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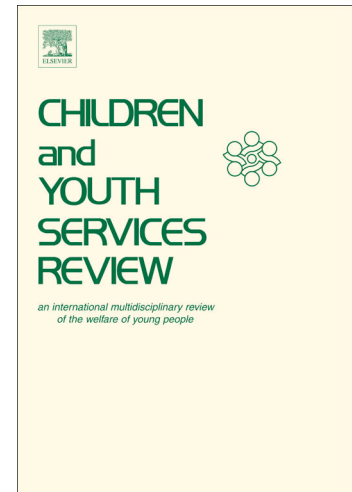
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Employment Outcomes for Individuals with Intellectual and Developmental Disabilities: A

Literature Review

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Literature Review

Abstract

This review examined various studies regarding the employment outcomes for adults with intellectual and developmental disabilities (IDD) within the United States. This review provides a snapshot of the individuals' employment rate, setting, income, quality of life, and well-being. A thorough literature review was conducted to retrieve studies and gather information. The studies were retrieved from Proquest, Ebscohost, Emerald, Google Scholar, and Web of Science. Other databases included Eric and PsycINFO. The inclusion criteria were the studies published after the Americans with Disabilities Act (ADA) of 1990, as well as the studies published in English and limited to the population of the United States. A total of 27 studies were included in the review. The results indicated that the employment settings for individuals with IDD, such as sheltered, supported, or competitive employment, have different impacts on working hours and weekly wages. This paper also established that the employment of individuals with IDD has a positive influence on their self-esteem, self-confidence, career progression, and independence levels, especially in integrated employment. Furthermore, this review demonstrated that the work of such individuals provides a source of income and enables them to contribute to the national economy through taxes. However, the review suggests that there is still a need to improve the employment of such individuals in order to increase the employment outcomes to significant levels. There is a need to mainly focus on enhancing sheltered employment whose results are relatively lower when compared to the other forms of work. Practices and research implications were also discussed.

Keywords: intellectual and developmental disabilities, supported employment, sheltered employment, customized employment, competitive employment, outcomes

Employment Outcomes for Individuals with Intellectual and Developmental Disabilities

1. Introduction

Historically, people with intellectual and developmental disabilities (IDD) were secluded to family homes and private and public establishments (Olney & Kennedy, 2001). However, changes in the late 1960s led to deinstitutionalization and increased financial support for community-based services focused on community-based living for people with IDD. This expansion also characterized the period of special education services, daycare services, and facility-based workshops becoming mainstream (Migliore, Mank, Grossi, & Rogan, 2007). Furthermore, federal legislation with regard to individuals with developmental disabilities (DD) (such as the amendments to the Rehabilitation Act of 1986, Americans with Disabilities Act 1990, and Rehabilitation Act Amendments 1992, the Developmental Disabilities Assistance and Bill of Rights Act of 2000, and the amendments to the Workforce Innovation and Opportunity Act 2014) have emphasized enhanced employment opportunities for individuals with IDD.

These legislative changes and other factors, such as customized training programs, work environment-related factors, technology, facility-based employment, and integrated employment, have enhanced both employment opportunities and outcomes for people with IDD (Test, Mazzotti et al., 2009). Customized training is a type of training that includes the employer's commitment to share expenses with the training provider in order to meet precise skills. Integrated employment is termed as a job held by individuals with the most significant disabilities within a standard workplace setting, where most of the employed individuals do not have disabilities (Riesen, Morgan, & Griffin, 2015). However, the National Longitudinal Transition Study-2 (NLTS2) reported that the participation of individuals with IDD in employment is still low compared to other types of disabilities or those without disabilities. According to this report, a significant percentage of young adults with disabilities, such as

learning disabilities and speech/language disabilities, were likely to secure employment compared to their counterparts with autism, multiple disabilities, or intellectual disabilities (ID). Young adults with IDD who had managed to get employment after leaving school ranged from 63% among those with autism or multiple disabilities. Besides, 67% of young adults with IDD worked full-time; approximately 35 or more hours per week, earning an average of \$10.40 per hour (Newman et al., 2011).

Thirty-nine percent of adults with ID who had left high school for up to eight years were gainfully employed, and it was 37% for individuals with autism, compared to 66% of adults the same age (21 - 25 years old) in the general population. This is an indication that it is necessary to consider what entails a successful transition as incorporated in the current federal policy that mandates states to obtain data on youths with a disability and have been competitively employed (Newman et al., 2011). Hodges and Luken (2000) uphold this perspective by emphasizing that there is an exclusion of individuals with IDD from meaningful community participation, including participation in employment and economic activities, as the result of a lack of opportunities for developing functional skills and competencies. Winsor et al. (2017) argued that individuals with IDD continue to face significant hurdles in acquiring employment as manifested by the high unemployment rates compared with people without disabilities or with a different type of disability. When these individuals acquire employment opportunities, they are segregated to entry-level positions, especially in the service sector, which is commonly characterized by poor wages and few hours (Mank, Cioffi, & Yovanoff, 2003).

In addition, when they do work they are more likely to earn less and work fewer hours. The National Core Indicators' (NCI) survey of individuals with IDD found that 19% of people with IDD were in paid jobs in the community (Hiersteiner, Butterworth, Bershadsky, and Bonardi, 2018). They worked, on average, for 15.6 hours a week and

received a wage of \$7.19 per hour. These findings were similar to the findings from several studies (e.g., Cimera, 2008; Lemaire and Mallik, 2008; Mank, Cioffi, and Yuvanoff, 2000).

As a result of the research conducted in the past three decades, we know about the employment outcomes of adults with disabilities in general. However, we know little about the employment outcomes of adults with IDD in different employment patterns (e.g., sheltered workshops, supported employment, customized employment, and competitive employment). The employment patterns might contribute differently to the employment outcomes of those individuals with IDD.

