The impact of competitive integrated employment on economic, psychological, and physical health outcomes for individuals with intellectual and developmental disabilities

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Abstract

Background: Although competitive integrated employment (CIE) has been established as a goal of employment research, policy, and practice for individuals with intellectual and developmental disabilities, the secondary benefits of CIE are rarely discussed.

Aims: The purpose of this systematic review was to analyze and synthesise research related to the association between CIE and improved economic, psychological health, and physical health outcomes for individuals with intellectual and developmental disabilities.

Materials & Methods: Our review searched peer-reviewed literature from seven electronic databases and screened 1110 peer-reviewed articles based on inclusion criteria established following PRISMA guidelines.

Results: Our search procedures produced a final sample of 17 studies.

Discussion: Implications of these findings for future research, policy, and practice are provided.

Conclusion: Our findings showed strong evidence associated with economic outcomes of CIE, moderate associated with psychological health outcomes, and limited evidence related to physical health outcomes.

KEYWORDS economics, employment, intellectual and developmental disabilities, physical health, psychological health

1 | INTRODUCTION

Competitive integrated employment (CIE) has been well established in research and policy as the preferred outcome for individuals with intellectual and developmental disabilities in the United States (US.; Wehman et al., 2018). Even so, the actual inclusion of individuals with intellectual and developmental disabilities in the workplace lags behind other advances in education and community living in practice. For example, 95% of students with disabilities are included in general education classes for some portion of their day and individuals are increasingly living with family or chosen friends (Dinora et al., 2020; Hagiwara et al., 2019). However, despite the development of a variety of CIE pathways such as supported employment, customised employment, or vocational rehabilitation strategies, the employment rate for individuals with intellectual and developmental disabilities remains dismally low (Wehman et al., 2021; Winsor et al., 2019). There has been a decrease in the percent of individuals with intellectual and developmental disabilities employed in CIE and in the funding for interventions, which promote CIE such as supported employment over the last decade (Braddock et al., 2017). Substantial multidisciplinary research has been devoted to understanding the persistence of barriers to CIE for individuals with intellectual and developmental disabilities and potential pathways to improving these outcomes, albeit with limited progress in practice (Levine & Breshears, 2019; Wehman et al., 2018).
Over the last 25 years, significant US policies have been directed at focusing funding and services towards achieving CIE, starting with the Olmstead Decision (1999), which has more recently led to Department of Justice action to close segregated vocational facilities and sheltered workshops in Rhode Island, Oregon, and several other states (Oregon Department of Human Services, 2018; U.S. Department of Justice, 2014). Most recently, the Workforce Innovation and Opportunity Act of 2014 (WIOA; 2014) further expanded the commitment of the federal government to ensuring the inclusion of people with disabilities by clarifying terms to promote fair work and pay. Under WIOA (2014), CIE was defined for the first time as full or part-time work at minimum wage or higher, with wages and benefits similar to those without disabilities performing the same work, and fully integrated with coworkers without disabilities.

However, CIE is not only a preferred policy outcome, it is also a widely attainable outcome even for those with the most significant disabilities (Wehman et al., 2018). Several decades of research even before the above policies related to promoting workplace integration have identified clear evidenced-based pathways for achieving CIE (e.g., Brown et al., 1984; Mank, 1994; Wehman et al., 2018). For example, supported employment (SE) is a highly effective intervention in promoting CIE for individuals with intellectual and developmental disabilities that eliminates pre-employment training usually received in segregated facilities—instead immediately providing individuals opportunities to learn on-the-job and installing the individualised supports needed for success. Research on the efficacy of SE in leading to CIE outcomes is strong, with demonstrated success using the highest levels of methodological rigour, including randomised control designs (Schall, Wehman, et al., 2020). Customised employment (CE), which is considered an extension of SE, is another CIE-focused intervention that accounts for personalised supports and bypasses pre-employment training (Wehman et al., 2018). WIOA (2014) established definitions for both SE and CE, clarifying the alignment of both with CIE outcomes and applicability to persons with the most significant disabilities.

