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A Follow-up of a Modified Brief Cognitive Behavioral Therapy and Motivational Interviewing Intervention Efficacy in Tandem to Improve Employment Motivation for Persons with Intellectual Disability

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*This study aimed to investigate the **effectiveness of a modified brief cognitive behavior therapy (CBT) and motivational interviewing (MI) interventions in tandem in improving employment seeking of persons with ID** using a randomized control trial. Data from 52 individuals with ID who were clients of an independent vocational-rehabilitation services provider (females = 42%; males = 58%), ranging in age from 19 to 47, were randomly assigned to an intervention group (n = 26) and a control group (n = 26). The intervention group received a modified brief CBT and MI in tandem (twice a week for 5 weeks) and an additional follow-up reduced session (once only for five week) and the control group received a fact sheet information on career-dysfunctional thoughts and lack of motivation to obtain employment. Multivariate approach to repeated measure analysis results indicated that the intervention group reported higher motivation in seeking employment than the control at 4.5 week and at an additional 5 weeks. Practitioners may want to consider a modified brief CBT and MI in tandem with additional reduced follow-up sessions (given the resources limitations of persons with ID) when assisting persons with ID needing motivation to seek employment.*

In the United States, there are over 60 million persons with disabilities, and seven to eight million are diagnosed with some form of intellectual disability (ID)—a disorder that can include both cognitive and adaptive functioning deficits in conceptual, social, and practical domains (Chapman & Wu, 2012; DSM 5; Okoro et al., 2016). Persons with intellectual disabilities face both personal (e.g., lack of motivation) and external (e.g., employer bias) barriers (Adams et al., 2019; Kocman et al., 2018; Nevala et al., 2019; Trembath et al., 2010), making the employment rate of persons with ID very low—ranging from 18 percent to 23 percent in the United States (Adams et al., 2019). Yet the benefits of employment include economic and social benefits, such as income and access to community and healthcare resources, that would improve the quality of life of people with ID and assist them with issues they often face, such as substance-use and psychiatric-related health issues (Kim & Cho, 2017; Maulik et al., 2011; Pete et al., 2015).

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Motivation to seek employment is a paramount factor in employment prospects. However, persons with ID often lack motivation to gain employment (Rose et al., 2010). Because of the cognitive limitations of persons with ID, traditional interventions to address employment barriers (such as lack of motivation) may be less suited for this population, and such persons generally lack

resources, including the resources to pay for professional services. While Medicaid does fund services for persons with ID, barriers to accessing the funds exist, including limited Medicaid funds and the lack of experience persons with ID (and their families) have in working with Medicaid (Barth et al., 2020). Accordingly, rigorous, effective, and innovative interventions are needed. Cognitive behavioral therapy (CBT) (Diallo et al., 2015, 2021; Cully, 2014; Mignogna et al., 2014) and motivational interviewing (MI) (Battaglia et al., 2016; Interian et al., 2010) show promise, yet studies using a true randomized-control follow-up design while addressing cognitive-limitation and resources issues are lacking. Therefore, this study aims to investigate the effect of the use of modified brief CBT and MI in tandem on increasing motivation to seek employment, using a true randomization follow-up design with reduced sessions.

A lack of motivation can limit employment prospects for persons with ID. The self-efficacy theory is one way to explain motivation. Self-efficacy theory, which is central to the field of motivation, examines the beliefs a person has regarding his or her capacity to perform a specific task or reach a specific goal (Bandura, 1997; Waghorn et al., 2015). Past experience is one source of self-efficacy (Bandura, 1997; Waghorn et al., 2015); unsuccessful past experience in task performance can lead to low confidence in future performance, thus negatively affecting motivation (Schunk & DiBenedetto, 2020). Persons with ID generally have low self-efficacy, which may be due partly to negative past employment experiences (Lent et al., 2014). A lack of self-efficacy, common among persons with ID, can discourage this population from taking steps toward seeking employment (Abdollahi et al., 2015; Waghorn et al., 2015). **Also, persons with ID are vulnerable to career-dysfunctional thoughts,** which are assumptions, attitudes, behaviors, and beliefs about careers that limit decision-making skills and effective engagement in the career decision-making process (Lustig & Xu, 2018). **Career-dysfunctional thoughts can lead to premature employment choices (Barrera, 2017; Osborn et al., 2014), which are likely to reduce employment motivation.** As some (Duffy & Dik, 2009; Lustig & Xu, 2018) have noted, persons with disabilities, including persons with ID, may face restrictions or barriers and may verbalize negative or dysfunctional career thoughts that can hinder career decisions, leading to premature employment choices or employment mismatches. Accordingly, decisions are generally made by others for them (Pathare & Shields, 2012; SAMHSA, 2020; Werner, 2012), thus negating their free and independent choice, which is crucial for self-determination, empowerment, employment tenure, and employment satisfaction (Banach et al., 2011; Chason et al., 2013; Flannery, 2017), all of which can affect employment motivation. Overcoming lack of motivation and career-dysfunctional thoughts becomes a crucial factor in improving employment prospects for persons with ID.