Thus, the purpose of this paper is to review the employment outcomes for adults with IDD and the outcomes based on employment variables in the U.S. This paper focuses on one question: What are the employment outcomes for people with IDD in the United States?

2. Methodology

The search for the relevant literature was conducted within two weeks. The literature search was limited to the studies focusing on employment outcomes for people with IDD. Several academic databases were used to retrieve the desired studies. The databases visited included Proquest, Ebscohost, Emerald, Google Scholar, and Web of Science. Other databases included Eric and PsycINFO. Several search terms were deployed during the literature search. The search terms comprised of “employment outcomes among people with intellectual and developmental disabilities”, “sheltered employment”, “supported employment”, “customized employment”, and “competitive employment”. Other search statements included “employment outcomes and adults with cerebral palsy”, “employment outcomes and adults with intellectual disability and autism spectrum disorder (ASD)”.

An iterative search strategy was adopted where the search statements were continuously refined to ensure that only relevant studies were retrieved. The researcher screened both titles and abstracts. The next phase was a review of the full text of each article

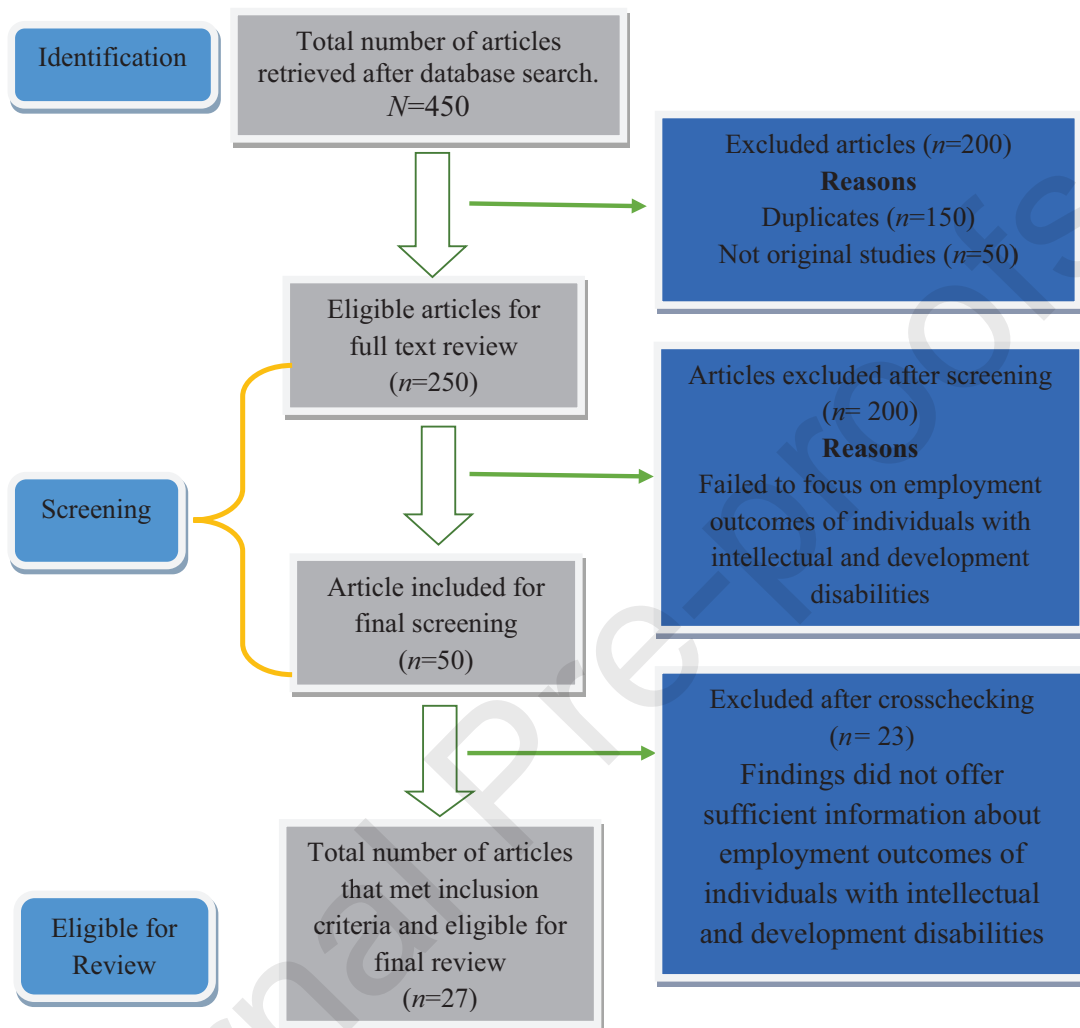
found. The exercise aimed to allow for the removal of duplicate studies and ones that were unrelated to the ultimate objective of the study. The inclusion criteria were studies that were published after the Americans with Disabilities Act (ADA) of 1990, which generated the inclusion for individuals with disabilities into community and employment (DeLeire, 2000).

The researcher provided the results based on that literature in employment outcomes for adults with IDD. The results focused on income in different employment patterns, such as sheltered workshops, supported employment, customized employment, and competitive employment (Smith & Sickles, 2012), while a few studies focused on satisfaction (West, Wehman, & Wehman, 2005), self-esteem and self-confidence (Beyer, Brown, Akandi, & Rapley, 2010), and behaviors (Stephens, Collins, & Dodder, 2005).

3. Results

A total of 450 ($n=450$) studies were identified from the various databases. A total of 150 ($n=150$) were excluded as they were duplicates, while 50 ($n=50$) were excluded because they were not the original publications. The remaining 250 ($n=250$) studies were further screened for eligibility, and 200 ($n=200$) were eliminated, as they did not focus on the employment outcomes of individuals with IDD. The remaining 50 ($n=50$) studies were cross-checked again for eligibility. The researcher achieved this by reading the full texts of the remaining studies to evaluate whether they sufficiently addressed the research topic. In the process, a total of 23 studies were eliminated because their findings did not offer sufficient information about the employment outcomes of individuals with IDD. A summary of the identified studies is presented here below, following the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines as demonstrated in Figure 1.

