Having a Master's Degree in Rehabilitation Counseling Leads to Higher Closure Rates Among Persons With Intellectual and Developmental Disabilities From the Outcome-Based Perspective

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This study compared closure rates (CR) and high-quality closure rates (HQCR) among persons with intellectual and developmental disabilities (IDD) between counselors with a master's degree in rehabilitation counseling (MRC) and those with a master's degree of related disciplines (RM). Survey data were collected from 152 counselors in four states, and

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their IDD clients from 2014 to 2017 were analyzed (n = 5,186). The rate differences were calculated based on multilevel logistic regression with counselors as the cluster level. The overall CR was slightly higher among counselors with MRC than those with RM (32.9% vs. 25.3%, p = .09) but significantly higher when limited to clients with less severe disabilities (35.1% in MRC vs. 25.0% in RM, p = .03). Furthermore, the differences were more pronounced in HQCR (23.5% in MRC vs. 18.2% in RM, p = .03 in all clients, and 30.7% in MRC vs. 22.5% in RM, p = .01 in clients with less severe disabilities). The difference in CR for full-time jobs (30+ hours/week) was also significant (22.0% in MRC vs. 16.0% in RM, p = .007). The counselors with MRC were more likely to be prepared for managing IDD clients than those with RM. The main advantages of MRC in knowledge domains included medical and psychological knowledge, career development and job placement, and disability management. Therefore, master-level education in rehabilitation counseling could provide more relevant training and yield better closure rates in IDD clients than other disciplines.

Keywords: transitional youth; disability groups; emerging issues; advocacy; emerging issues, supported employment; vocational rehabilitation

As stated in the Rehabilitation Services Administration's missions (RSA, 2013), the goal of rehabilitation is "maximizing clients' independence and integration into the competitive labor market." However, the job market in the 21st century requires more advanced knowledge and skills for job seekers, which pose significant challenges for persons with intellectual and developmental disabilities (IDD). This demands more specialized training for rehabilitation counselors to accommodate clients with IDD. On the other hand, people with diverse educational backgrounds are allowed to join the workforce of rehabilitation counseling (Workforce Innovation and Opportunity Act [WIOA], 2014). We previously found that counselors with a master's degree in rehabilitation counseling (MRC) had a moderately higher (5%) closure rate (CR) than those with a master's degree in other related disciplines (RM), especially for counselors with fewer than 6 years of experience and among clients with less severe disabilities (Mackay MM et al., 2018a). In addition, the main differences in CRs between MRC and RM counselors were related to the rates of obtaining high-quality jobs such as full-time employment and living wage jobs. As discussed later, these jobs are essential to achieving financial independence and building self-respect and self-assurance (Leahy MJ et al., 2019, Mackay MM et al., 2018a). However, our previous research was limited to one state and included all clients regardless of disability types. The current study extends the previous study with data from additional states and specifically explores the impact of the degree type of counselors on the employment outcomes of IDD clients.

Vocational rehabilitation (VR) counselors are required to pass the National Certified Rehabilitation Counselor (CRC) examination. The knowledge domains covered by the examination were broad and recently validated with role and function studies on practicing counselors (Leahy MJ et al., 2019). In the validation study, counselors assigned the weights of importance each to knowledge and skill based on the functions and needs in their practice. Knowledge and skills such as managing medical and psychological conditions, career development and job placement, and case management have been rated more important than others. However, it is unclear whether these knowledge and skills are more likely to improve employment outcomes among their clients. Our previous research also

evaluated the differences in various knowledge and skills between MRC counselors and RM counselors (Mackay MM et al., 2018b). However, the previous study was limited to one state and did not answer whether specific knowledge and domains were more important in accounting for the difference in the employment outcomes for counselors with MRC and RM.

In the current study, we will use information collected from VR counselors from four states and their linked client data to examine the differences in CRs between MRC and RM counselors. We adopt an outcome-based framework to explore the critical differences in their knowledge domains that account for the different outcomes.