Trying to achieve motivation to seek employment without overcoming career-dysfunctional thoughts, like trying to eliminate such thoughts without encouraging motivation, is futile for persons with ID; both being motivated to seek employment and making appropriate employment decisions are necessary for a person to gain **meaningful employment**. Making effective choices independently (Agran et al., 2000; Wehmeyer & Schwartz, 1998) can help motivate persons with ID to seek employment-related actions (Dam & Menting, 2012) as they pursue their employment goals. Motivation intervention in positive behavioral change can further strengthen motivation to seek employment (Lam, 2010; Dam & Menting, 2012).

Dysfunctional thoughts and lack of motivation in employment activities can be effectively addressed by CBT and MI, decreasing career-dysfunctional thoughts (Kukla et al., 2019; Lecomte et al., 2020) and increasing motivation (Lam et al., 2010; Lim et al., 2019; Segatto et al., 2011). However, given the cognitive limitations of persons with ID (Pathare & Shields, 2012; SAMHSA, 2020; Werner, 2012) and other factors, modifications of the CBT and MI approach, though warranted, have been lacking. What follows are sections on CBT and MI, including their use in combination and their modification for persons with ID.

Cognitive Behavioral Therapy

CBT and MI are evidence-based interventions that have shown promise in addressing dysfunctional thoughts and increasing motivation, respectively (Duffy & Dik, 2009; Lam, 2010). CBT, based on basic principles from behavioral and cognitive psychology, focuses on challenging and changing unhelpful cognitive distortions and dysfunctional thoughts, beliefs, attitudes, and behaviors (Chand et al., 2022; de Jonge et al., 2019). CBT has been shown to reduce or eliminate dysfunctional thoughts, including career-dysfunctional thoughts. Some studies have showed the potential of CBT to reduce dysfunctional thoughts in people in general (Geschwind et al., 2020; McEvoy & Nathan, 2007) and in persons with ID (Lindsay et al., 2015; Roberts & Kwan, 2018; Willner et al., 2013); others have shown the potential of CBT to reduce or eliminate career-dysfunctional thoughts in people in general and in persons with ID (Bullock-Yowell et al., 2011; Lecomte et al., 2020; Proudfoot et al., 2009).

Modified CBT (Diallo et al., 2013, 2015; Lindsay et al., 2015; McFarlane & Lynggaard, 2009) has been used to address the cognitive limitations of persons with ID. In a case study (Diallo et al., 2015) using modified CBT, depression due to dysfunctional thoughts (e.g., "People will think I am too slow to complete a large task") was significantly reduced. This modified CBT approach is likely to reduce or eliminate dysfunctional thoughts related to employment or careers. **(See "The sources of the data" below, and Diallo et al., 2013, 2015.)** Like traditional CBT, the modified CBT approach focuses on disputing dysfunctional thoughts and replacing them with functional thoughts.

Motivational Interviewing

MI is a communicative, client-centered approach that uses change talk, in which an individual is encouraged to voice the reason for change, to help the individual improve in employment and related behaviors (Miller & Rollnick, 2002; Segatto et al., 2011). Studies have shown the potential of MI to increase motivation to seek employment in people in general, and in persons with ID (Britt et al., 2018; Foldal et al., 2020; Secker & Margrove, 2014).

Meta-analysis of MI has shown a large effect size (Stuckey, 2009)—with other studies supporting MI's effectiveness (Lundahl et al., 2010; Vasilaki et al., 2006). In addition to persons with cog-

nitive disabilities (Lam et al., 2010), persons with developmental disabilities, including specifically those with ID (Rose et al., 2010), have shown promising responses to MI when it is modified (McLaughlin et al., 2007; Taggart et al., 2007; Frielink & Embregts, 2013). The modified MI approach uses similar strategies (see Diallo et al., 2013, 2015) to break down complex communications to facilitate understanding. However, the focus can be on change talk (for example, "I am going get a job," "I want to provide for my family," and other related MI techniques) rather than on eliminating dysfunctional thoughts.