Figure 1

Literature Review Process

The 27 included studies showed various employment outcomes for individuals with IDD in the U.S. Some researchers have based the employment outcomes for individuals with IDD in employment settings, such as sheltered workshops, supported employment, customized employment, and competitive employment. Other researchers have based the outcomes on employment variables, such as hours worked per week, earnings per hour, employment rates, satisfaction, self-esteem, independence, personal development, and confidence. A summary of the included studies is provided in Table 1 (see Appendix 1).

3.1. Outcomes Based on Employment Settings

The review highlighted different employment settings, including center-based employment, such as sheltered workshops, which provide the individuals with skills training, prevocational services, and placement for group work (Kregel and Dean, 2002). Individuals with IDD also access supported employment, which is characterized by individualized supervision (Migliore et al., 2007). Another type of employment is customized work that matches the strengths, interests, and conditions of an employee to the employer's needs (Inge, 2008). Lastly, competitive employment is where individuals with IDD do not receive support or adult day services but promotes inclusion in typical work environments (West et al., 2005).

3.1.1. Sheltered employment

Individuals with disabilities work and receive services in a segregated setting. Compared to the supported employment outcomes, sheltered employment outcomes are associated with lower wages as compared to other types of employment for people with IDD. Kregel and Dean (2002) studied the long-term earnings in sheltered and supported employment among 877 participants with IDD. The study established that people with IDD working in supported employment are more likely to have worked in competitive or integrated environments as compared to individuals in sheltered employment. The study further established that earnings in sheltered employment were 250% lower when compared to earnings in integrated employment. This aligns to the findings of a study by Cimera, Wehman, West, and Burgess (2012), who obtained data from the Rehabilitation Services Administration's (RSA) 911-database from 2002 to 2006. They established that people in sheltered employment earned lower weekly wages (\$129) as compared to those in supported employment who earned weekly wages of around \$191. Similarly, in a study by Cimera (2011) that examined the outcomes of two groups under sheltered employment and supported employment, it was revealed that supported employees earned significantly more compared

to sheltered employees (\$137.20 versus \$118.55 every week). The supported employees also worked more hours than sheltered employees.

Kregel and Dean (2002) emphasized that sheltered employment facilitated employment in competitive and integrated settings, especially under transitional employment programs that provide training to persons with IDD in segregated settings to assist them in shifting to competitive employment. Kregel and Dean indicated that sheltered employment can be categorized into transitional and extended employment programs. Transitional employment programs are aimed at offering training as well as hands-on experience to persons within segregated environments to enable the skills necessary for the next competitive employment. Conversely, extended employment-based programs are primarily designed to be permanent placements for people that will allow them to utilize their current capabilities to earn a living within a segregated workshop environment.

In regards to the number of hours worked weekly, Blanck, Schartz, and Schartz (2003) examined individuals with IDD who transitioned from sheltered to competitive employment. They found that there was an increase in the number of hours worked by persons in sheltered employment programs from five hours per week to an average of 30 weekly hours in competitive employment. The data was obtained from a total of seven states in America among the participation of 3,000 adults with disabilities. Nevertheless, the study established that the number of hours worked weekly varied across states with some states, such as Oklahoma, recording an average of 25 hours per week.

In their study, Benner, Hilberink, Veenis, van der Slot, and Roebroek. (2017) focused on employment among adults who have cerebral palsy and intellectual impairments for 14 years. The authors analyzed sheltered employment and working hours every week. The outcome of sheltered employment of individuals with cerebral palsy over time was found to be stable. However, it was low compared to the general population. The rate of employment

was low, particularly in adults with intellectual impairments, gross motor function classification system, and bilateral cerebral palsy. The working hours among these individuals was found to decline.

Cimera et al. (2012) carried out a study of individuals with ASD who attended sheltered employment. The aim was to determine whether they had better outcomes than their counterparts who did not receive sheltered related employment services. Nevertheless, the study found no significant differences between the two groups in terms of employment rates. Individuals previously in sheltered workshops were found to receive lower wages per week compared to the group who did not receive sheltered employment (\$191.42 versus \$129.36 versus per week). Similarly, García-Villamizar Ross, and Wehman (2000) did not find differences in employment outcomes between the individuals with ASD who received sheltered employments and those who did not secure sheltered employment.

3.1.2. Supported employment

Individuals with disabilities work in an integrated setting; workers with disabilities are assisted with ongoing support services (Cimera, 2008). The data was obtained from four adult services agencies that offered supported and sheltered employment services. The agencies provided data for each adult who had been enrolled either for supported or sheltered programs between the year 2000 and 2005. Supported employment has positive outcomes and a positive impact on the lives of individuals with IDD.

A study done by Boeltzig, Timmons, and Butterworth (2008) established that the engagement of people with DD in supported employment enhanced their chances of acquiring competitive employment, and increased their working hours. The study concluded that supported employment enhanced the person's capability of earning higher incomes due to increased career achievements. A similar study by Mank et al. (2000) found that training co-workers with IDD positively impacts wages and integration in supported employment. The

data was provided by 13 agencies between the year 1995 and 1996. Data collected in 1995 included the information from 462 adults from eight states, including California, Colorado, Missouri, New York, Oregon, Pennsylvania, Virginia, and Washington. Data obtained in 1996 included 538 individual with disabilities.

