Review Article

A scoping review of pre-employment transition services for transition aged youth with disabilities

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Abstract.
BACKGROUND: The Workforce Innovation and Opportunity Act (2014) requires state vocational rehabilitation agencies to dedicate 15% of their budget to providing pre-employment transition services (Pre-ETS) to transition aged youth (TAY) with disabilities.
OBJECTIVE: The purpose of this study was to summarize the peer-reviewed, empirical literature focused on Pre-ETS for TAY with disabilities.
METHOD: An initial search was completed on October 24th, 2023. A second search was conducted on January 1, 2024 to determine whether any additional publications that met inclusion criteria were published. We used scoping review methods to review, summarize, and identify gaps within the existing literature about Pre-ETS for TAY with disabilities. We identified study characteristics and main areas of foci for each study.
RESULTS: A total of 26 peer-reviewed articles published in the United States between 2017–2023 focused on Pre-ETS for TAY with disabilities. Articles focused on (a) participants' perceptions of Pre-ETS, (b) program and TAY outcomes, and (c) policy analyses.
CONCLUSION: Our findings suggest that Pre-ETS are a promising set of practices to increase the postschool outcomes of TAY with disabilities. Implications for practice, research, and policy are discussed.

Keywords: Pre-employment transition services, transition, youth with disabilities, vocational rehabilitation, special education

1. Introduction

For the past 30 years, postschool outcomes for youth with disabilities have remained relatively stagnant, despite mandated transition-related services for

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this population (Individuals with Disabilities Education Improvement Act [IDEIA], 2004; Workforce Innovation and Opportunity Act [WIOA], 2014). Youth with disabilities consistently experience high rates of unemployment (Winsor et al., 2021). They also enroll in and complete postsecondary education (PSE) at lower rates than their peers without disabilities (Smith et al., 2012).

As a result of these troubling trends, Congress recognized a need for a substantially different approach to changing the trajectories of youth with disabilities. To this end, WIOA (2014) established competitive integrated employment (CIE) as the singular focus of vocational services, activities, and funding, and shifted the focus of services toward youth with disabilities to improve postschool outcomes. Under WIOA (2014), state vocational rehabilitation (VR) agencies are required to (a) coordinate service delivery between VR and schools, (b) provide five Pre-Employment Transition Services (Pre-ETS) to youth with disabilities (i.e., job exploration counseling, work-based learning experiences [WBLEs], counseling on opportunities for post-secondary education [PSE], workplace reading training, and instruction in self-advocacy), and (c) spend 15% of their state VR budget on Pre-ETS. While there is substantive research supporting many of the practices embedded in Pre-ETS, research on Pre-ETS implementation is emerging. As a field, we have yet to understand fully what specific practices have been used to date, how effective those practices are, what key findings are, and what gaps in the research literature remain. Further, it is unclear how research on specific Pre-ETS relates to the larger transition field more broadly.

The extant literature on employment for youth and young adults with disabilities comprises a number of systematic and scoping reviews examining factors that influence CIE, many of which include features of Pre-ETS but do not exclusively focus on Pre-ETS (e.g., Schutz & Carter, 2022). For example, findings from previous literature reviews point to the importance of integrated service models (e.g., Taylor, Avellone, et al., 2022), participation in community-based work experiences (e.g., Rooney-Kron & Dymond, 2022), the delivery of employment preparation through postsecondary education programs (e.g., Avellone et al., 2021), and the impact of self-advocacy on employment for youth and young adults with disabilities (Ju et al., 2017). However, these literature reviews examine employment preparation and training for youth and young adults

more broadly by focusing on general topics such as "transition strategies" or "VR practices" rather than specifically on Pre-ETS (Schutz & Carter, 2022).

It has been nearly a decade since WIOA (2014) mandated the provision of Pre-ETS to transition-aged youth (TAY) with disabilities. Since then, numerous articles have been published within the peer-reviewed literature examining varied topics related to Pre-ETS, but none have aggregated this body of literature in a cohesive way. To date, Frentzel et al. (2021) is the only published scoping review that exclusively addresses the provision of Pre-ETS. While findings from Frentzel et al. (2021) offer valuable insight into research-based practices under four of the five Pre-ETS categories (with the exception of counseling on PSE), the focus of their review is limited to intervention strategies and does not synthesize the remaining peer-reviewed literature on Pre-ETS. As we approach the potential reauthorization of WIOA, it is critical to map the existing body of literature surrounding Pre-ETS in order to have a collective understanding of the ways in which it has been studied and the impact it has had on TAY with disabilities.

