being self-selected for the study (2005). The researchers argued that is why their research findings showed the job retention intervention had no impact on participants. The researchers recommended VRS provide job retention services before job loss and long-term sick leave caused by their disability in order to improve job retention outcomes.

Although this study showed no statistical significance in the improvement of job retention for participants, this article contributed to the literature by identifying the need for job retention services from VRS before job loss. In addition, the findings indicated that the success of an intervention package may vary based on the disability and level of support needs.

2.3.5. *Intervention package*

Data from the Employment Intervention Demonstration Program conducted in seven states (Arizona, Connecticut, Maine, Maryland, Massachusetts, South Carolina, and Texas) were used in this study to determine if job development and/or job support impacted job retention for individuals with severe mental illness (Leff et al., 2005). The average age of the 1,340 participants was 38.4 years. All participants were required to be unemployed and have a DSM-IV diagnosis related to mental illness. Employment data were collected at baseline and each week for 24 months to identify hours worked and employer

information. The data were collected in participant interviews.

The two interventions that were analyzed for their impact on job retention were job development and job support. The researchers defined job development as "direct or indirect contact with potential employers or network with individuals or organizations that had job information" (p. 1238). Job support was defined as "on-site counseling, support and problem solving." (p. 1239). Job retention was defined by three different measurements. The first measurement was the number of months working on their first competitive integrated job. The second measurement was the total hours worked on their first competitive integrated job. The final measurement was whether the participant retained the job for an entire month (e.g., if a person only worked for 5 days in a month, that was not included in the job retention analysis). The initial job placement was the only position measured for job retention.

Job development was provided to 58% of participants and job support was only received by 29% of participants. The study's results showed that 63% of participants obtained one competitive integrated job and 43% of participants obtained more than one job. Participants were "five times more likely to obtain a competitive job if they received job development services" (p. 1241). While the majority of employed participants did not receive job support (65%), those who received job support (38%) worked 31% more ($p = .02$) months on the job. The average duration on a job for those who received job support was 5.54 months and those who did not was 3.9 months. There was not a statistically significant difference between the numbers of hours worked per month of individuals who received job support and those who did not (p. 1242).

The researchers identified two study limitations. First, a possible selection bias existed due to the lack of randomly assigning participants to services. Second, sites collected data in different ways with some sites using project definitions and other sites using their states required reporting definitions. In addition, although Cochran's Q statistic found no variability between the seven sites in the study, we believed the lack of a discussion on the fidelity of implementation of job development and job support by the researchers was a study limitation. Therefore, we cannot confirm each site and each staff person at that site provided a consistent intervention with fidelity.

This study contributed to the job retention literature by measuring the relationship between on-site

job support and job retention. On-site job support accounted for a 31% increase in job retention over individuals who did not receive job support. Although Brooke et al. highlighted the intensity of support, the researchers did not compare the various levels of support to job retention which should be considered in a replication study.

2.3.6. *Natural supports and person-centered planning interventions*

The purpose of a study conducted by Roberts et al. (2010) was to determine if increasing natural supports would increase job retention, and if person-centered planning techniques would improve employment outcomes for people with psychiatric disabilities (p. 204). Participants in this study included 110 individuals with psychiatric disabilities receiving services from one of seven programs in a northeastern state. The participants' average age was 43 years and 54% were unemployed, 41% were employed part-time, and 5% were employed full-time when the study was initiated (p. 205).

Data collection started at baseline and continued at 6-month intervals for 2 years. The Employment Status Report Follow-up Form developed by researchers was used to collect employment-related information and to document any hospitalization(s). The Norbeck Social Support Questionnaire was used to collect self-report information from participants on their perceptions of the amount and quality of natural supports they were receiving. The Quality Indicators Scale was used for job coaches to assess their skills for implementing person-centered planning techniques (p. 205). The intervention's fidelity by job coaches was supported by quarterly meetings with the research team during the first year of the study. In addition, 6 hours of classroom training was provided to job coaches.

Researchers conducted a bivariate correlations analysis and found a statistically significant relationship between the total days employed and the number of natural support persons reported by the participants ($r(97)=.20$, $p < .05$) (p. 206). Conversely, the number of paid supports was shown to have a negative relationship on the total days employed ($r(97)=-.23$, $p < .05$) (p. 206). The findings also indicated statistical significance between the total days employed and the person-centered plan intervention with a 19% positive impact at 9 months and a 20% positive impact at 12 months.