CBT and MI have the potential to improve the employment prospects of persons with ID by increasing employment motivation in this population. Even so, using brief sessions and follow-up sessions may be more appropriate for this population.

CBT and MI intervention in tandem: brief sessions and follow-up. A modified CBT and MI intervention that is brief, with reduced follow-up sessions, **rather than terminating sessions (not uncommon in follow-up studies)**, may be more appropriate for persons with ID due to many factors, including the need for assistance experienced by persons with ID who have limited resources and **the unethical aspect of stopping an intervention that has shown efficacy**. Research has demonstrated the effectiveness of brief CBT (Cully, 2014; Mignogna et al., 2014) and brief MI (Battaglia et al., 2016; Interian et al., 2010; Mason, 2009). A modified approach (Diallo et al., 2021), in which brief CBT and brief MI were employed in tandem, following the Diallo 2013 and 2015 framework, was used to increase employment motivation and improve employment-seeking behavior in persons with ID.

Research (Constantino et al., 2018; Muir et al., 2021; Westra et al., 2016) has shown combined MI and CBT to be effective at follow-up in the helping field. For example, Westra and colleagues (2016) used combined MI and CBT for generalized anxiety disorder (GAD) and compared it with CBT alone. Participants in the combined MI and CBT group had considerably less worry and distress when compared with the CBT-alone group. Furthermore, when compared during the follow-up period, participants from the combined MI and CBT group showed lasting and continued effects of therapy and many were no longer considered to meet the criteria for GAD at the post-treatment and follow-up stages.

Use of randomized controls in a follow-up can strengthen the modified brief CBT and MI effects in improving employment prospects for persons with ID. Randomized studies have the advantage of causation effects. The inclusion of follow-up sessions and measurement of the intervention effects, repeatedly or at a single moment in time (especially for the brief CBT and MI interventions used in this current study), can help us ensure that the interventions will be effective in the long run (and thus generally be more valid than cross-sectional studies for examining cause-and-effect relationships) and increase the overall effectiveness of the research effort concerning follow-ups in increasing motivation to seek employment. The brevity and reduced follow-up aspects of the intervention would be fitting for persons with ID, who generally lack resources, including healthcare resources, yet need more assistance. The need for more assistance may require follow-up intervention; brief interventions and limited follow-up sessions may be affordable for persons with ID and/or their providers. Yet research on follow-up designs, especially those with reduced follow-up sessions using modified brief CBT and MI in tandem to increase employment motivation, is lacking.

Employment is of paramount importance for human beings, yet as noted, persons with ID have a very low employment rate, due partly to lack of motivation. Removing employment barriers, including personal barriers, can help persons with ID gain employment and its accompanying benefits, such as psychological well-being, monetary gain, and improved healthcare. While removing external barriers is a priority in rehabilitation counseling and can help in employment (Dudley et al., 2015; Khayatzadeh-Mahani et al., 2020), tackling external barriers without first addressing such personal barriers as dysfunctional thoughts and lack of motivation to take steps to obtain employment may undermine employment prospects for persons with ID. Where external barriers do not exist or are minimal, lessening or eliminating career-dysfunctional thoughts and increasing motivation to seek employment may improve employment prospects for persons with ID. Increasing motivation to gain employment has been successful with disability populations, including persons with ID (despite the existence of external barriers to employment) (Diallo et al., 2021; Gross et al., 2017; Jensen, 2016).

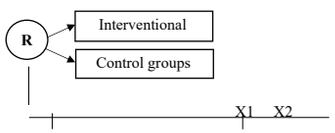
This study's findings in increasing motivation to obtain employment for persons with ID can add to the existing literature, which is lacking (1) appropriate interventions for persons with ID, such as modified, combined CBT and MI, and (2) true randomization follow-up design with reduced sessions. The goal of this study is therefore to increase motivation to seek employment among persons with ID, using an approach that features modified brief CBT and MI in tandem in a true randomization follow-up design with reduced sessions. We hypothesize that using modified CBT and MI in tandem will increase motivation to seek employment among persons with ID.