Despite the policy commitment to CIE outcomes and well-documented approaches on how to achieve CIE outcomes, few individuals with intellectual and developmental disabilities are employed in CIE (Winsor et al., 2019). The American Community Survey (ACS) reported an employment rate of 28.6% among non-institutionalised working-age people with cognitive disabilities (Cornell University, 2018). A national report issued by the Institute for Community Inclusion indicated that only 18.6% of individuals receiving support from state intellectual and developmental disabilities agencies in 2015 were in CIE, and this number has continued to decrease since 2001 (Winsor et al., 2019). Further, advocates of sheltered workshops and other segregated options continue to pursue funding earmarked for CIE at the state and national level despite evidence that they do not serve as pathways to CIE (Taylor et al., 2021; Wehman et al., 2018). These entities also continue to pay subminimum wages via federal certificates. As of April 2021, 1298 employers (e.g., community rehabilitation programmes, etc.) hold or have applied for certificates under 14(c) of the Fair Labor Standards Act, permitting them to pay subminimum wages to 39,358 employees with disabilities (U.S. Department of Labor, 2021).

Thus, although CIE has been established as a preferred option in policy, several barriers remain that prevent more extensive engagement of individuals in meaningful community-integrated work that requires additional research and a more comprehensive policy commitment to address these barriers. In operationalising CIE as a public service outcome and the goal of policy, conceptualization has primarily been as an outcome in-and-of-itself. However, research has also indicated that CIE may in turn provide other advantages and opportunities for individuals with disabilities; beyond serving as an outcome in and of itself, meaningful employment may provide economic opportunity (e.g., Taylor et al., 2021), better quality of life (e.g., Beyer et al., 2010; Dean et al., 2018; Iwanaga et al., 2021), and perhaps even better health outcomes (e.g., Inge et al., 2009; Robertson et al., 2019). These benefits of employment are not limited to individuals with intellectual and developmental disabilities; research examining the global population (with and without disabilities) has found substantial links between employment and happiness, quality-of-life, and other non-monetary benefits (De Neve & Ward, 2017). Specifically, the mental health benefits of work at enhancing personal well-being have received increased attention and growing evidence in employment research (Modini et al., 2016). For individuals with mental illnesses, employment through SE in competitive settings has been shown by high-level research rigour to be linked with better health outcomes (e.g., Bond et al., 2016; Drake & Wallach, 2020), but research specific to those with intellectual and developmental disabilities is more limited. A recent review of international studies of health outcomes related to employment conducted by Robertson et al. (2019) found 12 studies that identified positive associations between paid employment and improved physical and mental health.

However, without more accurately assessing the impact of CIE to improve the lives of individuals with intellectual and developmental disabilities, we risk greatly undervaluing this key life experience and miscalculating public policy related to CIE by not more fully investing in its promotion. Therefore, the purpose of this scoping review is not to describe CIE as an outcome, but rather to examine CIE as a vehicle for achieving other life benefits as determined by the extant literature. To date, there has not been a review of the research literature to understand financial, psychological, and physical health benefits associated with CIE for individuals with intellectual and developmental disabilities. Based on this purpose, a scoping review was conducted guided by the following research question:

What is the level of evidence demonstrating an association between CIE and a) economic, b) psychological health, and c) physical health outcomes for individuals with intellectual and developmental disabilities?

2 | METHOD

Four primary search strategies were employed to construct a systematic, nonbiased, representative sample of published studies using preferred reporting items for systematic reviews and meta-analyses
search terms were excluded. For this review, we related to macroeconomic trends and cost (i.e., vocational rehabilitation case closure) were excluded. Studies also examined CIE solely as a dichotomous outcome variable meet each of the above criteria for inclusion in the review. Those that worked), psychological or physical health; and (f) published since the Olmsted Decision of the U.S. Supreme Court (1999). Studies had to worked), psychological or physical health; and (f) published since the Olmsted Decision of the U.S. Supreme Court (1999). Studies had to

### Inclusion and exclusion criteria

Articles eligible for inclusion (a) were empirical studies (without regard to methodology); (b) focused on individuals with intellectual and developmental disabilities of transition or working age (14 years old and older); (c) were studies in which participants received services or programming to support CIE; (d) set in the United States; (e) examined outcome measures related to economics (e.g., wages, salary, hours worked), psychological or physical health; and (f) published since the Olmsted Decision of the U.S. Supreme Court (1999). Studies had to

To refine CIE as a specific outcome are critical to the purpose of this review. We defined psychological health outcomes as those that measured mental health, well-being, and other related constructs such as personal independence. We operationalised physical health not only related to direct biometric measures, but also those related to the perception of physical health as included in subjective measures such as those indicating quality-of-life. Regarding published years, although this criteria (i.e., the Olmstead Decision, 1999) excluded much older literature from our review pertinent to the experiences of individuals with disabilities served through SE, we felt that the central significance of the Olmstead Decision (1999) and later legislative efforts to refine CIE as a specific outcome are critical to the purpose of this review and merit an exclusive focus on literature published afterward.