According to Cimera et al. (2012), individuals with ASD achieved better employment outcomes if they did not take part in sheltered workshops before enrolling in supported employment. Similarly, García-Villamizar and Hughes (2007) revealed that supported employment among individuals with ASD has positive impacts in terms of quality of life and autistic symptoms. A retrospective study by Wehman et al. (2012) revealed that supported employment had positive outcomes among individuals with ASD. This was attributed to the fact that these individuals were later assisted in competitive employment. Similarly, Baker-Ericzén et al. (2018) indicated that supported employment among adults with ASD was associated with increased work hours per week; that is, from six to 20 hours per week with each person earning between \$10 and \$18 per hour. Furthermore, Gilmore, Schuster, Ciulla Timmons, and Butterworth (2000) revealed that supported employment is associated with low earnings and working hours among individuals with cerebral palsy compared to unsupported employment. People in supported employment earned \$107 per week, compared to \$169 per week earned by their unsupported counterparts.

3.1.3. Customized employment

This type of employment focuses on the individual's choices, abilities, needs, skills, strengths, and is also based on some essential requirements of the employer. It provides the needed accommodations and supports that assist workers with disabilities to succeed in their jobs (Inge, 2008). In customized employment, people are positioned in a competitive work environment and get the support that meets their needs (Ohtake and Chadsey 1999).

Research showed that individuals with disabilities in customized employment worked significantly more than individuals in sheltered workshops. Conley (2003) aimed to identify the vocational accomplishments in terms of hourly earnings as well as hours worked of the adults receiving professional services facilitated by the Maryland Developmental Disabilities Administration. Compared to sheltered employment, individuals in customized employment work 30% more hours per week and earn three times more. Ohtake and Chadsey (1999) conducted their study in the Midwestern United States, where the two agencies that offered integrated employment took part. The study revealed that people with disabilities get some social benefits from customized work, such as more friendships and inclusion in their communities.

Luecking and Luecking (2006) examined the employment outcomes of 135 respondents in a customized employment model. The age of the participants ranged from 16 to 56 years. Fifty-four percent of the participants had ID and the remaining had autism, psychiatric, physical, or learning disabilities. A total of 71 individuals were able to obtain customized employment and earned an average hourly wage of \$6.65, and the hours worked per week was 19 hours. Brooke et al. (2018) examined the employment outcomes realized by hours worked, benefits acquired by employees, and the type of sector in customized employment for individuals with ASD. The study revealed that individuals with ASD in customized employments earned wages ranging from \$7.25 to \$12.50 per hour. Hours worked on weekly ranged from 4-40 and the mean employment tenure was 48.5 months.

3.1.4. Competitive employment

Individuals with disabilities work either full time or part time, with commensurate benefits with co-workers and wages at or above minimum wage (Siperstein, Parker, and Drascher, 2013). Several researchers have studied competitive employment outcomes for people with IDD in integrated settings. In their study, West et al. (2005) reported outcomes of

competitive employment in Los Angeles and Miami. The authors argued that competitive employment promotes workplace inclusion among individuals with ID. Consequently, the factors in a competitive work environment, such as interpersonal relationships with other employees, encourage job success, satisfaction, and the quality of work-life for those individuals. Parmenter (2011) upholds this point of view and emphasized that those individuals in competitive employment enjoy a better quality of life as compared to those in sheltered workshops. Test, Mazzotti et al., (2009) indicated that despite being far from full integration in all forms of employment, individuals with IDD in any employment program obtain a higher quality of life as compared to their unemployed counterparts.

Competitive employment in integrated environments provides higher earnings and more working hours as compared to facility-based programs (Botuck, Levy, and Rimmerman, 1998). A study by Cimera (2008) established that people in integrated employment gained an average of \$200 per week. Nevertheless, a study conducted by Hiersteiner et al. (2018) in the year 2016 across different states of the United States found out that, individuals with IDD generally work 13 hours weekly, only earning \$113 a week.

Wehman et al. (2014) presented findings of a randomized clinical trial focusing on the employment outcomes of individuals with ASD. The results revealed that employment outcomes in the treatment group were higher when compared to the control group in terms of wage income. Twenty-one individuals in the treatment group were found to have acquired employment, compared to 16 from the control group. A study by Huang et al. (2013) revealed that individuals with cerebral palsy who were able to secure competitive employment earned a high income. Nevertheless, individuals who were receiving disability benefits were less likely to be competitively employed.

3.2. *Outcomes Based on Employment Variables*

The review highlighted several variables about measuring the employment outcomes of individuals with IDD in the United States, such as employment rate, earning per hour, self-development, satisfaction, self-esteem, independence, and confidence.

3.2.1. Employment rate and economic benefits

The employment rates among individuals with IDD vary depending on the level of disability, age, and education (Schneider, 2011). Schneider argued that only 15% of individuals with ID and 24% of those with DD were actively engaged in annual work in 2005. A study by Yamaki and Fujiura (2002) stated that compared to the general population, only a minimum 27% of individuals with IDD were employed at any given month as compared to 75% of individuals in the general population. Olney and Kennedy (2001) established that more than 50% of the employed individuals with IDD are in non-competitive employment such as segregated or sheltered employment while a minimum 4% are in vocational services.

The outcomes of employment of individuals with DD were further highlighted by a study conducted by Boeltzig et al., (2008) illuminating the economic benefits of the different forms of employment to such persons as providing an avenue for access to wages above the federal minimum in supported employment. Boeltzig, Timmons, and Butterworth (2009) revealed that while adults with DD in supported employment earn meaningful wages, women work fewer hours and earn less money. Nevertheless, Parmenter (2011) emphasized that employing individuals with IDD provides them with welfare benefits while also providing economic benefits to the national economy through the monthly \$251 of returned average net benefit to taxpayers per employee in supported programs.