Several limitations were notable in the study. First, because the study was conducted in only one state,

the generalizability of the study's findings were limited. Second, researchers did not specify whether the job retention was on new full-time job placements or if individuals were retaining jobs they already had secured prior to the study. Third, a definition of natural supports was not provided. Fourth, the self-report format of both the natural support measurement and the person-centered planning measurement may have biased results. Nonetheless, this study's findings contributed to job retention literature because of the potential positive impact of both natural supports and person-centered planning to job retention outcomes. This study may be replicated with individuals with other disabilities to determine if the intervention package would have similar outcomes.

The six research articles included in this literature review identified the evidence-based job retention interventions for people with disabilities, and the specific skills which may be beneficial to teach people with disabilities to improve their job retention. As shown in Table 2, these studies implemented various job retention intervention strategies resulting in statistically significant findings to improve job retention for people with disabilities.

3. Data analysis

When comparing the findings from six studies, we noticed that researchers working with individuals with multiple disabilities have shown interest in identifying interventions that will improve job retention. As shown on Table 1, not only has research been conducted for individuals with learning disabilities, intellectual disabilities, autism, and mental illness, but also for individuals with disabilities who have autoimmune diseases such as rheumatoid arthritis and osteoarthritis. The researchers have approached implementing intervention strategies differently across studies (see Table 2). Some researchers have implemented intervention packages with multiple interventions being used simultaneously, while other researchers have implemented a single intervention. In the following sections we will examine these approaches more closely.

3.1. *Baseline employment status*

The participant's employment status at the initial baseline data collection point varied across studies. Three studies featured participants who were

Table 1
Articles' synopsis

Title	Author(s)	Disability	Age range (years)	Sample size	Research design	Recommendations for future research
Employment and satisfaction outcomes from a job retention intervention deliver to persons with chronic diseases	Allaire, Niu, & LaValley (2005)	Autoimmune diseases or chronic illness	24–66	242	RCT	Research on the intervention package to determine if all components are required for impact job retention.
Providing effective early intervention vocational rehabilitation at the community level	Allaire, Niu, Zhu, & Brett (2011)	Autoimmune diseases or chronic illness	Average 46.9	57	Quantitative	Large-scale research demonstration project
Employees with autism spectrum disorder achieving long-term employment success: A retrospective review of employment retention and intervention	Brooke et al. (2018)	Autism	19–66	104	Quantitative	Field-based study to identify specific interventions, impact of interventions provided at various lengths, identification of supports needed for advancement within a company
Randomized comparison of multidisciplinary job-retention vocational rehabilitation program with usual outpatient care in patients with chronic arthritis at risk for job loss	de Buck et al. (2005)	Arthritis	18–33	140	RCT	
Effects of job development and job support on competitive employment of persons with severe mental illness	Leff et al. (2005)	Mental illness	Average 38.4	1,340	Quantitative	Research on determining when additional job supports are needed and the effectiveness of different supports.
A study on the impact of social support development on job acquisition and retention among people with psychiatric disabilities	Roberts et al. (2010)	Mental illness	20–65	110	Quantitative	Research ways to strengthen the natural supports for people with mental illness.

Table 2
Intervention strategies implemented

Intervention/study	Allaire, Niu, & LaValley (2005)	Allaire, Niu, & Brett (2011)	Brooke et al. (2018)	deBuck et al. (2005)	Leff et al. (2005)	Roberts et al. (2010)
Work-related barriers and challenges	P*	P*	P*	P		
Vocational counseling	P*	P*		P		
Education on legal rights	P*	P*		P		
Education on self- advocacy/self-determination	P*	P*	P*			
Managing medication		P*	P*			
Mental health counseling		P*	P*	P		
Natural Supports						X*
Person-centered planning techniques					X	X*
Job support (on-site)			P*		X*	X
Social skills training			P*			

Note: P* signifies intervention packages that were determined to be statistically significant and positively impact job retention. X* denotes single interventions that were determined to be statistically significant for positively impacting job retention.

currently working and were at risk of losing their jobs (Allaire et al., 2005, 2011; Fornes et al., 2008). Other studies required participants to be (a) successfully closed by VRS after 90 days on the job (Brooke et al., 2018), (b) on sick leave (deBuck et al., 2005) and (c) unemployed (Leff et al., 2005). One study had no preference on participants' employment status with participants divided at 54% unemployed and 46% employed (Roberts et al., 2010).