### Procedure

All studies were first uploaded to Zotero—a reference management software—from their respective databases and combined into a single file before removing duplicates. The first author led the coding and screening process with reliability audits performed by two of the co-authors. In the first stage of screening, inclusion and exclusion criteria were applied using the titles and abstracts of each unique study. At this stage, studies were included liberally to ensure that no potentially relevant studies were erroneously removed. Two of the co-authors repeated the process with an audit sub-sample of 30% of the full sample (n = 1110). Inter-observer agreement (IOA) was calculated by dividing total agreements between reviewers by the total number of studies screened at that stage. For title and abstract screening, IOA was 84.8%. A total of 132 studies were reviewed in full-text by the first author and audited (subsample of 30% of the full sample; n = 40) by two of the co-authors. At this full-text review phase, IOA was 97.7%. Discrepancies at each stage were noted and discussed in full between team members to ensure all relevant literature was included in the final sample. Figure 1 shows the process that resulted in the final sample of this literature review from the initial identification process through the stages of review described above. Finally, analysis of included studies and their independent and dependent variable components was conducted by the first two authors, first by organising studies under the broad categories of economic, psychological, and physical health and then identifying and describing specific outcomes and themes within those categories, which are reported in the following section.
3 | RESULTS

Overall, this review of the research literature identified 17 studies that met criteria for inclusion. Collectively, these studies indicated positive results supporting the association between CIE and various outcome constructs examined, although the level of evidence varied across studies, which incorporated a range of methodological designs, including retrospective review of records (Brooke et al., 2018; Schall et al., 2015), secondary data analysis (Butterworth et al., 2015; Cimera, 2010, 2011), analysis of survey data (Boeltzig et al., 2008, 2009; Conley, 2003), and a variety of non- and pre-experimental measures (Attanasio, 2003; Wehmeyer & Bolding, 2001; Winer, 2000). In many cases, outcome variables of interest for this review were examined by the studies in the sample as secondary measures (e.g., Brooke et al., 2018; Wehman et al., 2017). A majority of included studies provided evidence for CIE leading to improvements in economic \((n = 12)\) and psychological \((n = 8)\) and physical health \((n = 1)\) factors. Economic outcomes of CIE were reported most frequently, and also presented the strongest level of research evidence, with all studies showing economic improvement relative to a comparison group or pre-assessment measure. Likewise, all studies examining psychological and physical health outcomes reported positive findings related to those engaged in CIE, albeit with methodological limitations. In the following sections, we report the results of identified studies in more detail concerning how they inform the effect of CIE on outcomes specific to economics, psychological, and physical health.