Method

Research Design

We randomly assigned participants to either an experimental or a control group. The intervention had a "follow-up" design; and, participants' motivation to obtain employment was measured after the 4.5 weeks intervention and at 5 weeks follow-up. This design was used to make the study rigorous, control for intervening variables, and strengthen the intervention effectiveness.

Figure 1. Study design



R= Random Assignment

X1= Assessment (Intervention after 4.5 weeks intervention– twice weekly)

X2= Assessment (Follow-up at after 5 more weeks intervention – once weekly)

After IRB approval, recruitment invitations (including a consent form) were sent to individuals receiving disability related services at Valley Association for Independent Living (VAIL), an agency that assists persons with disabilities in independent living skills and employment activities. Of the 75 invitations sent, 54 participants responded, and 52 participated. They were randomly assigned to an experimental group or a control group.

Participant

Participant were 52 clients receiving service at VAIL. The experimental group (n=26) received the CBT and MI (4.5 weeks twice weekly and another five weeks once weekly), and the control group (n=52) had a one-page "fact sheet" (once a month) (on career-dysfunctional thoughts and lack of motivation to gain employment skills and to seek employment) read to them. Their age ranges from 19 to 47. There were 22 males (42.3 %) and 30 females (57.7%). There were seven African American (13.5%), two Asian (3.8%), five Whites (9.6%), and 38 Mexican Americans (73.2%). Ten had less than a high school diploma (19.2%), 35 had a high school diploma (67.3%), three had a GED (5.8%), one had a one year of college education (1.9%), and three had two years of college education (5.8%).

Intervention description:
Use of the modified CBT and MI intervention

The goal of the study was to improve employment prospects for persons with ID. A co-author of this study met with counselors and provided them information about the study, their roles, and refresher training on CBT and MI and how to implement the modified CBT and MI approach. The counselors then met with the participants online and discussed the study and the intervention. Schedules were set for the intervention.

Measure/Instrument

The Work Readiness Scale (for persons with developmental disabilities)- Rose, John & Perks, Jane & Fidan, Merih & Hurst, Maddie (2010) measures motivation in relation to employment for people with intellectual disability. The Work Readiness Scale by Rose and colleagues (2010) is based on items in the Readiness to Change Questionnaire, adapted for motivation to work and simplified to align with the cognitive limitations of people with intellectual disabilities (Rose et al., 2010). It is a thirteen-item scale with two of the items reverse scored in order to decrease or eliminate possible consistent response set of participants. The items are rated on a five-point Likert scale, and the higher a person score the more motivated he/she should be to find work. Questions include information ranging from inaction to actually taking action to gaining employment (e.g., It is a waste of time looking for a job because I don't need to have one, I am trying to find a job, I have started to do some things to help me look for a job, I am very confident I will find a job, and I am actively job searching). Its internal consistency reliability ranged from 0.77 to 0.82. (Rose). For this current study, the internal consistency for posttest and the follow-up interventions were 0.88, and 0.84, respectively.

The intervention took place online. Participants were measured **(after the initial intervention and after additional reduced sessions of the intervention)** with regard to their motivation to seek employment, using the Work Readiness Scale (for persons with developmental disabilities)- by Rose and colleagues (2010). **Counselors delivered the intervention and collected the data.** Three counselors delivered the intervention. Each of the counselors had a master's degree in rehabilitation counseling and work experience with individuals with disabilities, including persons with ID. To ensure competent provision of the treatment, all counselors received training on the intervention approach from one of the co-authors, who is familiar with the modified Diallo (2013, 2015) framework in the delivery of combined modified CBT and MI.

CBT and MI together were used in the intervention. The combined CBT and MI were first provided for 4.5 week, twice weekly (two hours for each session). Counselors administered CBT first in order to help the participants to make the employment choices effectively (independently or with help from counselors). Then, counselors provided the participants with employment prospects that fit their interests, abilities, and skills and asked them to choose one to pursue; the counselors monitored for dysfunctional thoughts. If a participant had trouble with decision-making, counselors helped that participant make an effective choice so that the participant would be gaining employment that met his or her employment interests, abilities, and skills – and potentially be motivated to seek employment. After that, counselors then provided the MI and CBT in tandem; and, the participants motivation to seek employment were measured. Finally, counselors continued the CBT and MI for 5 more weeks - this time, once a week; and, the participants motivation to seek employment were measured again. As showed above, the intervention in this study was continued, but reduced from twice a week (4.5 weeks) to once a week (5 weeks) – this is important given the unethical consideration of stopping an intervention that has shown efficacy and given the limited resources for persons with ID.