Therefore, the purpose of this study is to investigate the empirical research conducted to date on Pre-ETS implementation, focusing on the types of studies that have been completed and key findings from the literature. To accomplish these aims, we conducted a scoping review of the peer-reviewed literature related to Pre-ETS that has been published since 2014, when WIOA became law. The following research questions guided our study: What are the characteristics of research focused on Pre-ETS for TAY with disabilities? What are key findings from research on Pre-ETS for TAY with disabilities?

2. Methods

We conducted a scoping review to summarize the empirical literature about Pre-ETS for TAY (Peters et al., 2020). We adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews (PRISMA-ScR) checklist (Tricco et al., 2018) and utilized Covidence™, an online tool for conducting literature reviews.

2.1. Inclusion criteria

We included studies that met the following criteria: (a) original research (e.g., quantitative, qualitative, case studies, dissertations), (b) focused on Pre-ETS

for TAY with disabilities, (c) published in English between 2014 and 2023, and (d) conducted in the United States. Because the purpose of this review was not to evaluate the quality of the literature, we included articles published in peer-reviewed journals to ensure that identified studies had an established level of rigor. Data collection was restricted to articles published between 2014 and 2023 because funding for Pre-ETS was mandated in 2014 after the passage of WIOA. We also limited our review to research published in the United States because the WIOA (2014), which mandates Pre-ETS, is only applicable to the United States.

2.2. Search and screening procedures

An initial search was completed on October 24th, 2023. A second search was conducted on January 1, 2024 to determine whether any additional publications that met inclusion criteria were published. We identified studies using four different search procedures including a keyword, forward, backward, and hand search. We conducted a keyword search in eight databases (i.e., ERIC, CINAHL, Academic Search Complete, Education Full Text, Professional Development Collection, APA PsycArticles, APA PsycInfo, PubMed) and used a combination of keywords to describe TAY (e.g., "transition," OR "middle school," OR "high school"), disability (e.g., "disab*," OR "intellectual disab*," OR "low vision"), and Pre-ETS or providers of Pre-ETS (e.g., "Pre-ETS," OR "pre-employment transition," OR "vocational rehabilitation"). See Supplementary Table 1 for a list of search terms. Our keyword search retrieved 1,386 unique articles.

All articles retrieved were subject to two levels of screening. During the first level of screening, two authors independently reviewed the title and abstract to determine whether the article focused on TAY with disabilities and was original research conducted in the United States. Reliability during the first level of screening was 88.8%. Two authors met to discuss each discrepancy and came to consensus. The first two authors then conducted a full text review of the 427 identified articles to determine whether they focused on Pre-ETS. The first author read all of the articles and the second author independently read 23.4% ($n = 100$) of the articles. Reliability during the second level of screening was 98.7%. The authors discussed any discrepancies and reached consensus. A total of 25 articles met all inclusion criteria.

Finally, we conducted a forward search, backward search, and hand search of *Career Development and Transition for Exceptional Individuals* and *Journal of Vocational Rehabilitation*. We identified one additional article that met all inclusion criteria. The final sample included 26 articles focused on Pre-ETS for TAY with disabilities.

2.3. Data extraction and charting the data

The first author reviewed the included articles and developed a codebook documenting study characteristics. All authors independently reviewed the codebook to ensure that all essential characteristics were included. The final codebook included the following study characteristics: (a) research design, (b) data source, (c) type of analysis, (d) type of Pre-ETS, (e) participants, and (f) primary disability type of TAY with disabilities. The second and third authors then independently coded each of the articles. The first author then reviewed their coding and resolved any disagreements. To identify areas of focus, the first author again reviewed each article and proposed initial focus areas with subcategories. The remaining authors independently reviewed the proposed focal areas and subcategories. The team then met several times to discuss the areas of foci and came to consensus about which articles were included in each foci area.

3. Results

Our review identified 26 articles published between 2017 and 2023, with the majority of articles published in 2023 ($n = 10$), 2022 ($n = 2$) and 2021 ($n = 4$). The findings will describe (a) study characteristics and (b) areas of focus.