Integrated employment is associated with both voluntary and involuntary turnover among individuals with IDD, as indicated by Lemaire and Malik (2008). Lemaire and Malik argued that 43% of persons with IDD working in integrated settings are placed in temporary

positions while 13.5% are involuntarily terminated and 12.5% voluntarily leave integrated employment. Individuals with IDD are also increasingly entering the competitive job market. A study by Siperstein et al. (2013) investigated the employment of adults with ID, found that 18% of individuals with ID are engaged in competitive employment, and most of them (62%) kept their jobs for three years or more. Furthermore, persons with IDD are increasingly engaged in self-employment activities (Yamamoto, Unruh, & Bullis, 2011).

3.2.2. *Outcomes related to self-esteem, self-development, self-confidence, and independence*

The employment of individuals with IDD is, to some extent, positively correlated with enhanced self-esteem and self-confidence. Findings from a study done by Beyer et al. (2010) indicated that people with IDD working in integrated settings acquired a positive self-image and posited that employment eliminated the feeling of being disabled. Kober and Eggleton (2005) emphasized the enhanced self-image and empowerment of individuals with IDD through employment. The study established that although the impacts of sheltered employment on independence and empowerment of individuals with IDD were not satisfactory, as indicated by a percentage scale of less than 70%, this form of employment positively impacted the levels of independence and empowerment among such persons. Another study by Beyer et al. (2010) established that employed individuals with IDD enjoyed a certain measure of material well-being, productivity, autonomy, and emotional well-being. However, the financial independence derived by such people from the various forms of employment is not positively related with self-independence, as such individuals require the engagement of family members to carry out daily living activities (Yamaki & Fujiura, 2002). Nevertheless, certain forms of employment, such as integrated and competitive employment, enhance self-independence during work hours (West et al., 2005).

Moreover, studies have shown that employed people with IDD, especially integrated employment, significantly enhanced the career development of those individuals by

providing training opportunities and natural support structures, such as integration with employees without disabilities (West et al., 2005). Workplace culture further enhances the professional development for those with IDD. In supported employment, such people are provided with individualized supervision, engaged in teamwork, establish multi-context relationships, schedule and design jobs based on personal strengths, and cross-training of employees on various tasks (Parmenter, 2011). A summary of the results of the included studies can be found in Table 1.

4. Discussion and Implications for Practice and Research

The employment level of people with IDD has dramatically improved over the recent years. This is evidenced by the development of different forms of employment for individuals with IDD, such as sheltered employment, which employs 50% of people with IDD, while integrated employment accommodates 26% of such persons (Metzel, Boeltzig, Butterworth, Sulewski, & Gilmore, 2007). While the employment levels of such people are not comparable to employment levels in the general population of the United States, employment provides such individuals with various benefits, including economic benefits and enhanced career prospects, among many others (Olney & Kennedy, 2001). There is an intricate relationship between the type of employment and the accrued benefits. Some types of employment, such as supported employment and competitive employment, are associated with more working hours per week and higher wages as compared to other forms of employment, such as sheltered employment (Baker-Ericzén et al., 2018; Botuck et al., 1998; Hiersteiner et al., 2018).

Different forms of employment significantly enhance the quality of life for workers with IDD. Supported employment serves as the foundation of career progression among people with IDD by enhancing their chances of entering into competitive employment (Boeltzig et al., 2008; Wehman et al., 2012). The training and natural supports provided in

supported employment enable those with IDD to deal with the different challenges experienced in competitive employment (West et al., 2005). Competitive employment further enhances career progression by providing those with IDD with opportunities for working in typical working environments (Siperstein et al., 2013). Under competitive employment, the management, colleagues, and supervisors to people with IDD play a significant role in enhancing their capabilities and career progression outcomes of such people through the provision of cross-training opportunities, individualized supervision, integration into the general employee population through multi-context relationships, and the provisions of jobs that are especially designed with the persons' strengths in mind (Parmenter, 2011).

Although all the discussed forms of employment significantly enhance the quality of life among individuals with IDD, the influence differs from one type of employment to the other (Stephens et al., 2005). Sheltered employment improves the quality of such people when compared to the quality of life of those who have IDD and are unemployed (Parmenter, 2011). This is attributed to the financial benefits, contributions to the general economy, and sense of personal importance derived from sheltered employment by such people. However, the influence of sheltered employment on quality of life when compared to other forms of employment is far lower (Cimera et al., 2012; Kregel & Dean, 2002). Both supported and competitive employment types have significant positive impacts on social integration and inclusion of people with IDD with the general population as they interact in typical job environments. This significantly affects the quality of life of such people and enhances their social skills through the establishment of crucial interpersonal relationships (West et al., 2005). This is affirmed by the findings, which indicate that people with IDD working in integrated settings have a positive self-image (Beyer et al., 2010; Kober & Eggleton, 2005), are significantly empowered, self-confident, and enjoy certain levels of autonomy. Integrated

employment also impacts the general health in people with IDD as indicated by impacts such as better health, better emotional well-being, and higher productivity reported in some forms of employment such as supported employments (Beyer et al., 2010).

The different forms of employment have also significantly enhanced the independence of those with IDD (Beyer et al., 2010; Kober and Eggleton, 2005). This independence, especially in integrated and competitive employment, is founded on the training provided within the mentioned forms of employment and the opportunities for creating social relationships with people without disabilities (West et al., 2005). The financial benefits accrued from the various types of employment through weekly wages and the significant contribution to the national economy informs the independence of people with IDD by enhancing their self-efficacy levels, emotional well-being, autonomy, self-esteem, self-confidence (Beyer et al., 2010). However, sheltered employment has a minimal influence on independence and empowerment of individuals with IDD (Kober & Eggleton, 2005). This is attributed to the lack of integration with people without disabilities in the inclusive environment. Engagement with individuals without disabilities through integrated, supported, and competitive programs provide those with IDD the opportunities for acquiring social skills and both formal and informal training from co-workers through teamwork and established interpersonal relationships (West et al., 2005).