One researcher theorized the employment status during the intervention may have impacted its effectiveness (deBuck et al., 2005). No statistical significance was found between participants who received the intervention and those who did not, which led deBuck et al. to hypothesize that because their study's participants were on sick leave, they were more likely to lose/quit their jobs than people who were actively employed. The hypothesis was based on Allaire et al. (2005) who conducted a similar RCT with participants who were employed. Allaire's research teams found statistical significance with 49% reduction in permanent and temporary job loss compared to the control group.

3.1.1. Interventions

The second predominate difference among studies was the type of intervention strategy implemented. An intervention package with multiple job retention strategies was used in six of the seven research studies. For this literature review, we highlighted intervention strategies that were in an intervention package that always showed statistical significance in job retention or were individually implemented and showed statistical significance (see Table 2).

Single intervention and intervention package of self-advocacy/self-determination. Teaching self-advocacy/self-determination skills was included in intervention packages that showed statistically significant improvement in job retention (Allaire et al., 2005, 2011; Brooke et al., 2018). Although the articles did not include their definition of self-determination and/or self-advocacy, a commonly accepted definition is "the ability to make choices, solve problems, set goals, evaluate options, take initiative to reach one's goals, and accept consequences of one's actions" (Mazzotti et al., 2016, p. 200). Self-advocacy skills are frequently included in secondary education curricula to support students in developing their transition individualized education programs (IEP) and student-led conferences (e.g., *Self-directed IEP*, Martin et al., 1996). Similarly, self-determination skills are also taught in secondary education to support students to learn and how to make choices based on their strengths, interests, preferences and support needs (e.g., *Whose Future Is It Anyway*, Wehmeyer & Lawrence, 1995).

Invention package of managing medication. The second intervention strategy showing a statistically significant improvement in job retention was teaching adults with disabilities how to manage their medication (Allaire et al., 2011; Brooke et al., 2018). Minimal details were provided about this intervention strategy in the articles. Researchers in one study specified that participants were provided information on their medications and its side effects (Brooke et al.). Neither study discussed the intervention strategy's implementation, content details, format, or frequency. Therefore, it is difficult to identify

specifically how this intervention strategy impacted job retention or how to replicate this intervention.

Intervention package supporting social skills.

Brooke et al. (2018) was the only study providing social skills support during their most intensive-level of intervention during their study. The researchers described the intervention as supporting participants in workplace challenges with supervisors and coworkers. Social skills research has primarily been conducted with young children and elementary age children with autism (e.g., Walton & Ingersoll, 2013). Although evidence-based interventions on the workplace are limited in the literature, researchers have found interventions (such as video modeling, relationship-based interventions, peer-mediated interventions, behavioral interventions, and structure teaching) to improve social skills in young children and elementary age children with autism (e.g., Walton & Ingersoll). As previously mentioned, the intervention's implementation, format, and frequency were not discussed in great detail in the article. Therefore, we are unable to specify how the intervention benefited the participants.

Single intervention strategy of natural supports. Roberts et al. (2010) suggested the impact of natural supports (or unpaid supports) on job retention was related to the encouragement and/or peer pressure of friends/co-workers to be at work and be productive. While natural supports has been an intervention included in supported employment literature for many years (Roberts et al., 2010), researchers have continued to recommend further research to identify evidence-based practice there continues to be a lack of an operational definition or research identifying a procedure for the intervention which show statistical significance. Further quantitative study of natural supports may identify an evidence-based method for developing natural supports which have a statistically significant impact on job retention.

4. Literature review limitations

A challenge conducting this literature review was the lack of a universal operational definition of job retention by researchers and between funding sources. Researchers measured the participants' ability to retain employment; however, the articles were often unclear if the participant retained the first job, advanced within a company, or remained in the same occupation at a different employer. For job retention research to identify evidence-based interventions,

there must be a consistent operational definition and measurement of employment variables.