LITERATURE ON COUNSELOR'S EDUCATION AND CLIENT'S OUTCOMES

Although the effects of VR counselor's education on client's outcomes were addressed more than three decades ago (Szymanski & Parker, 1989a), it resurfaced due to the expansion of counselor's qualifications for VR, as reviewed in our previous research (Mackay MM et al., 2018a, 2018b). Briefly, early research in the late 1980s and 1990s showed a weak or no association between a counselor's education specialty and client outcomes. However, a few studies did suggest a specialty in rehabilitation counseling may lead to more positive outcomes than other specialties (Wheaton & Berven, 1994). Our previous research was the first recent study to suggest counselors with MRC may lead to higher CR than those with RM, based on surveys of counselors and the linked client outcomes (Mackay MM et al., 2018a). However, it was unclear whether a counselor's education had any impact on the CR of IDD clients.

More importantly, past research indicated that clients with disabilities were more likely to be employed in the *secondary labor market* (Berger & Piore, 1980; Martin et al., 2012), including jobs with low wages, less security, and worse working conditions. Unfortunately, once people are placed in the secondary labor market, they will have fewer chances of moving up to the *primary labor market,* including jobs with high pay and more security. A recent systematic review suggested that although about 50% of IDD clients could find any type of jobs, only about 26% worked in an integrated working environment (Nevala N et al., 2019). The rate of full-time and competitively paid employment among persons with IDD may be less than 10% (Hiersteiner, 2016). The current RSA mission statement now stipulates that the goal of VR is to place the clients in a competitive integrated market. Thus, to achieve financial independence and improved quality of life, clients with disabilities should find opportunities outside of service-based jobs. Measuring the high-quality job CR (HQCR) might be more appropriate to assess the effectiveness of different degree types.

Furthermore, consistent with other research (Szymanski & Parker, 1989b; Wheaton & Berven, 1994), our previous research found that junior counselors with fewer than 6 years of experience may benefit more from advanced training in rehabilitation counseling. At the same time, those counselors with more years of practice may acquire additional rehabilitation knowledge and skills through work (Mackay MM et al., 2018b). This may suggest that years of experience may compensate for the lack of training in certain aspects of rehabilitation counseling. However, this finding needs to be confirmed as it has crucial implications for continual education among VR counselors.

Finally, it is crucial to explore the specific differences in knowledge domains between MRC and RM counselors, particularly if there were significant differences in CRs. Recently,

Leahy MJ et al. re-evaluated the curriculum domains for CRC examination (Leahy MJ et al., 2013, 2019) and provided a detailed list of knowledge and skills that rehabilitation counselors should master. They empirically identified six factors: mental health counseling, career development and job placement, job readiness and skills development, case management, medical and psychological aspects of chronic illness, theories about behavior and personality, research methodology and evidence-based practice, and group and family counseling. These factors were ordered by the relative importance in explaining the variations in the data. They also recommended 12 domains in the curriculum for the CRC examination. However, their studies were based on the tasks of counselors but not on the outcomes in clients. It is unknown whether emphasizing specific knowledge domains will lead to improved employment outcomes among IDD clients. Thus, our study will also compare the preparedness for serving IDD clients and differences in the 12 knowledge domains between counselors with MRC and RM based on the employment outcomes.

RESEARCH AIMS

Our previous research raised some concerns about the counselor's education and CRs of clients with all disabilities. However, little is known about the impact of a counselor's education on the outcomes of IDD clients. Therefore, this study will address the following research questions:

***Research question 1 (RQ1*)**: Do counselors with MRC have a higher CR among clients with IDD than those with RM?

Research question 2 (RQ2): Do counselors with MRC have a higher CR in high-quality jobs among clients with IDD than those with RM?

Research question 3 (RQ3): What are the differences in the preparedness and knowledge domains between counselors with MRC and those with RM?

In RQ1 and RQ2, we also further explore the impact of a counselor's years of experience and the client's disability severity on the CRs.

METHODS

This study was approved by the Institutional Review Board of the authors' university before the study initiation and obtained official support from the rehabilitation agencies in the participating states: Connecticut (CT), Florida (FL), Idaho (ID), and Utah (UT).