From the findings it is evident that individuals with IDD enjoy more benefits in integrated employment, such as supported and competitive employment as compared to sheltered employment (Botuckn et al., 1998). Moreover, sheltered employment excludes individuals with IDD from the competitive world (Migliore et al., 2007). However, sheltered employment serves as a strong foundation for providing job skills that assist such individuals in moving into a mainstream environment within integrated and competitive employment. Therefore, there is the need to establish an effective "sheltered to competitive" employment

channel for enhancing the shift from sheltered employment to competitive or integrated employment. This is especially important for the youth who are primarily (57.1%) engaged in sheltered and non-work activities, with a minimum of 14.2% involved in integrated employment (Simonsen & Neubert, 2013). Unfortunately, only 10% of individuals with IDD transitioned from sheltered workshops to supported employment in 1995, and that percentage decreased to 2% by 2005 (Migliore & Butterworth, 2008). Emphasis should also be placed on supported employment and individualized coaching, which is generally preferred by individuals with IDD in sheltered workshops (Migliore et al., 2007).

The findings also demonstrate that competitive employment maximizes the benefits derived by individuals with IDD from employment (Yamamoto et al, 2011). Furthermore, the results suggest that providing co-workers with diversity and disability training enhances the social inclusion of individuals with IDD in competitive work environments (Parmenter, 2011; West et al., 2005). Hence, there is a need for further research regarding the influence of co-workers on the employment outcomes of individuals with IDD. The U.S. federal government should also adopt legislative policies requiring employers of such individuals in competitive work environments to provide employees with diversity and disability training as a means of reinforcing the quality of life and social inclusion of individuals with IDD.

The weekly earnings of individuals with IDD are relatively lower, and the earnings are primarily lower in sheltered employment (Kregel & Dean, 2002). This results in the need for research regarding the means of improving the earnings for individuals with IDD. There is also a need for a policy framework to guide the increment of weekly earnings by such individuals, which would impact their financial independence and enhance their self-esteem and self-worth (Beyer et al., 2010).

The existing literature has yet to focus on the issue of work participation among adults with IDD in-depth, and thus the wishes and opinions of these individuals are ignored. There

is also a limited focus on what characteristics of employment of those individuals in different work settings would enhance the quality of life. There are various limitations to the current literature review. Some of the included studies employed a broad range of measures for employment outcomes, which might have limitations as direct measures of employment outcomes among individuals with IDD. In some instances, the sample sizes of the included studies were small, limiting the generalization of the findings. Some of the included studies were published as late as the year 2000. Various elements might have changed since then, hence failing to provide up-to-date information regarding the topic. Studies included in the review were carried out in the United States, meaning that the findings could not be applicable to other nations.

A literature review was preferred over the systematic and scoping review. A literature review was easy to conduct through a somewhat random process of searching a few databases. It was further possible for the researcher to introduce the context and current information concerning the topic. The approach also enabled the researcher to cover several aspects of the topic.

There is also a need to investigate the possibilities of self-employment as an employment avenue for individuals with IDD. Researchers should further examine the various means through which the government, through a policy framework, can promote self-employment initiatives by individuals with IDD. Also, researchers should consider the possible means for developing self-determination, customized career planning, and self-direction, especially amongst the youth with IDD, as a means of enhancing engagement in nonconventional employment (Wehmeyer et al., 2009).

Researchers have established that individuals with IDD have remained segregated at low-entry-level employment opportunities (Mank et al., 2003). Although their disabilities may limit their career progression, researchers should examine possible means of enhancing

career progression among individuals with IDD to improve their relevance in the service and knowledge economy.

Regarding the adults with IDD, researchers should emphasize the role of school-based staff and family members in influencing and guiding the employment decisions of such people (Lindstrom, Doren, Metheny, Johnson, & Zane, 2007). Implementing secondary transition services for students with IDD using evidence-based practices can help reduce the gaps (Test, Fowler et al., 2009). Emphasis should also be placed on understanding the personal preferences of the youth with IDD and matching those preferences to employer needs through customized employment (Winsor et al., 2017). Timmons, Hall, Winsor, Wolfe, and Bose (2011) emphasized that comprehending such persuasive elements, like the significant concerns of job developers, individual preferences, and the relationship between these concerns, can be utilized in optimizing employment opportunities and outcomes for people with IDD.

Individuals with IDD should also be provided with opportunities for developing functional skills and competencies (Hodges & Luken, 2000). The government should maintain a balance in funding for both integrated and sheltered employment programs to ensure the holistic inclusion of individuals with IDD in supported and competitive employment opportunities (Timmons, Cohen, & Fesko, 2004). Applying such implications may enhance employment outcomes for people with IDD in integrated settings.

5. Conclusion

This paper found that different models of employment for individuals with IDD in various settings (such as sheltered, supported, and competitive employment) have a direct influence over how many hours they work per week and how much they earn per hour. This review also indicated that the employment of people with IDD has a positive impact on their self-respect, self-assurance, work advancement, and level of autonomy, especially in non-

segregated work environments. Additionally, the results pointed out that the employment of such individuals with disabilities offers a stable financial source and benefits themselves and their community economy in different ways. However, there is still a need to increase the employment of people with disabilities in order to improve the employment rate, income, quality of life, and the environment of the workplace. There is a need to increase the outcomes of sheltered employment whose individuals are lower as compared to supported and competitive employment. There is also a need for future research to focus on the characteristics of people with IDD that affect employment outcomes.

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Appendices

Appendix 1

Table 1. Summary of results of included studies.