3.1 | Economic outcomes

Considerably more research identified by this review related directly to the economic benefits of CIE than other outcome areas. All studies examining economic outcome benefits for CIE-service participants included some measure of earnings, wages, or salary. Across all studies’ findings showed that those who participated in CIE earned more than their peers in segregated settings (Boeltzig et al., 2008, 2009; Butterworth et al., 2015; Cimera, 2010, 2011; Conley, 2003) and more than peers that received services as usual (Christensen et al., 2015; Wehman et al., 2017). Additionally, those CIE-service participants who were individually served earned more than those in group integrated work (Boeltzig et al., 2008; Butterworth et al., 2015). Several differences were noted across studies regarding other differences in economic outcomes based on individual v. group models. ‘Hours worked’ was another frequent measure of economic outcome among included studies, albeit with somewhat mixed findings. Three studies found that CIE-service participants worked more hours per...
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<td>Attanasio, 2003</td>
<td>(n = 77) ind. with ID (21 mod. ID, 56 mild ID)</td>
<td>Case records/correlation</td>
<td>SE, SW</td>
<td>Psychological</td>
<td>SE associated with greater feeling of control over life</td>
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<td>Blick et al., 2016</td>
<td>(n = 477) ind. with ID</td>
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<td>Enhanced quality of life related to inclusion and finances associated with CIE</td>
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<td>Boeltzig et al., 2008</td>
<td>(n = 195) CRPs reporting on 869 ind. with DD</td>
<td>Survey (NSCRP)</td>
<td>SE, GS, SE + GS, SE + SW, GS + SW, IS + GS + SW</td>
<td>Economic</td>
<td>Individual jobs have economic benefits over group jobs</td>
</tr>
<tr>
<td>Boeltzig et al., 2009</td>
<td>(n = 195) CRPs reporting on 869 ind. with DD</td>
<td>Survey (NSCRP)</td>
<td>SE, GS, SE + GS, SE + SW, GS + SW, IS + GS + SW</td>
<td>Economic</td>
<td>SE has economic benefits over SW but there is gender disparity in pay</td>
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<td>Brooke et al., 2018</td>
<td>(n = 104) ind. with ASD (58 with high social support needs)</td>
<td>Record Review</td>
<td>SE/ LTESS in CIE</td>
<td>Economic</td>
<td>CIE-service participants earned the same as peers without disabilities and had high job retention</td>
</tr>
<tr>
<td>Butterworth et al., 2015</td>
<td>(n = 12,720) ind. with IDD</td>
<td>Survey (NCI-ACS)</td>
<td>Paid community jobs (CIE, IS, GS)</td>
<td>Economic</td>
<td>CIE and IS associated with higher earnings, employer benefits, and slightly higher job satisfaction</td>
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<tr>
<td>Christensen et al., 2015</td>
<td>(n = 124) ind. with disabilities (47 with ID; 17 with ASD; 16 with multiple)</td>
<td>Longitudinal/descriptive data</td>
<td>Project SEARCH</td>
<td>Economic</td>
<td>Economic advantages of CIE continue to increase over time</td>
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<tr>
<td>Cimera, 2010</td>
<td>(n = 104,213) ind. with ID</td>
<td>Secondary data analysis</td>
<td>SE through VR</td>
<td>Economic</td>
<td>SE cost efficient to a worker with a disability</td>
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<tr>
<td>Cimera, 2011</td>
<td>$n = 4094$ SW participants and $n = 4094$ not from SW with ID</td>
<td>Secondary data analysis (RSA 911)</td>
<td>SE (with/without prior SW)</td>
<td>Economic</td>
<td>SE w/out SW earned more, worked more and cost less to serve than those with history of SW</td>
</tr>
<tr>
<td>Conley, 2003</td>
<td>$n = 48$ VSP serving ind. with any disability</td>
<td>Survey/descriptive</td>
<td>Facility-based employment, CIE</td>
<td>Economic</td>
<td>SE participants worked more hours and earned more per hour than facility-based participants</td>
</tr>
<tr>
<td>Kraemer et al., 2003</td>
<td>$n = 188$ ind. with ID (moderate to severe ID; 10 with comorbid ASD)</td>
<td>Regression</td>
<td>In HS, exited HS (in CIE, SW or no employment)</td>
<td>Psychological</td>
<td>Higher quality of life observed for individuals in CIE</td>
</tr>
<tr>
<td>Schall, Sima, et al., 2020</td>
<td>$n = 156$ ind. with ASD (30% with comorbid ID)</td>
<td>RCT with longitudinal data SIS</td>
<td>PS + ASD, control</td>
<td>Economic, Psychological, Psychological</td>
<td>PS + ASD linked to increase in personal independence</td>
</tr>
<tr>
<td>Schall et al., 2015</td>
<td>$n = 45$ ind. with ASD</td>
<td>Record review</td>
<td>PS + ASD, SE alone</td>
<td>Economic</td>
<td>Both SE alone and PS + ASD resulted in economic benefits, but PS + ASD outperformed SE alone</td>
</tr>
<tr>
<td>Taylor et al., 2014</td>
<td>$n = 153$ ind. with ASD</td>
<td>Longitudinal/survey VI, SIB-R subscale, ADI-R</td>
<td>No day activity, SW, volunteer, SE, CIE/postsecondary</td>
<td>Psychological</td>
<td>Greater independence in work settings associated with increase in positive behaviours and decrease in challenging behaviours</td>
</tr>
<tr>
<td>Wehman et al., 2017</td>
<td>$n = 54$ ind. with ASD (74.1% requiring sig. or very sig. support)</td>
<td>RCT SIS</td>
<td>PS + ASD, control</td>
<td>Economic, Psychological, Health</td>
<td>Work associated with reduction in support needs in daily living domains over time and economic advantages</td>
</tr>
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TAYLOR ET AL.