The differences in funding sources definitions of job retention may contribute to the variation in measuring job retention. VRS allows for case closure after a person with a disability is stable on the job for 90 days. At case closure the individual has retained the job successfully according to VRS. In comparison, Workforce Investment Opportunity Act (WIOA) defines job retention as the individual being employed "at the same employer for the second and fourth quarters after exiting services" (Employment and Training Division, 2017). This definition is measured by the percentage of participants with wage records who exit and were employed by the same employer in the second and fourth quarters after exit rather than individual retention. The disparity between WIOA and VRS definitions may have contributed to the variations in researchers' definitions of job retention from study to study.

One limitation of identifying evidence-based interventions was that researchers did not analyze each component of their intervention packages (Allaire et al., 2005, 2011; Brooke et al., 2015; deBuck et al., 2005). When the studies' outcomes indicated positive statistically significant impacts on job retention, the researchers do not know what specific components influenced the results or if all components are necessary to improve job retention. Further complicating analysis was that participants received different levels of support and different interventions in the Brooke et al. study. Therefore, researchers were unable to determine what specific strategies had the greatest impact on job retention.

Another limitation was the potential variation in the implementation due to the nature of field studies. Maintaining fidelity in a field study is challenging because each participant has different support needs and different responses to interventions. In addition, the diversity of implementation due diverse participants (age, race, disability, socio-economic status) and diverse staff may influence the fidelity of implementing the intervention.

5. Implications for practice

The findings of this literature review highlighted the practices and services which have had a positive statistical significance on job retention for people with disabilities. The job retention interventions which were shown to have a positive impact on

participants in each study they were implemented in were (a) training on self-determination and/or self-advocacy, (b) managing medicine, (c) social skills support and (d) natural supports on the job.

5.1. *Self-advocacy/self-determination intervention*

Based on this literature review, the quantitative research on job retention has shown the importance of postsecondary education, adult education, VRCs, rehabilitation counselors, and employment service providers to continue teaching and practicing self-advocacy skills with adults with disabilities. These results are supported by transition research that self-advocacy and self-determination skills are predictors of improved postsecondary outcomes (i.e. Mazzotti et al., 2016; Test et al., 2009).

Possessing self-advocacy/self-determination skills may improve the capacity of a person with a disability to (a) understand their strengths, interests, and support needs related to employment; (b) communicate their accommodation needs effectively to their employers; (c) resolve work-related challenges with supervisors and co-workers in a timely fashion; and (d) identify career opportunities in order to advance in the workplace. Self-advocacy/self-determination skills applied at the worksite may empower the person to resolve conflicts, request raises, and advance at the same employer and thus positively impact job retention. When applying these findings in current practices, the inclusion of self-advocacy/self-determination curricula in pre-employment transition services funded by VRS should be a priority. Similarly, employment service providers and counselors should include opportunities for people with disabilities to practice and apply their self-advocacy/self-determination skills in employment settings and in employment-related meetings. An implication for practice for secondary and postsecondary educators is to move beyond teaching these skills in only an educational setting, but to focus on applying these skills in employment settings and during meetings with adult service providers including VRS.

5.2. *Managing medications*

Infusing guidance and instruction on managing medications and its influence on employment should be included in VRCs and rehabilitation counselors' job retention services. These findings may indicate that individuals with disabilities may not have the

knowledge of and experience with managing their medication or understand its side effects on their employment performance. In addition, these findings reiterate to staff in postsecondary settings and secondary special education teachers the importance of including management of medication into their programs' curricula in relationship to employment.

5.3. *Services prior to unemployment*

The importance of obtaining job retention services prior to losing a job or taking long-term medical leave was discussed in deBuck et al. (2005). Three research studies only included participants who were working at baseline and all resulted in job retention interventions with positive statistical significance (Allaire et al., 2005, 2011; Brooke et al., 2018). In fact, the only study which did not find any statistically significant job retention intervention was deBuck et al. (2005) which required all participants to be on sick-leave at baseline. When applying this research evidence to VRCs and rehabilitation counselors' everyday practice, being flexible on appointment dates and times may be essential to provide services prior to the person with a disability being terminated or quitting their job. For example, counselors may need to meet with their clients before or after normal business hours and at locations other than the counselor's office (Allaire et al., 2005). Findings of this literature review also should remind secondary educators and adult service providers to teach individuals' self-advocacy/self-determination skills to understand the importance of requesting help and support prior to quitting a job or being terminated.