3.1. Characteristics of included articles

A summary of the characteristics of included articles are displayed in Supplementary Table 2. Articles focused on one to four individual Pre-ETS ($n = 9$), all five Pre-ETS individually ($n = 8$), Pre-ETS in general ($n = 6$), or on the five individual Pre-ETS and Pre-ETS in general ($n = 5$). Researchers used a variety of research designs including correlational ($n = 9$), multiple or mixed methods ($n = 6$), experimental ($n = 5$), qualitative ($n = 2$), policy analyses ($n = 3$), and descriptive ($n = 1$). To collect data, researchers most frequently used questionnaires ($n = 20$) or conducted

interviews and focus groups ($n = 9$). Researchers also analyzed available data sets (i.e., RSA-911; $n = 2$) or policy documents ($n = 3$). Other methods used to collect data included pulling reports from computer programs ($n = 1$), mock interviews ($n = 1$), or table notes from community conversations ($n = 1$). Researchers often used multiple data analysis methods including inferential statistics ($n = 13$), qualitative strategies ($n = 11$), and descriptive statistics ($n = 10$).

The majority of studies included multiple participant groups. The most frequently included participants were TAY with disabilities ($n = 10$), VR staff ($n = 10$), K-12 staff and administrators ($n = 10$), and parents of TAY with disabilities ($n = 9$). Fewer studies included Pre-ETS providers and community agency providers ($n = 4$) or employers ($n = 2$). Almost half of studies focused on TAY with disabilities without specifying a specific type of disability ($n = 13$). An additional six studies focused on students with a broad range of disabilities whereas fewer studies focused on specific types of disabilities such as TAY with autism ($n = 3$), TAY with significant support needs ($n = 3$), and students who were blind or visually impaired ($n = 1$).

3.2. Area of focus

The 26 articles focused on three areas: (a) perceptions of Pre-ETS ($n = 12$), (b) program and TAY outcomes ($n = 11$), and (c) policy analyses ($n = 3$).

3.2.1. Perceptions of pre-ETS

A total of 12 articles focused on participants' perceptions of Pre-ETS for TAY with disabilities. Six of the articles included participants from Tennessee (Awsumb et al., 2020; Carter et al., 2021; Schutz et al., 2021; Schutz et al., 2022; Schutz et al., 2023; Schutz & Travers, 2023) whereas one article included participants from Virginia and Kentucky (Lambert et al., 2023). The remaining five articles included a national sample but did not indicate which states participants were from (Bishop et al., 2022; Neubert et al., 2018; McDonnall et al., 2018; Oertle et al., 2017; Tansey et al., 2023). Articles focused on participants' perceptions of (a) the importance and benefits of Pre-ETS, (b) their knowledge, preparation, and training on Pre-ETS, (c) collaboration related to Pre-ETS, and (d) barriers to implementing Pre-ETS.

3.2.1.1. Importance and benefits of pre-ETS. Participants generally believed TAY with disabilities

benefitted or could benefit from Pre-ETS. Almost all special educators and parents believed their TAY with disabilities would benefit from and needed services related to the five Pre-ETS (Carter et al., 2021; Schutz et al., 2022). In addition, VR counselors rated all five Pre-ETS as moderately important, with job exploration counseling and WBLEs rated as the two most important Pre-ETS for TAY with disabilities (Neubert et al., 2018; Tansey et al., 2023). Some research indicates that the disability type of TAY and community location may impact participants' perceptions of the importance of Pre-ETS. For example, parents of TAY with IDD (versus parents of TAY with other disabilities) were more likely to believe their TAY would benefit from developing workplace readiness skills (i.e., independent living, social skills), learning workplace readiness skills in the classroom, and developing work skills in the community; however, they believed some skills related to counseling on PSE were less important (i.e., learning about financial resources and disability support services for college; Schutz et al., 2022). Although community location (i.e., rural versus urban or suburban) did not impact parents' perceptions of the benefits of Pre-ETS for TAY with disabilities (Schutz et al., 2022), special educators in rural settings were more likely than special educators in urban or suburban settings to agree that TAY with disabilities needed services related to workplace readiness and instruction in self-advocacy (Carter et al., 2021).

3.2.1.2. Knowledge, preparation, and training on pre-ETS. Pre-ETS providers and special educators' knowledge about Pre-ETS varied across domains (Awsumb et al., 2020; Carter et al., 2021). In general, Pre-ETS providers rated their ability to describe best practices related to Pre-ETS, experience implementing Pre-ETS, and knowledge about Pre-ETS (Awsumb et al., 2020) higher than special educators (Carter et al., 2021). Community location and teachers' grade level related to Pre-ETS providers and special educators' knowledge about Pre-ETS. Although no differences were found in providers' knowledge of Pre-ETS by urbanicity, providers in rural areas had significantly less familiarity with the requirements to deliver WBLEs than providers in urban areas (Awsumb et al., 2020). Furthermore, special educators in rural settings (versus urban or suburban) were more likely to understand eligibility requirements (Carter et al., 2021). Middle school special educators had significantly less knowledge about Pre-ETS than high school special educators (Carter et al., 2021).