TABLE 2

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<tr>
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<th>Construct/DV</th>
<th>Summary of findings</th>
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<tr>
<td>Wehmeyer &amp; Bolding, 2001</td>
<td>n = 31 ind. with ID (mean IQ score = 60, 25; SD = 7.14)</td>
<td>Pre-post/self-report ARC-SDS, AFC, LCS</td>
<td>Psychological</td>
<td>Increase in autonomy and self-determination pre to post restrictive environment from more to less restrictive environment Associated with less restrictive work (and living) environments</td>
</tr>
<tr>
<td>Winer, 2000</td>
<td>n = 60 ind. with ID (5 ind. with mild ID; 1 ind. with mod. ID)</td>
<td>Interview/self-report SE, SW, not employed</td>
<td>Psychological</td>
<td>Quality of life increased with degree of work participation and work integration. Psychological and physical health outcomes Higher quality of life for SE over SW, and for those in SW over non-work</td>
</tr>
</tbody>
</table>

Abbreviations: ADI-R, Autism Diagnostic Interview–Revised; ARIC, Autonomous Functioning Checklists; ARC-SDS, ARIC Self-Determination Scale; ASD, autism spectrum disorder; CIE, competitive integrated employment; CRP, community rehabilitation provider; DD, developmental disabilities; EDEQ, Essential Data Elements Questionnaire; GS, group support; HS, high school; ID, intellectual disability; IDD, intellectual and developmental disabilities; IS, individual support; LCS, Life Choices Survey; LTESS, long-term employment support services; NCSI-ACS, national core indicators data-adult consumer survey; NSI-ES, Nowicki-Strickland Internal-External Scale; PS Questionnaire; RCT, randomised control design; RSA-911, Rehabilitation Services Administration Case Service Report (RSA-911) dataset; SE, supported employment; SIB-R, Behaviour Problems Scale Subscale of the Nowicki and Strickland Internal-External Scale of Locus of Control (SIS; Thompson et al., 2004) and the Quality of Life Questionnaire (QoL-Q; Schalock & Keith, 1993), but other measures included the life satisfaction and sense of control. Psychological and physical health outcomes were generally measured more broadly rather than specifically. For example, subdomain scores of physical health (e.g., total score) were reported rather than more specific operational definitions (e.g., improvement in physical stamina in the workplace), which only allowed for us to make general conclusions about the impact of CIE on health.

3.2 Psychological and physical health outcomes

Due to the limited number of studies identified between these two areas, psychological and physical health outcomes are reported together. Additionally, physical and psychological health outcomes were generally measured more broadly rather than specifically. For example, subdomain scores of physical health (e.g., total score) were reported rather than more specific operational definitions (e.g., improvement in physical stamina in the workplace), which only allowed for us to make general conclusions about the impact of CIE on health.

Another challenge in comparing findings was the wide variation in type of the measures used to examine psychological and physical health outcomes, with some studies using standardised assessments and some using researcher-developed questionnaires. In this sample, the most commonly used measures were the Support Intensity Scale (SIS; Thompson et al., 2004) and the Quality of Life Questionnaire (QoL-Q; Schalock & Keith, 1993), but other measures included the Nowicki and Strickland Internal-External Scale of Locus of Control.
(Nowicki & Strickland, 1973), the Essential Data Elements Questionnaire, ARC self-determination scale, Autonomous Functioning Checklist, Life Choices Survey, Vocational Index, and Behaviour Problems Subscale of the Scales of Independent Behaviours-Revised. Table 2 identifies measures used for each study.

Overall, studies in this review showed positive links between CIE and health outcomes. CIE was linked to improvements in locus of control (Attanasio, 2003), self-determination (Wehmeyer & Bolding, 2001), personal independence (Schall, Sima, et al., 2020; Taylor et al., 2014; Wehman et al., 2017), autonomy (Wehmeyer & Bolding, 2001), support needs (Wehmam et al., 2017), maladaptive behaviours (Taylor et al., 2014), and quality of life (Blick et al., 2016; Kraemer et al., 2003; Winer, 2000). CIE also led to increased levels of community integration (Blick et al., 2016; Winer, 2000), empowerment (Kraemer et al., 2003), and social belonging (Kraemer et al., 2003). Additionally, Attanasio (2003) reported that individuals with intellectual disabilities in SE (a competitive integrated vocational model) expressed higher levels of control over their own lives.