Table 1

Summary of results of included studies

Author	Title	The Purpose	Design/Data Analysis Method	Findings	Suggestion
Baker-Ericzén et al., (2018).	Development of the Supported Employment, Comprehensive Cognitive Enhancement, and Social Skills program for adults on the autism spectrum: Results of initial study.	To investigate the feasibility, acceptability, and initial estimates of outcomes for the newly developed Supported Employment, Comprehensive Cognitive Enhancement, and Social Skills (SUCCESS) intervention, a manualized curriculum to enhance both cognitive and social skill development in young adults with autism in a community vocational training setting.	An experimental study	Supported employment among adults with autism spectrum disorder was associated with increased working hours per week, that is, from six (6) to 20 hours per week with each person earning between \$10 and \$18 per hour.	A larger study should be carried out to fully test its efficacy in improving neurocognitive as well as social cognitive skills, and vocational outcomes.
Benner et al., (2017)	Course of employment in adults with cerebral palsy over a 14-year period	To examine the course of employment in adults with cerebral palsy (CP) over 14 years, and to identify subgroups at risk for unemployment.	A prospective cohort study	Employment outcomes of sheltered employment of individuals with cerebral palsy over time was found to be stable	In future longitudinal research can be conducted to study different age cohorts, and conducting follow-up assessments at shorter intervals

Beyer et al., (2010)	A comparison of quality of life outcomes for people with intellectual disabilities in supported employment, day services and employment enterprise	To compare subjective and objective quality of life and quality of work environment for people with ID ¹ in supported employment, employment enterprise and day services with non-disabled employees	A between subjects group comparison design using reliability analysis for Comprehensive Quality of Life Scale and Work Environment Scale	Supported employees had higher objective quality of life as compared to employment enterprise and day services	There is need for more research on impacts of different forms of employment for persons with ID ¹ on quality of life to control key variables among individuals
Blanck et al., (2003)	Labor force participation and income of individuals with disabilities in sheltered and competitive employment: Cross sectional and longitudinal analyses of seven states during the 1980s and 1990s	To examine labor force participation and employment levels in sheltered and competitive employment	Cross sectional and longitudinal analyses	Sheltered employment prepared the individuals for integrated employment, leading to substantial improvements in income and high levels of daily skills	Researchers to examine a range of individual outcomes in addition to traditional measures such employment types and income levels including perceived economic self sufficiency
Boeltzig et al., (2008)	Entering work: employment outcomes of people with developmental disabilities	To examine employment outcomes for persons with DD ² who entered integrated employment (individual or group supported jobs)	Analyzing the data of the National Survey of Community Rehabilitation Providers that collected between 2004 and 2005	Most of persons with DD ² worked part-time in individual jobs, earned above federal minimum wage; and received paid time off. Persons in individual employment had better outcomes than persons in group supported employment	There is a need to be sure that persons with DD ² do not be limited by the existing job availability and to expand employment opportunities for those people

Boeltzig et al., (2009)	Gender differences in employment outcomes of individuals with developmental disabilities	To investigate employment outcomes of men and women with DD ² who entered individual employment	Analyzing the data of the National Survey of Community Rehabilitation Providers that collected between 2004 and 2005	Men and women with DD ² are earning meaningful wages, however, women with DD ² are working fewer hours in lower-wage jobs and earn less money	Outcome findings suggest consistency with previous research
Botuck and Rimmerman (1998)	Post-placement outcomes in competitive employment: How do urban young adults with developmental disabilities fare over Time?	To investigate job retention and changes in wages, hours, and benefits in competitive employment over a 24-month period for persons with DD ²	Quantitative / Survey	28% of the individuals retained their jobs for 12 to 24 months, and 72% changed jobs during the 24-month period	There is a need to advocate for programs that respond to complex individual needs
Cimera (2011)	Does being in sheltered workshops improve the employment outcomes of supported employees with intellectual disabilities	To examine the vocational outcomes of two cohorts of supported employees	Longitudinal study	Supported employees earned significantly higher compared to sheltered employees (\$137.20 versus \$118.55 every week).	Additional research is needed to determine whether the age of persons and other variables influences the outcomes achieved by supported employees who participated in sheltered workshops.
Cimera et al., (2012)	Do sheltered workshops enhance employment outcomes for adults with autism spectrum disorder	To compare the outcomes of 215 adults with ASD who participated in sheltered workshops prior to applying for vocational rehabilitation services with 215 adults with ASD who did not take part in sheltered workshops.	Randomized controlled trial.	Individuals in sheltered employment earned lower weekly wages (\$129) as compared to persons in supported employment who earned weekly wages around \$191.	Persons with ASD realize better vocational outcomes if they are not involved in sheltered workshops before enrolling in supported employment.

Conroy et al., (2010)	Microenterprise options for people with intellectual and developmental disabilities: An outcome evaluation	To measure changes in the qualities and quantities of work life for individuals with IDD ³ who engaged in microenterprise	Quantitative / scale score, to measure changes on a 100-point scale	Participants increased the quality of working life socially and statistically significantly by 26 points on a 100-point scale	Microenterprise can be alternative employment options for adults with IDD ³
García Villamisar and Hughes (2007)	Supported employment improves cognitive performance in adults with autism	To investigate examine the effects of a supported employment program on measures of executive functions for 44 adults with autism.	Prospective cohort study	Supported employment among individuals ASD was found to have positive impacts in terms of quality of life and autistic symptoms	There is need to t way to determine the possible impact of work on non-vocational results by analyzing a pattern of results over a series of studies.
García-Villamisar et al., (2000)	Clinical differential analysis of persons with autism in a work setting: a follow-up study	To investigate the differences in clinical symptomatology between two groups of adults with autism who participated in two modalities of employment: supported versus sheltered.	Quasi-experimental study	There is differences in employment outcomes between individuals with autism spectrum disorder who received sheltered employments and those who did not secure sheltered employment	Additional comparative work is needed in this area of study.
Gilmore et al., (2000)	An analysis of trends for people with MR, cerebral palsy, and epilepsy receiving services from state VR agencies: Ten years of progress	To determine trends in employment outcomes for persons with cerebral palsy, epilepsy, and MR for a period of 10 years.	Longitudinal study	Supported employment is associated with low earnings and working hours among individuals with cerebral palsy compared to not supported employment.	More change is needed to make sure that supported employment remains a desirable service option compared to noncompetitive employment, for individuals with cerebral palsy.
Huang et al., (2013)	Vocational rehabilitation services and employment outcomes for adults with cerebral palsy in the United States.	To investigate the association between vocational rehabilitation services offered and work outcomes among people with cerebral palsy (CP).	Longitudinal study	It was revealed that individuals with cerebral palsy who were able to secure competitive employment earned a high income	There is need for researchers to identify factors that contribute to successful employment for persons with CP.