Researchers also investigated participants' perceptions of their preparedness to implement Pre-ETS. VR counselors' ratings of their preparedness to implement Pre-ETS were significantly lower than their ratings of the importance of Pre-ETS (Neubert et al., 2018). VR counselors felt least prepared to provide WBLEs and self-advocacy training whereas they felt more prepared to provide workplace readiness training, job exploration counseling, and counseling on PSE (Neubert et al., 2018). In particular, VR counselors who had more TAY with disabilities on their caseload believed they were more prepared to provide Pre-ETS than those who had fewer TAY with disabilities on their caseload (Neubert et al., 2018).

Researchers also asked participants about their training needs. Approximately three quarters of special educators believed they had insufficient training on the goals and delivery of Pre-ETS and desired additional training (Carter et al., 2021). VR professionals rated their needs as "moderate" with the greatest need for technical assistance in WBLEs, followed by instruction in self-advocacy, workplace readiness training, job exploration counseling, and counseling on PSE (Bishop et al., 2022; Tansey et al., 2023). In particular, VR counselors, community providers, and special educators indicated they would like training about each stakeholder's role, gaining buy-in from diverse stakeholders, strategies to implement Pre-ETS in general education classrooms, and tracking and reporting outcomes. They also desired information related to which Pre-ETS are available and to whom and how to deliver Pre-ETS to TAY with extensive support needs and to TAY in rural communities (Awsumb et al., 2020; Carter et al., 2021; Lambert et al., 2023; Schutz et al., 2023). Families also expressed they need more information about what Pre-ETS are offered to help them be more involved (Lambert et al., 2023).

3.2.1.3. Collaboration related to pre-ETS. Statewide transition supervisors (i.e., special education and VR) believed it was important to collaborate on all five Pre-ETS (Oertle et al., 2017). According to supervisors, staff were most prepared and most frequently collaborated on activities related to job exploration counseling, counseling on PSE, and workplace readiness; whereas they were least prepared and collaborated less frequently on instruction in self-advocacy and WBLEs (Oertle et al., 2017). Knowledge of collaboration strategies varied by participants. Although the majority of Pre-ETS providers

believed they knew how to engage and collaborate with partners and what agencies provided Pre-ETS (Awsumb et al., 2020), only a third of special educators believed they had the same knowledge (Carter et al., 2021).

Approximately two-thirds of VR counselors and special educators reported they were not satisfied with their current Pre-ETS collaboration (Awsumb et al., 2020; Carter et al., 2021). The majority of VR counselors believed they worked closely with schools (Awsumb et al., 2020), yet half of special educators disagreed they worked closely with VR (Carter et al., 2021). Half of teachers invited VR counselors to IEP or transition meetings; however, many VR counselors did not regularly attend meetings (Carter et al., 2021). Nevertheless, special educators and VR counselors expressed a desire to collaborate more extensively with each other (Awsumb et al., 2020; Carter et al., 2021; Schutz et al., 2021). In particular, special educators wished to collaborate with Pre-ETS providers to help build connections with businesses, establish supports for TAY with significant support needs, better understand each other's roles, and ensure VR and school services were not duplicative of each other (Lambert et al., 2023; Schutz et al., 2023).

Community location and teachers' grade level may impact Pre-ETS collaboration. According to Awsumb et al. (2020), rural Pre-ETS providers (versus urban or suburban) worked more closely with schools to coordinate and provide Pre-ETS. Teachers in rural communities (versus urban or suburban) were also more satisfied with their level of collaboration with VR, collaborated more extensively with VR, and believed youth received services from outside agencies for WBLEs and counseling on PSE (Carter et al., 2021). Schutz and Travers (2023) described how rural schools used VR grant funding for coaches and transition specialists to provide Pre-ETS and services that schools were unable to provide. Yet, some challenges still persist in rural communities. For example, Pre-ETS providers from rural schools were significantly less likely to believe schools were interested in collaborating (Awsumb et al., 2020) and reported some confusion over the role of the VR funded staff and special educators in preparing TAY with disabilities for work (Schutz & Travers, 2023). In addition to community location, teachers' grade level impacted their perceptions of collaboration. Middle and high school teachers rated barriers to collaborating on Pre-ETS similarly; high school teachers reported greater levels of collaboration with VR than middle school teachers (Carter et al., 2021).