Studies using the SIS found a significant increase in participants' level of personal independence following participation in CIE (Schall, Sima, et al., 2020; Wehman et al., 2017). Of the two studies which used the QoL-Q, Winer (2000) reported that SE participants reported a higher quality of life than peers in sheltered workshops and that quality of life increased with the degree of work participation and work integration. Kraemer et al. (2003) found that of youth exiting high school, those in CIE had higher total quality of life scores than those in sheltered workshop settings and those that were not working.

While limited, the findings from this review indicate that CIE has a positive impact on health outcomes. Although no single health factor emerged consistently across studies as showing a preponderance of evidence, much of the literature highlighted in this section cut across several psychological and physical health constructs, suggesting that the impact of CIE is wide-reaching. More research is needed in this area, but current findings show an emerging but promising body of evidence to support the benefit of CIE on health.

4 | DISCUSSION

Our systematic review set out to determine the extent to which CIE engagement leads to improved economic, psychological and physical health outcomes among individuals with intellectual and developmental disabilities. To this end, we systematically examined, reviewed, and analysed 1110 peer-reviewed research studies published since 1999 using the criteria outlined above, resulting in a final sample of 17 studies. Overall, findings from these included studies show an association between CIE and the outcome constructs related to the well-being of participants economically, psychologically, and physically. While included studies point to positive overall outcomes related to our research question, it is important to note that findings varied greatly across specific areas of focus. In particular, we found strong evidence to support CIE as a means of improving individuals' economic well-being. Despite a well-documented ‘hours cliff’ of approximately 20 h, CIE-service participants received higher wages and had greater upward mobility and access to employer benefits than peers in segregated vocational service settings. Additionally, our review demonstrated support for the association between CIE and several positive health outcomes such as quality of life, self-determination, personal independence, locus of control, autonomy, and reduced support needs. These findings align with those of other international reviews, which found similar linkages between paid employment and improved health outcomes for individuals with intellectual and developmental disabilities (e.g., Robertson et al., 2019). Quality of life measures showed particularly positive results in the areas of empowerment, community integration, and social belonging—critical areas where the majority of individuals with intellectual and developmental disabilities experience extremely poor outcomes (Roux et al., 2015; Winsor et al., 2019). Collectively, the range of benefits uncovered in this review demonstrates the potential of CIE to dramatically impact the lives of individuals with intellectual and developmental disabilities.

This broad range of benefits related to CIE is both unsurprising and no doubt still underestimates the true value of real work for real pay. Individuals in CIE receive a paycheck directly from their employer—a practical yet powerful symbol of their value. By comparison, although some group employment models may identify themselves as ‘business-integrated’, these arrangements position the individual with a disability as a subcontractor of the sheltered workshop rather than an employee of the business. While the physical location may be within a community business, the name on the paycheck reveals the true nature of the relationship between employer and employee. While these more granular differences did not emerge in our review of the research literature, it is nonetheless important to note these fundamental and powerful differences between CIE and segregated alternatives that likely underpin many of our findings. Most prominently, it is important to note the potential impact of Section 14(c) subminimum wage waivers on our findings. Given the substantial number of individuals in segregated settings engaged with employers holding 14(c) certificates permitting subminimum wage (U.S. Department of Labor, 2021), it is likely that this systematic wage reduction accounts for some of the wage discrepancy noted in our review.

As a whole, our review demonstrates the potential of CIE to alleviate many persistent issues in the lives of individuals with intellectual and developmental disabilities related to their economic well-being, mental health, and overall quality of life. Our findings largely comport with a significant body of research documenting the benefit of CIE, as well as more recent policy seeking to prioritise it as a preferred outcome of public expenditures through WIOA, state-level employment first initiatives, and federal action to curtail systemic segregated vocational services. Based on our findings, this emphasis on CIE should be maintained and strengthened in policy to provide pathways to achieving CIE and improved outcomes for a larger portion of those with intellectual and developmental disabilities who continue to transition from school into segregation and non-work.

However, it is also important to note that while reviewed studies provide evidence supporting CIE at achieving these secondary outcomes, many of the designs of included studies lack methodological rigour needed to establish clear causality between these factors. As a result, our review points to a complex mix of implications for future
research, policy, and practice needed to improve on decades of poor adult outcomes for individuals with intellectual and developmental disabilities. As a field and as a society, we must develop a more complete understanding of how CIE impacts not only the economics, psychology, and physical health of those who are directly employed, but also the well-being of our communities as well. Without further research and investigation, we stand at grave risk to massively under-value the cost of our inaction in not more actively promoting CIE.