Modified CBT approach

The modified CBT approach is based on and followed the Diallo (2015) model: separating false from real (S), putting things in perspective (PP), retaining healthy thinking (R), and discarding faulty thinking (D). As in the Diallo case study, each counselor in this study providing the intervention encouraged the participants to talk about instances of success whenever possible (e.g., telling their life stories), to reinforce any positive views the participants had mentioned during the initial interview. To help separate the participants' thoughts (e.g., "I am slow in school") from reality, the counselors reiterated positive aspects of the participants' lives that the counselors had gathered from the life stories the participants had told in the earlier sessions, and used them to differentiate participants' negative beliefs. For example, counselors would explain that a participant's faulty thoughts and positive attributes were different, and the counselors then would write them on two different sheets of paper. Pointing to the paper with the negative thoughts, the counselors would say "This is not you," and then pointing to the paper with the positive attributes, would say "This is you." The counselors would say, "A person who did well in school is smart. You passed your classes; this is you, a smart person." Counselors would also use a participant's positive story to connect the present and the future. For example, the counselors would note, "You won an award, and that was a success, and that means you are intelligent (present); you can use your intelligence to do well in school and work." (See Diallo et al., 2013, 2015.)

After separating the participants from the problem, the counselors used an educational strategy to "put things into perspective by explaining that failure in one situation does not equate to failure future endeavors, while also stressing other factors (e.g., environmental factors) as potential causes of unsuccessful outcomes. Finally, the counselors helped the participants retain positive views and discard negative ones (RD). For example, the counselors had participants write positive and negative views about themselves on separate sheets of papers. Then, the counselors handed the paper with the (1) positive views to the participants, while also reminding them that the notes on the paper were their attributes and (2) the paper with the negative views to the participants, while also encouraging them to put the paper in the garbage and reject the negative views on the paper. Also, the counselors verbally remind the participants that the negative notes were not their nature, and instruct them to verbalize, "These notes on the paper are not me." Given the language comprehension challenges for persons with ID, the counselors used language appropriate for the participants' level (concrete and simple language) and repeated information to strengthen retentions.

Modified MI approach

The counselors focused on the MI communication strategy known as "change talk." In order to change the attitudes of the participants toward motivation to take action to obtain employment, the counselors focused on the participants' values (e.g., providing for family) and on statements that supported self-confidence and self-efficacy (e.g., "Now that you have prepared to obtain employment, how do you feel about trying to be motivated to take action to obtain it?"). Participants' values were contrasted to their lack of motivation to take action to obtain careers (e.g., "You believe in caring for your family [or: You believe in hard work], but you have not been going out to look for employment"). To build self-efficacy, participants' successes were reviewed, reminding them of the participants' potential (e.g., "You say you are useless, but you have actually started to take classes for future employment"). The MI communicative approach was used to elicit statements from the participants in support of their self-efficacy (e.g., "Can you tell us about your success last year, or in high school?"). The counselors' use of the MI communicative approach encouraged the participants to give voice to the changes they had made, and contrasted those to behaviors that were contrary to the participants' values.

Table 1: Descriptive statistics

Group	Follow-up Intervention	Follow-up
Motivation Scale		
Intervention Group (52)		
M	49.70	51.92
SD	2.90	2.71
Control Group (52)		
M	39.50	44.73
SD	4.70	4.70
Total		
M	44.60	48.33
SD	6.43	5.25

To ensure intervention fidelity, one of the co-authors monitored and ensured adherence to the treatment by witnessing the interventions, meeting with the counselors, and going over their interventions repeatedly to make sure the counselors adhered to the treatment plan.

Analysis

Descriptive statistics were conducted for pretest and posttest mean scores and standard deviations for the motivation to seek employment across the intervention and the control groups. To address the hypotheses, **repeated measures analysis of variance** was performed using the general linear model and the **Repeated measures** command in the SPSS program. For number of levels, motivation to seek employment "after the intervention at 4.5 weeks" and motivation to seek employment "after 5 more weeks" were chosen as level 1 and level 2, respectively.

Since the sphericity assumption test was violated, we focused on the Huynh-Feldt. It showed significant result (F=5.70, p= 021). In relation to the multivariate output, the covariance matrix homogeneity assumption was not plausible (e.g., based on the Box's M test). However, the Levene's test showed the assumption of homogeneity of variance has not been violated. Both the Pillai's trace and Wilks' Lambda were significant.