Kober and Eggleton (2005)	The effects of different types of employment on quality of life	To measure quality of life for adults with ID ¹ in different forms of employment	Questionnaire / Correlation analysis	Individuals in competitive employment have higher quality of life scores	Need for governmental programs for improving the quality of life for individuals in sheltered programs
Kregel and Dean (2002)	Sheltered vs. supported employment: A direct comparison of long-term earnings outcomes for individuals with cognitive disabilities	To assess employment outcomes for people with ID ¹ who have been served by a vocational rehabilitation agency in one state	Comprehensive analysis	Individuals in supported employment earn more than those in sheltered employment	-Future research to focus on impact of vocational rehabilitation on females with ID ¹
Luecking and Luecking (2006)	A descriptive study of customizing the employment process for job seekers with significant disabilities		Descriptive study	Under a customized employment model individuals with ID managed to obtain customized employment and earned an average hourly wage of \$6.65 and hours worked per week was 19 hours.	Need for further studies to ascertain the impact of customized employment model among individuals with ID.
Metzel et al., (2007)	Achieving community membership through community rehabilitation provider services: Are we there yet?	To collect data about the characteristics and services that provide employment to individuals with disabilities, with focus on people with IDD ³	Descriptive statistics	Persons with IDD ³ are likely to be supported in facility based work (41%), non work services (33%) and integrated employment (26%), however wide integration of such persons has not yet been achieved	Need to enhance integration as a means of enhancing quality of life among persons with IDD ³
Simonsen and Neubert (2013)	Transitioning youth with intellectual and other developmental disabilities: Predicting community employment opportunities	To investigate the community employment outcomes of adults with IDD ³ 18 months after graduation	-Descriptive statistics -Multinomial logistic regression	Most of transitioning youth (57%) were engaged in sheltered non-work activities, with some (28.7%) engaging in community work while a minimal (14.2%) were in integrated employment	Need to reexamine aspects in transition planning, inclusive of family engagement and work experience programs

Stancliffe and Lakin (1999)	A longitudinal comparison of day program services and outcomes of people who left institutions and those who stayed	To examine the different types of work and programs that the participants attend and the factors of those differences	Quantitate / comparing two groups	Only 13% of movers were in integrated employment while stayers earned more money	Providing more integrated employment
Stephens et al., (2005)	A longitudinal study of employment and skill acquisition among individuals with developmental disabilities	To examine adaptive skills and challenging behaviors at two periods of times through different types of employment (competitive, supported, sheltered, and none)	A quantitative study	Increasing of adaptive skills for employed while decreasing for people moved from employment. The same changes in adaptive skills were found by type of employment (i.e., competitive employment was accompanied by more adaptive skills)	Employment especially competitive, may be a source of promoting adaptive skills for people with DD ² and, thus, fantastic addition to the success of community living
Wehman et al., (2014)	Competitive employment for youth with autism spectrum disorders: Early results from a randomized clinical trial	To examine the effectiveness of obtaining employment for students with ASD	Randomized controlled trial	Findings showed that employment outcomes in the treatment group were higher, compared to the control group in terms of wage incomes	Future research need to explore the efficacy of competitive employment model for individuals with ASD.
Wehman et al., (2012)	Supported employment for young adults with autism spectrum disorder: Preliminary data.	To examine the effects of supported employment in securing as well as maintaining competitive employment for individuals with autism spectrum disorder	A prospective study	Supported employment had positive outcome among individuals with ASD; later translated to competitive employment.	Though the outcomes of the preliminary study were positive in terms of employment outcomes, there is need for further research to be conducted.

West et al., (2005)	Competitive employment outcomes for persons with intellectual and developmental disabilities: The national impact of the best buddies jobs program	To describe outcomes of two programs that established to promote social and employment opportunities for individuals IDD ³	-Case Study -Descriptive analysis	The study associated employment programs under competitive employment with long-term orientation, better wages, enhanced integration and employer and customer satisfaction. This enhanced quality of life among persons with IDD ³	-Promote co-worker involvement at work and outside work -Expand employment programs under competitive employment such as Best Buddies
Yamaki and Fujiura (2002)	Employment and income status for adults with developmental disabilities living in the community	To examine employment and income status for persons with DD ²	Secondary analysis of 1990 and 1991 Survey of Income and program Participation	Few persons with DD ² have minimal economic resources with most of them being unemployed	The researcher call for greater attention to the economic well-being of persons with DD ²

¹ Intellectual disability

² Developmental disability

³ Intellectual and developmental disabilities

Author Statement

This study was designed and written by Almalky, Hussain A., as the principal investigator of this research paper. He planned and conducted the search, analysis, and writing.

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Employment Outcomes for Individuals with Intellectual and Developmental Disabilities: A

Literature Review

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Highlights

- This review examined various studies regarding the employment outcomes for adults with intellectual and developmental disabilities within the United States.
- This review provides a snapshot of the individuals' employment rate, setting, income, quality of life, and well-being.
- The results indicated that the employment settings for individuals with intellectual and developmental disabilities, such as sheltered, supported, or competitive employment, have different impacts on working hours and weekly wages.
- This review demonstrated that the work of such individuals provides a source of income and enables them to contribute to the national economy through taxes.
- The review suggests that there is still a need to improve the employment of such individuals in order to increase the employment outcomes to significant levels.