4.1 | Limitations

Several key limitations of both the included literature and our review itself should be noted in the context of interpreting our findings. First, many of the included studies used outcome constructs (as defined by this review) as secondary outcome variables. As a result, while each of the studies in our sample included measurements of both CIE and one of our outcome constructs, they did not experimentally control for these as primary variables of interest in all studies. Statistical controls related to sampling, group randomisation, and other methods of providing a functional comparison between practically equivalent treatment and control groups were not used consistently throughout in establishing the association between CIE and outcome variables in these studies. Furthermore, included studies were limited to those in which participants received specific services (e.g., SE, CE) to facilitate gaining and maintaining CIE. While this screening approach may have excluded meaningful research related to the experiences of individuals with intellectual and developmental disabilities who may be competitively employed without such supports, the central focus of this review is on the benefit of policies and practices that promote CIE through specific programming. Despite these limitations, we felt that the sampled studies are germane to our research questions and describe an emerging area of potential promise in the literature. While the methodological rigour of studies varied greatly, some designs did include randomised controlled trials—the gold standard for experimental research and highest level of evidence—which bolster support for findings. Finally, no identified studies included longer-term follow-up measures beyond 2 years post-hiring that might be able to detect more sensitive changes in health outcomes not discernable statistically over the span documented by included studies.

In addition to those of included studies, there are also key limitations of our review that should be noted and used to contextualise our findings. First, we restricted our sample to peer-reviewed studies after 1999 to focus on research conducted after the Olmstead Supreme Court decision (1999) and its emphasis on inclusive services for individuals with disabilities. However, this focus no doubt left out many studies that might have provided additional insight into the relationship between CIE and outcome constructs. Likewise, in restricting our sample to US studies to compose a more comparable sample in policy and practice, many international studies were excluded that may have provided insight into the broader question of the impact of CIE globally. It is clear from recent similar reviews, which used a broader international scope that substantial quality research was excluded as a result of our focus exclusively on the American context (e.g., Robertson et al., 2019). However, we felt that this limitation was necessary to focus specifically on the impact of US policy and practice on this issue, but further research to duplicate our findings with a broader set of research is certainly merited to examine how other policy contexts may influence these relationships. Given many factors unique to US policy, including but not limited to the continued use of subminimum wage waivers for workers with disabilities, our findings should not be generalised to other systems.

Finally, several challenges were encountered in analysing psychological and physical health outcomes among studies. Although we specified psychological and physical health outcomes as separate constructs in our research questions and executed distinct search processes for each, many of the included studies in these areas overlapped considerably and lacked specificity. For example, many studies used assessments measuring ‘quality of life’, which is an umbrella construct with subdomains related to both psychological and physical health. As a result, we presented the findings of these included studies together as a single construct: psychological and physical health.

4.2 | Implications for research

While the findings of our review add further evidence towards promoting and expanding CIE as the preferred outcome, there remains a dire need for significant research investigating the expansive impact of CIE on the lives of individuals with intellectual and developmental disabilities. Our limited understanding of the broad impact of CIE means that we cannot adequately assess the efficiency of taxpayer funds spent on providing costly services and subsidies that may or may not be aligned with a concerted effort to promote, support, and sustain individuals with intellectual and developmental disabilities in CIE. This review provides a foundation on which to develop and implement a research agenda that addresses the current lack of evidence-based research in this area.

One major research gap identified in this review is the inconsistency in how constructs are defined and measured. The sheer number of different scales measuring outcomes makes it difficult to evaluate research evidence and translate those into practice and vary widely in terms of implementation time and qualifications. For example, the SIS has been widely adopted by states for use in many Home and Community Based Medicaid waiver programmes (Dinora et al., 2020). While the SIS is a comprehensive tool, it is also time-intensive and requires special training to administer, limiting its adaptability. The QOL-Q is easy to administer but has not been updated in the last decade to reflect the significant changes in societal interaction. In short, we need the equivalent of a simple and easy-to-use measure of psychological and physical health for individuals with intellectual and developmental disabilities similar to the way vital statistics, such as temperature or blood pressure, provide a quick overview of general physical health. Such a measure would greatly increase our ability to define and track desirable outcomes for individuals with intellectual and developmental disabilities in research and practice.