3.2.1.4. Barriers to implementing Pre-ETS. Participants described a variety of barriers that impacted their ability to implement Pre-ETS. The most frequently described barriers related to communication and time. Pre-ETS providers and special educators described barriers related to limited communication about the purpose of Pre-ETS, ineffective communication about how Pre-ETS complemented special education services, and concerns about the information TAY with disabilities and families received (Awsumb et al., 2020; Carter et al., 2021; Schutz & Travers, 2023). Families expressed they needed better communication about Pre-ETS to understand how they can support the involvement of their TAY with disabilities (Lambert et al., 2023). Time was also a significant barrier because there was limited time to implement Pre-ETS and TAY with disabilities did not have time in their schedules to participate in Pre-ETS (Awsumb et al., 2020; Carter et al., 2021; Lambert et al., 2023; Schutz et al., 2023;). To allow TAY with disabilities more time to participate in Pre-ETS, some rural schools used block scheduling (Schutz & Travers, 2023). Additional barriers to Pre-ETS included lack of buy-in from schools, confusion about the role of each stakeholder, limited financial resources, and transportation (Awsumb et al., 2020; Carter et al., 2021; Lambert et al., 2023).

Some research indicates there are unique barriers to implementing Pre-ETS in rural communities (Awsumb et al., 2020; Carter et al., 2021) and for TAY ages 14–16 with significant disabilities (Lambert et al., 2023). Families, VR counselors, and teachers reported there were limited opportunities for TAY with significant disabilities age 14–16 to participate in community-based work experiences because company policies often prohibited younger TAY from touring or observing workers at their business and opportunities were particularly limited in rural communities (Lambert et al., 2023). Pre-ETS providers from rural areas believed involving parents and caregivers, limited opportunities for community employment, and expectations of adult agencies and program staff were greater barriers than did Pre-ETS providers from urban or suburban areas (Awsumb et al., 2020). Additionally, rural providers were also more likely to believe they had inadequate resources for Pre-ETS (Awsumb et al., 2020). Special educators rated most barriers similarly regardless of where they worked (Carter et al., 2021).

One article interviewed state agency administrators about the impact WIOA had on agencies serving consumers with blindness and low vision (McDonnall et al., 2018). Administrators reported challenges related to the time it takes to develop new high-quality programming, how to spend the 15% within rigid Pre-ETS requirements, and the philosophical shift of focusing on TAY. To meet the 15% funding requirement and improve TAY outcomes, states provided additional training to staff who work with youth with disabilities, created new programs, and increased the number and intensity of services for TAY with disabilities.

3.2.2. Program and TAY outcomes

A total of 11 studies aimed to understand the outcomes of TAY with disabilities who participated in Pre-ETS and evaluate the feasibility and acceptability of interventions or programs that included Pre-ETS. Supplementary Table 3 describes each program in more detail. In general, TAY with disabilities benefited from participating in programs that included at least one Pre-ETS. Most studies addressed one to four of the Pre-ETS ($n = 5$) whereas only two studies addressed all five of the Pre-ETS (Castruita Rios et al., 2023; Honeycutt et al., 2023). A total of four studies focused specifically on the workplace readiness skill of interviewing (Sherwood et al., 2023; Smith, Sherwood, et al., 2021; Smith, Smith, et al., 2021; Williams & Smith, 2023). The programs ranged in duration from 3 hours to 24 months. Although most interventions and programs focused on TAY with disabilities broadly, a few focused on specific populations (i.e., TAY ages 14–16 with significant disabilities [Lau et al., 2023] and TAY with autism [Sherwood et al., 2023; Smith, Sherwood et al., 2021; Williams & Smith, 2023]).

3.2.2.1. Student skills and knowledge. TAY with disabilities who participated in programs that included at least one Pre-ETS increased their vocational skills and knowledge. For example, TAY with disabilities reported significantly higher levels of workplace readiness, job exploration, and self-advocacy skills after participating in the Postsecondary Rewarding Education is Possible Academy (Ford et al., 2019). Similarly, TAY ages 14–16 with significant disabilities rated their knowledge and skills related to job exploration and workplace readiness significantly higher after participating in a Pre-ETS toolkit intervention (Lau & McKelvey, 2023). Program facilitators of a Guided Group Discovery program reported TAY with disabilities were more confident and better able to describe their interests and skills after participating in the program (Salon et al., 2019).