Result

Descriptive statistics showed, compared to the control group, the experimental group had higher motivation to seek employment at posttest and (M = 49.70, SD = 2.90) and follow-up at follow-up (M = 51.92, SD = 2.71).

The MANOVA repeated measure results showed that there is significant evidence, with a significant Pillai's trace (f=5.70, p=021). The parametric results also show significant result - (B=44.60, 42.81-46.39) for the posttest and (B=48.33, 46.86-49.80) for the follow up.
See table 1 for the descriptive statistics.
See Table 2 for the multivariate repeated measure test results.
See table 3 for the parametric test results.

Discussion

The purpose of this pilot study is to improve employment seeking behaviors to help persons with ID seek employment, using a modified joint CBT and MI approach. This study is innovative in that it uses a modified brief CBT and MI in tandem approach while modifying these interventions to align with disability factors related to our target population. After a thorough literature review, we have found no studies that have used a modified brief CBT and MI in tandem in a repeated measure aimed at improving the employment prospects of persons. Interventions that address dis-

Table 2: Results of repeated-measures analysis

Variable	Source	DF	Square of mean	*f*	*p*
Motivation Scale	Factor	1	39.30	12.01	0.01
	Factor x motivation scale	1	17.34	5.3	0.026
	Factor x group	1	18.54	5.7	0.021

ability issues are necessary for disability populations, such as persons with ID, as research has shown that such interventions have beneficial outcomes (Lee, 2019; Apodaca et al., 2013). Yet empirical evidence and adaptable or modified treatments that addresses disability (e.g., cognitive limitation) to inform treatment efforts are lacking for persons with ID (Hayes & Bulat, 2017; Hazmi1 & Ahmad, 2018; Chapmana & Wua, 2012). We found that using modified CBT and MI in tandem was effective in improving motivation to seek employment among persons with ID - at end of the intervention (at 4.5 weeks) and following the 4.5 weeks intervention (5 more weeks after the 4.5 weeks).

Our findings concerning the effectiveness of the modified brief CBT and MI in tandem are similar to those of previous studies (Barrowclough et al., 2009; Naar & Safren, 2017) that used combined CBT and MI for nonemployment-related activities. It is worth noting, brief CBT (Cully, 2014; Mignogna et al., 2014) and brief MI (Battaglia et al., 2016; **Interian et al., 2010; Mason, 2009) has been showed to be effective in changing behaviors and in others areas.**

That the modified brief CBT and MI in tandem was effective in improving motivation to seek employment - at end of the intervention and following the 5 weeks intervention - was not surprising. MI and CBT have shown positive outcomes for improving motivation (Lam et al., 2010; Lim et al., 2019; Segatto et al., 2011) and decreasing career-dysfunctional thoughts (Kukla et al., 2019; Lecomte et al., 2020), respectively. CBT has also shown positive outcomes in improving motivation (Foldal et al., 2020; Wewiorski et al., 2021). A modified brief CBT and MI in tandem (Diallo et al., 2021) shown positive outcomes in improving motivation.

This study's result and others (Diallo et al 2015 and 2021)—a positive outcome in improving motivation to seek employment—suggests that using these two interventions together, while addressing career dysfunctional thoughts first (so that the participant will be making appropriate employment choices as noted above) can improve employment seek behaviors of persons with ID. Intervention using MI before CBT has been shown to be effective in helping individuals with behavioral problems. For persons with ID, however, addressing dysfunctional thoughts first is crucial, given that reducing or eliminating career-dysfunctional thoughts put such persons in a position to make their own career choices effectively before motivating them to engage in obtaining employment. This way they are not engage in obtaining employment that would be a mismatch, which could lead to employment disappointment, and ultimately unsuccessful employment outcome (Diallo et al., 2021). As already noted, in this study participants were given opportunities to choose employment situations to pursue (after the counselors provided interventions to eliminate or reduce the participants' dysfunctional thoughts so they could make their own decisions) before motivating them (by providing motivational interventions).

Because of the cognitive limitations of persons with ID (our study population), we used a modified CBT and MI. Studies with positive outcomes (Dahnan et al., 2018; Diallo et al., 2015; Hassiotis et al., 2011; Unwin et al., 2016) for persons with ID have generally modified the traditional interventions, making abstract communication concrete and using language at the level of understanding for this population, as was done in this study using the Diallo frame (Diallo et al., 2013, 2015).