The findings of this review demonstrate that there is emerging evidence that economic, psychological, and physical health benefits do occur when individuals with intellectual and developmental disabilities are given access to CIE. Among the most promising are the randomised control design studies demonstrating that individuals with
4.3 | Implications for policy

Although findings in some outcome areas are limited, this review contributes further evidence to support the continued commitment to the inclusion of individuals with intellectual and developmental disabilities through CIE. However, there is a sharp incongruity between what many of the federal policies, laws, and regulations say about CIE and the outcomes being achieved by most individuals with intellectual and developmental disabilities. Segregated, facility-based programmes continue to thrive despite the number of laws passed, Medicaid Waivers authorised, CE initiatives, evidence-based articles published, and employment first initiatives passed. The National Institute on Disability Independent Living and Rehabilitation Research (NIDILRR) recognised this lack of evidence-based research by funding a Rehabilitation Research and Training Center (RRTC) on Employment of People with Intellectual and Developmental Disabilities in 2019. This and other funding for research in these areas are crucial to continuing to affect change in promoting not only employment outcomes for individuals with intellectual and developmental disabilities, but also in improving physical and psychological health, and economic self-sufficiency.

Finally, our findings add further support to decades of research evidence supporting federal and state policy to shift funding and individual referral to CIE options and phase out segregated alternatives. The commitment to ending funding for segregated alternatives and phasing out 14(c) subminimum wage certification must be maintained moving forward in future policy, guidance, and enforcement within states and communities. At the state level, adoption and evaluation of state and federal Employment First policies (Wehman, 2017) further contribute to this national commitment to CIE for individuals with intellectual and developmental disabilities. Future policy reforms to promote CIE should take into account how employment specialists are incentivised for services provided and outcomes achieved. The absence of a pricing model, which considers the full value of individual placement should receive attention in policy, in terms of the diminished potential for employer expectations and employee career opportunities, not to mention reduced earning potential and increased dependence on income subsidies.

4.4 | Implications for practice

Although the broad focus of this review resulted in more relevance to future research and policy, there are some also important takeaways for practice. First and foremost, our review has demonstrated that there is credible evidence for the benefit of CIE extending beyond simply achieving employment in and of itself. These additional benefits cannot be understated when engaging with individuals with intellectual and developmental disabilities and their families in planning career goals and supporting job search and development. Carter et al. (2018) found in their community conversation research that despite an overall preference for CIE, many of the individuals and families who chose segregated options did so based on concerns about economic considerations, safety, job stability, and other factors. Individuals and families make decisions about their career pathways and goals based on a wide range of factors—and a plurality continues to choose sheltered workshops despite compelling research recommendations to the contrary (Carter et al., 2018; Migliore et al., 2008). However, our review presents evidence that these decisions are made without all pertinent information about long-term benefits of CIE relative to segregated alternatives. Practitioners have a crucial role to play in providing context for individuals and families about the implications of their decisions based on the research. Additionally, practitioners in transition and vocational rehabilitation must address these perceived barriers directly. This means providing services to individuals designed to address concerns such as benefits counselling and planning that can provide information to assure economic concerns related to the effect of income on financial benefits. Furthermore, additional training is needed for employment service organisations in shifting to providing high-quality vocational interventions such as SE and CE that have been shown to lead to positive CIE outcomes. As a field, we have an increasingly clear sense of pathways leading to better employment outcomes through interventions and experiences for youth with intellectual and developmental disabilities. However, more training and technical assistance are needed to provide support to practitioners aiming to launch these types of initiatives and sustain their implementation with a well-trained and competent staff.

5 | CONCLUSION

The lack of participation in CIE by people with intellectual and developmental disabilities is a disheartening societal problem. Unemployment and underemployment in facility-based programmes exclude people with intellectual and developmental disabilities from their community, stymie their financial independence, and deny access to social contexts where they can increase their quality of life. The current review was developed to understand the state of the research literature concerning the economic, psychological and physical health benefits associated with CIE. Research clearly shows that CIE leads to more economic prosperity and with it, greater access to community activities and inclusion, higher quality of life, greater independence, and better overall health. Much remains to be investigated through future research in how CIE affects these critical individual factors, but what is known is that current research findings unilaterally support CIE as the primary employment goal for individuals with intellectual and developmental disabilities.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Note: Asterisks indicate articles included in the systematic review.