TAY with autism who participated in Pre-ETS and Virtual Interview Training for Transition Aged youth (VIT-TAY) had significantly greater increases in job interview skills, significantly reduced job interview anxiety, and were rated as being more likely to be hired than TAY with autism who only participated in Pre-ETS (Smith, Sherwood, et al., 2021). Williams and Smith (2023) found the VIT-TAY was similarly effective for Black, indigenous, and autistic youth of color. Only one study did not have positive results. TAY with disabilities who participated in Positive Engaged Pathways, a 3-hour workshop, reported no significant differences in their psychological capital or vocational outcome expectancies (Fleming et al., 2020).

3.2.2.2. Student outcomes. TAY with disabilities who participate in programs that include at least one Pre-ETS may also experience better employment outcomes and may earn higher wages than those who do not participate. For example, TAY with disabilities who participated in the VIT-TAY and Pre-ETS were more likely to be competitively employed than those who participated in Pre-ETS only (Smith, Sherwood, et al., 2021; Williams & Smith, 2023). Furthermore, Castruita Rios et al. (2023) analyzed RSA-911 data and found that of the five Pre-ETS, only participation in WBLEs was positively correlated to integrated employment outcomes at exit from VR services for Hispanic TAY with disabilities. In regard to wages, Honeycutt et al. (2023) found that TAY with disabilities who participated in WBLEs, regardless of if they were enrolled in Linking Learning to Careers, earned significantly more per month than TAY with disabilities who did not have WBLEs. In contrast, Castruita Rios et al. (2023) found that TAY with disabilities who participated in WBLEs and workplace readiness training had significantly lower wages after exiting VR services than TAY who did not participate in these Pre-ETS.

Two studies found TAY with disabilities who participated in Pre-ETS were connected to more services and agencies than those who did not participate. TAY who participated in Linking Learning to Careers used more Pre-ETS and VR services than the comparison group (Honeycutt et al., 2023). Similarly, TAY with disabilities who participated in the Indiana School to Work Collaborative were connected to significantly more outside agencies (e.g., VR, employment providers) than TAY at control sites (Grossi et al., 2019).

3.2.2.3. Program effectiveness. Researchers also investigated participants' perceptions of the effectiveness and feasibility of Pre-ETS interventions. According to Salon et al. (2019), program facilitators believed Guided Group Discovery was an effective way to address four of the five Pre-ETS (excluding WBLES). Smith and colleagues evaluated the the Virtual Reality Job Interview Training (VR-JIT) for TAY with disabilities (Smith, Smith et al., 2021) and a modified version for TAY with autism, the VIT-TAY (Sherwood et al., 2023; Smith, Sherwood et al., 2021; Williams & Smith, 2023). According to administrators, teachers, and TAY with disabilities, the interventions were feasible, sustainable, acceptable, and usable; however, teachers reported that the time required to implement the intervention, scheduling, and space for implementation were barriers to implementing the VIT-TAY (Sherwood et al., 2023).

3.2.3. Policy analyses

Three studies focused on understanding how states interpret WIOA and implement Pre-ETS. Carlson et al. (2020) analyzed Pre-ETS policy documents and found that states addressed WIOA requirements to varying degrees. The majority of states addressed targeted populations and required Pre-ETS, and fewer states addressed authorized activities, procedures for referrals, the provision of auxiliary aids and accommodations, financial responsibilities, or order of selection. Furthermore, Taylor, Whittenburg, et al. (2022) analyzed 10 state WIOA plans and found that states varied considerably in their instructional priorities for Pre-ETS, instructional contexts of Pre-ETS, and networks of stakeholders involved in Pre-ETS. Across studies, both teams of researchers found that the way in which states described their plans to implement Pre-ETS ranged from vague to robust (Carlson et al., 2020; Taylor, Whittenburg, et al., 2022). Policy analyses also addressed the target population of TAY eligible to receive Pre-ETS. In state policy documents, states described the age, disability, and educational placement of target populations (Carlson et al., 2020). Roux et al. (2019) analyzed 51 WIOA state plans and found that 44 plans referenced TAY with autism, while 17 explicitly highlighted the need to target TAY with autism as an underserved group.