5.4. *Natural supports*

The positive statistical significance of natural supports to improve job retention indicates the importance of cultivating and securing natural supports on the job. Hagner (1992) observed natural supports in numerous work settings (e.g., nursing home, department store, transportation company, fast food) and recommended (a) allowing flexibility in job designs to encourage interactions between employees with and without disabilities, (b) developing interdependent jobs, (c) focusing on social customs (e.g., taking turns on completing job tasks), and (d) using co-worker mentors to teach employees to provide natural supports.

6. Future research

Although secondary curricula have focused on students' understanding their disability (e.g., *Self-directed IEP*, Martin et al., 1996), the authors do not observe the same intensity in assisting students to understand health and wellness and how to manage their medications. When reviewing transition literature, medication management typically falls under independent living skills (e.g., Mazzotti et al., 2016) and a direct connection with employment is not mentioned. This literature review demonstrates that individuals knowing about how to effectively manage their medication has an impact on job retention. Therefore, managing medication is a topic which should be addressed in curricula or program supports in relationship to employment.

Although this literature review introduces evidence-based retention interventions, none of the studies disaggregated the data for young adults. Because job retention is a challenge for all young adults, the first recommendation is for future research to disaggregate findings by age groups. The second recommendation is for researchers to analyze each job retention intervention component rather than an entire intervention package. By identifying individual job retention strategies which have a positive impact, services could be delivered more efficiently and effectively to people with disabilities.

The final recommendation is to replicate the de Buck et al. (2005) study with participants who are employed, transition-aged youth. The collaborative intervention package approach aligns with common members of a transition IEP team. Therefore, replicating this study with transition-age youth might provide insight into improving the postsecondary employment outcomes for students with low incidence disabilities.

7. Conclusion

The paucity of quantitative research in job retention has highlighted the need for further research to identify evidence-based intervention strategies. The studies contained in this literature review reinforce the importance of continuing to develop individuals' self-determination/self-advocacy skills and to support social skills by applying those skills in conversations with employers about their accommodation needs and resolving work-related conflicts and challenges. In addition, utilizing natural supports in the

workplace and managing medication have shown to have a positive impact of on job retention. Future research is needed through replication of studies and the inclusion of participants from diverse socio-economic backgrounds to fully understand the potential of these job retention strategies to improve employment outcomes for all people with disabilities.

Conflict of interest

The authors have no known conflict of interest to disclose.

References

- Allaire, S. J., Niu, J., Zhu, Y., & Brett, B. (2011). Providing effective early intervention vocational rehabilitation at the community level. *Rehabilitation Counseling Bulletin, 54*(3), 154-163. <https://doi.org/10.1177/0034355210392242>
- Allaire, S. H., Niu, J., & LaValley, M. P. (2005). Employment and satisfaction outcomes from a job retention intervention delivered to persons with chronic diseases. *Rehabilitation Counseling Bulletin, 48*(2), 100-109. <https://doi.org/10.1177/00343552050480020401>
- Brooke, V., Brooke, A. M., Schall, C., Wehman, P., McDonough, J., Thompson, K., & Smith, J. (2018). Employees with autism spectrum disorder achieving long-term employment success: A retrospective review of employment retention and intervention. *Research and Practice for Persons with Severe Disabilities, 43*(3), 181-193. <https://doi.org/10.1177/1540796918783202>
- Bureau of Labor Statistics. (2019, October). *Employment situation summary*. Retrieved from <https://www.bls.gov/news.release/empsit.nr0.htm>.
- Creswell, J. W. (2014). *Research design: qualitative, quantitative, and mixed methods approaches*. SAGE Publishing.
- de Buck, P. D., le Cessie, S., van den Hout, W. B., Peeters, A. J., Ronday, H. K., Westedt, M. L., Breedveld, F. C., & Vliet Vlieland, T. P. (2005). Randomized comparison of a multidisciplinary job-retention vocational rehabilitation program with usual outpatient care in patients with chronic arthritis at risk for job loss. *Arthritis Care & Research, 53*(5), 682-690. <https://doi.org/10.1002/art.21452>
- Employment and Training Administration, U.S. Department of Labor. (2017). *Training and employment training guidance letter, No. 10-16*. https://wdr.doleta.gov/directives/corr_doc.cfm?DOCN=3255
- Hagner, D. (1992). The social interactions and job supports of supported employees. In J. Nisbet (Ed.) *Natural supports in school, at work, and in the community for people with severe disabilities* (pp. 217-240). Brookes Publishing.
- Hinkin, T. R., & Tracey, J. B. (2000). The cost of turnover: Putting a price on the learning curve. *Cornell Hotel Quarterly, 41*(3), 14-21. <https://doi.org/10.1177/001088040004100313>
- Holzer, H. J., & Martinson, K. (2005). *Can we improve job retention and advancement among low-income working parents?* Urban Institute.