Table 3

Intervention effects

Variable	B	SE	T	Sig	95% CI
Intervention Group					
Posttest	44.60	0.90	50.0	0.001	42.81 46.39
Follow-up	48.33	0.73	66.29	0.001	46.86 49.80
Control Group					
Posttest	-6.41	0.80	-8.30	0.001	-8.0 -4.90
Follow-up	-4.42	1.02	-4.34	0.001	-6.47 -2.38

**P<0.5*

Potential explanations for our findings of an improvement in motivation to seek employment includes the use of both CBT and MI, each effective in their own right, to address motivation and dysfunctional thinking. Addressing dysfunctional thoughts and then motivating persons with ID in obtaining employment is necessary to help people with intellectual disability in their persistence with employment seeking (Diallo et al., 2021). One would expect, as career-dysfunctional thoughts decrease and an individual makes his or her own career choices, the individual would be more likely to the motivated to seek employment. In sum, addressing dysfunctional thinking can in itself be motivational. Also, modifications of the intervention to align with the cognitive levels of persons with ID are likely to contribute to the success of the intervention (e.g., by improving adherence to the intervention).

Limitations

Limitations of the study include the absence of an objective assessment of the counselors' adherence to the intervention. However, as noted above the second co-author ensured adherence to the treatment by observing the interventions, meeting with the counselors, and going over their interventions continually to make sure the counselors adhered to the treatment plan. This study cannot be generalized to persons with ID in other contexts—for example, persons with ID not receiving help with independent-living skills and employment activities.

Research Implications

A replication of this exploratory pilot study that included other disability groups could make it more generalizable. Researchers could use qualitative methods in conjunction with quantitative approaches to help us understand the intervention from the perspective of persons with ID and the counselors who provide the intervention.

As noted above, few studies on the combined effects of the CBT and MI approaches on behavioral changes exist (Naar & Safren, 2017; Thampinathan, 2020); more studies are needed in this area. Such studies could also focus on mediator and moderator variables to help us understand the mechanism of change and to discover for whom the intervention may be particularly effective.

Researchers can focus on follow-up with reduced sessions, given, as noted above, the limited resources of persons with ID yet requiring more assistance. Getting services with reduces sessions may be more affordable for persons with ID and/or their providers. The results at post intervention and follow-up were more effective for the intervention group than the control group, and there was a mean gain from posttest to follow-up. Researcher can focus on increasing the follow-up with longer durations (3 or 4 months) while reducing the sessions (once every two weeks or once every month).

Practice Implications

Employment is crucial for all, including for persons with ID, who are underemployed for many reasons, including their dysfunctional thoughts. Dysfunctional thoughts can impede effective career decision-making, leading to employment mismatches and paternalistic approaches that involve other people making choices for persons with ID. Focusing only on motivating for employment prospects for this population without addressing career dysfunctional thinking may be fruitless. Practitioners assisting persons with ID searching for employment may need to address career dysfunctional thoughts as their clients make their employment choices and make sure they are being motivated in employment of their choice that align with their abilities and interest.

External factors play a role in the underemployment of persons with ID. As practitioners work to diminish or eliminate external barriers, they can consider addressing such internal barriers as lack of motivation to seek employment, which can affect employment success even in the absence of external barriers. In an environment in which external barriers have been eliminated or reduced, counselors can focus their resources on tackling lack of motivation to seek employment. Counselors who focus solely on addressing external barriers can view addressing dysfunctional thoughts as also addressing external barriers; when dysfunctional thinking is reduced, it may lead to persons with ID making their own choices effectively, thus diminishing or even eliminating the potential for external forces to exhibit paternalistic behavior in making choices for persons with ID. Counselors need to become familiar with using modified CBT and MI approaches, or refer individuals to those who are knowledgeable in the use of these modified interventions.

Conclusion

A combined modified CBT and MI approach that address dysfunctional thoughts and motivation to see employment in ways that align with the cognitive limitations of persons with ID has the potential of improved employment seeking behaviors of for persons with ID. Continue interventions may be required for some groups, such as persons with ID, who generally have limited financial and other resources to get treatment. Accordingly, a combined CBT and MI intervention with reduced sessions (given the resources limitations of persons with ID) may be beneficial for persons with ID needing to seek employment.

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