4. Discussion

The purpose of this scoping review was to describe the existing literature on Pre-ETS for TAY with dis-

abilities. We identified a total of 26 articles published between 2017 and 2023. The majority of studies focused on multiple Pre-ETS ($n = 9$) with fewer studies focusing on all five Pre-ETS individually ($n = 6$), Pre-ETS in general ($n = 6$), or both each Pre-ETS individually and Pre-ETS in general ($n = 5$). Almost half of the articles focused on understanding participants' perceptions about Pre-ETS ($n = 12$) with fewer studies focused on program and TAY outcomes ($n = 11$) or policy analyses ($n = 3$).

Our results suggest Pre-ETS are a promising set of services to improve the historically dismal postschool outcomes of TAY with disabilities. Despite some training needs and challenges with implementation, stakeholders believe Pre-ETS are an important service in preparing youth with disabilities for postschool life (see Awsumb et al., 2020; Carter et al., 2021). Furthermore, articles from our review suggest TAY who participate in Pre-ETS increase their knowledge and work-related skills (Ford et al., 2019; Lau et al., 2023; Smith, Sherwood, Ross et al., 2021) and are connected to more services and agencies (Honeycutt et al., 2023). It is important to note that research about Pre-ETS is continuing to emerge. The majority of articles included in our review were published within the last three years. It will be critical for researchers, practitioners, and policymakers to continue to review the literature about Pre-ETS in order to build our understanding of what is working and what could be improved.

Of the five Pre-ETS, WBLEs may have the greatest potential to positively impact outcomes of TAY with disabilities (Honeycutt et al., 2023). This finding aligns with previous reviews of the literature that suggest work experiences are one of the strongest predictors of postschool outcomes for students with disabilities (Mazzotti et al., 2021). According to articles included in our study, Hispanic TAY with disabilities who participated in WBLEs were significantly more likely to be employed at VR closure than students who did not participate in WBLEs (Castruita Rios et al., 2023). Furthermore, VR counselors rated WBLEs as one of the most important Pre-ETS for youth with disabilities (Neubert et al., 2018; Tansey et al., 2023). Despite the promise of WBLEs, there is some research to suggest that Pre-ETS providers and special educators are least prepared to provide WBLEs to TAY with disabilities (Awsumb et al., 2020; Neubert et al., 2018; Tansey et al., 2023). Additional training and support may be needed to ensure that all TAY with disabilities have access to WBLEs.

4.1. Limitations

Our findings should be considered in light of the following limitations. First, although we conducted an extensive and thorough review, it is possible there are articles that met inclusion criteria but were not included. We only included articles whose authors explicitly stated their focus was on "pre-employment transition services" in the method or results sections. It is possible additional research about Pre-ETS exists but was not explicitly labeled by authors in that way. Furthermore, it is important to note that there is a wealth of literature about types of services and interventions that align with the definitions of the five Pre-ETS (e.g., community-based work experiences, Self-determined Learning Model of Instruction), but were not described as being Pre-ETS. This literature may provide additional important information about what we know about each of the types of Pre-ETS. In addition, we did not evaluate gray literature and are consequently at risk of potential publication bias. Finally, we coded articles based on the information authors provided. Due to the limited information about Pre-ETS and research methods in general, it is possible there are some reporting errors.

5. Conclusion

5.1. Implications for practice

Our findings have implications for how state leaders and local providers coordinate and implement Pre-ETS for TAY with disabilities. Although stakeholders believe Pre-ETS are important (Awsumb et al., 2020), they report a clear need for additional training and technical assistance to coordinate and implement Pre-ETS effectively (Bishop et al., 2022). To support providers, state VR and education agencies should provide joint training and technical assistance that facilitate sustained engagement and learning for VR counselors, Pre-ETS providers, and special educators (Holzberg et al., 2018; Mazzotti et al., 2018). Increasing providers' knowledge about Pre-ETS and improving their skills to implement Pre-ETS may increase the frequency with which they provide Pre-ETS to TAY with disabilities (Oertle et al., 2017). Training may focus particularly on increasing providers' capacity to provide WBLEs and self-advocacy training, the Pre-ETS providers reported feeling the least prepared to implement (Bishop et al., 2022; Tansey et al., 2023). In addition,

our research suggests providers may benefit from training and technical assistance focused on including youth with significant support needs and youth from rural communities in Pre-ETS (Schutz et al., 2023; Lambert et al., 2023).