- Kacmar, K. M., Andrews, M. C., Van Rooy, D. L., Steilber, R. C., & Cerrone, S. (2006). Sure everyone can be replaced ... but at what cost? Turnover as a predictor of unit-level performance. *Academy of Management Journal*, *49*, 133-144. <https://doi.org/10.2307/20159750>
- Leff, H. S., Cook, J. A., Gold, P. B., Toprac, M., Blyler, C., Goldberg, R. W., McFarlane, W., Shafer, M., Allen, I. E., Camacho-Gonzalez, T., & Raab, B. (2005). Effects of job development and job support on competitive employment of persons with severe mental illness. *Psychiatric Services*, *56*(10), 1237-1244. <https://doi.org/10.1176/appi.ps.56.10.1237>
- Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: Explanation and elaboration. *BMJ*, *339*, b2700. <https://doi.org/10.1136/bmj.b2700>
- Malakpa, S. W. (2007). Problems and prospects in employment and job retention of the blind and visually impaired in the United States: A future concern of special education. *International Journal of Special Education*, *22*(1), 53-58.
- Martin, J. E., Marshall, L. H., Maxson, L. M., & Jerman, P. (1996). *Self-directed IEP*. Sopris West.
- Maryland Division of Rehabilitation Services. (2016). EBPSE milestone payment system fact sheet. http://dors.maryland.gov/crps/Documents/RS_71_Milestone_Payment_FS.pdf
- Mazzotti, V. L., Rowe, D. A., Sinclair, J., Poppen, M., Woods, W. E., & Shearer, M. L. (2016). Predictors of post-school success: A systematic review of NLTS2 secondary analyses. *Career Development and Transition for Exceptional Individuals*, *39*(4), 196-215. <https://doi.org/10.1177/2165143415588047>
- Odom, S. L., Brantlinger, E., Gersten, R., Horner, R. H., Thompson, B., & Harris, K. R. (2005). Research in special education: Scientific methods and evidence-based practices. *Exceptional Children*, *71*(2), 137-148. <https://doi.org/10.1177/001440290507100201>
- Office of Disability Employment Policy. (2017). *Youth employment rate*. <https://www.dol.gov/odep/categories/youth/youth-employment.htm>.
- Roberts, M. M., Murphy, A., Dolce, J., Spagnolo, A., Gill, K., Lu, W., & Librera, L. (2010). A study of the impact of social support development on job acquisition and retention among people with psychiatric disabilities. *Journal of Vocational Rehabilitation*, *33*(3), 203-207. <https://doi.org/10.3233/JVR-2010-0528>
- Roessler, R. T. (2002). Improving job tenure outcomes for people with disabilities: The 3M model. *Rehabilitation Counseling Bulletin*, *45*(4), 207-212. <https://doi.org/10.1177/00343552020450040301>
- Valentine, J. C., & Cooper, H. (2008). A systematic and transparent approach for assessing the methodological quality of intervention effectiveness research: The Study Design and Implementation Assessment Device (Study DIAD). *Psychological Methods*, *13*(2), 130. <https://doi.org/10.1037/1082-989X.13.2.130>
- Walton, K. M., & Ingersoll, B. R. (2013). Improving social skills in adolescents and adults with autism and severe to profound intellectual disability: A review of the literature. *Journal of Autism and Developmental Disorders*, *43*(3), 594-615. <https://doi.org/10.1007/s10803-012-1601-1>
- Wehmeyer, M., & Lawrence, M. (1995). Whose future is it anyway? Promoting student involvement in transition planning. *Career Development for Exceptional Individuals*, *18*(2), 69-83. <https://doi.org/10.1177/088572889501800202>