VR counselors, Pre-ETS providers, teachers, and families should be encouraged to continue building relationships to better facilitate Pre-ETS for TAY with disabilities. Our results suggest stakeholders believe collaboration is important, but they experience challenges with limited communication, unclear roles and responsibilities, and meeting regularly (Awsumb et al., 2020; Carter et al., 2021). Despite these challenges, most providers express an interest in collaborating more extensively to provide Pre-ETS to TAY with disabilities (Awsumb et al., 2020; Carter et al., 2021). To improve their collaborative partnerships, VR and special educators should establish communication protocols and expectations (e.g., how they prefer to communicate, how often they will communicate), define and review their respective roles and responsibilities, and prioritize meeting on a regular basis.

5.2. Implications for research

Our findings suggest there are some gaps in the literature that warrant further investigation. Additional rigorous experimental research is needed to determine the effectiveness of each type of Pre-ETS. According to our findings, there is limited understanding of which types of Pre-ETS are most effective in preparing TAY for post-school life. Researchers should consider using randomized control trials to identify the effectiveness of each Pre-ETS. It is important to note that researchers may need to tailor Pre-ETS interventions to meet the unique needs of TAY with disabilities. TAY with more significant support needs and those from different community locations (i.e., rural, suburban, or urban) may benefit from Pre-ETS tailored to their unique strengths, needs, and contexts (Lambert et al., 2023; Schutz et al., 2023). Researchers should also provide thorough and adequate information about their interventions and clearly identify which types of Pre-ETS they are investigating. Throughout the review, our team found it challenging to determine whether researchers were investigating Pre-ETS, as opposed to VR transition services or special education services, due to limited descriptions of services and programs. Rigorous experimental research with adequate documentation of implementation will promote our understanding of

what is most effective in preparing youth with disabilities for postschool life and will increase providers' ability to replicate effective Pre-ETS.

Additional research is also needed to understand what Pre-ETS implementation looks like in practice. Our review found research about partners' perceptions, evaluations of programs that include Pre-ETS, and how states plan to implement Pre-ETS (i.e., policy analyses). Although this research is informative, it does not describe how states are actually implementing Pre-ETS. Researchers may consider investigating who provides Pre-ETS (e.g., dedicated Pre-ETS providers, special educators, or community rehabilitation providers), which students participate in Pre-ETS (e.g., age, type of disability, level of support needs, community location), and the types of activities in which students participate (e.g., 1 day career exploration versus 9 month internship). In particular, this research should investigate Pre-ETS implementation across multiple states because according to our review, states vary in how they intend to implement Pre-ETS and who they target (Taylor, Whittenburg et al., 2022; Roux et al., 2019). A better understanding of Pre-ETS implementation across the country will provide important insights about what is working across contexts and what may need to adjust to improve service delivery and outcomes for TAY. This information may also be valuable to state leaders in making decisions about how to implement Pre-ETS within their state as well as to federal policymakers in making informed decisions about future reauthorizations of WIOA (2014).

5.3. Implications for policy

Findings from this review may inform policy makers' decisions about future iterations of WIOA (2014). Stakeholders believe Pre-ETS are important for youth with disabilities and there is some evidence that Pre-ETS have a positive impact on the outcomes of TAY (Carter et al., 2021; Castruita Rios et al., 2023). These findings suggest that a continued federal investment in Pre-ETS may be beneficial in supporting youth with disabilities to prepare for postschool life. In addition to continuing to fund Pre-ETS services, policy makers may consider ways to improve service delivery. For example, they may provide additional funding for training and technical assistance to increase the capacity of Pre-ETS providers and special educators to coordinate Pre-ETS (Bishop et al., 2022; Tansey et al., 2023).

Our findings may have implications for the guidance policymakers provide to help improve the delivery of Pre-ETS to TAY with disabilities. In particular, policymakers may include specific examples of activities and services VR agencies can spend Pre-ETS funding on in WIOA regulations. Additional clarity about eligible services may ameliorate some confusion about how VR and special education can avoid duplicating services and support states in meeting their 15% requirement. In addition, policy makers may need to provide guidance about the roles of Pre-ETS providers and special educators as this was defined as a barrier to Pre-ETS. Although some additional guidance may be necessary, policy makers should continue to grant adequate flexibility to states so they can implement Pre-ETS in the way that best serves their constituents and that enhances their current service delivery models (McDonnall et al., 2018).

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Conflict of interest

The authors have no conflicts of interest to report.

Ethics statement

This study did not require approval from an Institutional Review Board because it was not human subjects research.

Funding

Informed consent

This study did not require consent because data was not collected from participants.

Supplementary materials

The supplementary tables are available from https://dx.doi.org/10.3233/JVR-240003.

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