Participants

We invited all VR counselors who were employed by the state rehabilitation agencies as of 2017. The current study only included those counselors who had clients with IDD (N = 181). We limited counselors to those who had already earned a master's degree before the study and excluded those who had a bachelor's degree or were in training for a master's program. A total of 29 counselors were excluded from this analysis.

All IDD clients of the participating counselors who were closed during the 2014 to 2017 fiscal years were included (N = 7,878). We excluded those clients who were employed before counseling, died before the exit, were aged 60 or above, were not impaired or not eligible at the time of exit, and had disability too severe at the exit. These excluded participants would

not be employed or would be much less likely to be employed due to practical reasons. A total of 2,692 clients were excluded.

Measures and Procedures

The state rehabilitation agencies sent emails with links to the online survey to all of their employed counselors. Counselors participated in the study voluntarily. There were no incentives provided to the participating counselors. The survey consisted of a 23-item questionnaire that included the counselor's demographics, highest education and disciplines, year of graduation, years of experience as a rehabilitation counselor, perceived preparedness for work as a rehabilitation counselor, and knowledge and concerns about rehabilitation counseling.

For those counselors who completed the survey, the state rehabilitation agencies linked their case service records with counselors' information from 2014 to 2017. The same records were used for generating the RSA-911 reports. These individual case records included the client's demographics, closure status (employed or not), job title, working hours per week, and hourly wage. In addition, the client's disability type and severity were also included.

Data Analysis

The primary outcomes were the client's closure status (employed or not), and high-quality job closure status (working 30 or more hours per week, i.e., full-time job, or earning a minimum of U.S. $10.9 per hour, i.e., living wage job). The main independent variable is the degree type (rehabilitation counseling vs. other related degrees) of the counselor's highest education. The important stratifying variables were the counselor's years of experience (fewer than 6 years vs. 6 years or more) and the client's severity of disability (severe vs. more severe, as reported in the system). Covariables included state, counselor's sex, age, and client's age and education.

Descriptive statistics were provided to describe counselors' characteristics and their IDD clients. For RQ1 and RQ2, the comparisons of closure outcomes between MRC and RM counselors were based on adjusted risk differences. Specifically, we employed a multilevel logistic regression considering the fact that clients were clustered within counselors. The robust variance was used to obtain the proper standard errors of estimates. The adjusted risk differences were obtained from marginal probabilities from the logistic models. According to the potential outcome-based causal framework, the marginal probabilities were calculated from the predicted probabilities, assuming all counselors either have a rehabilitation counseling degree or have other degrees (). We use adjusted risk differences instead of risk ratios (a typical estimate in the logistic regression) because we are interested in the actual impact of a counselor's education on the client outcomes, and such impact is likely on the additive scale rather than the multiplicative scale.

Furthermore, to assess the effects of a counselor's years of experience and a client's disability severity status on CRs, we performed separate multivariate models by these two variables for all closure outcomes.

For RQ3, we combined the "not at all" and "a little" of knowledge preparedness as "not well prepared" and compared with those "moderately well" and "a lot" as "well prepared." The frequencies and proportions of knowledge preparedness by counselor's degree types were compared with χ^2 statistics.

All statistical analyses were conducted using Stata 16.1 (Stata LLC. College Station, Texas). A *p*-value of less than 0.05 was considered statistical significance. However, no multiple comparisons were adjusted.

RESULTS

Rehabilitation Counselors

As shown in Table 1, 152 counselors had clients with IDD during the study period, about 45% of them were from UT, and 68% were women. The mean age of counselors was 37 (standard deviation, *SD*: 13) years. The average years of experience were 8 years; about 51% had six or more years of experience. The median caseload of IDD clients was 26 (interquartile range: 12–46). Furthermore, about 60% of them (n = 92) had an MRC, and the rest of the counselors had a master's degree in general counseling, psychology, social work, and others (RM).

Rehabilitation Clients With Intellectual and Developmental Disabilities

As shown in Table 2, the final sample included 5,186 IDD clients. Two-thirds of them were from ID and UT. The mean age was 28 (*SD*: 11). About 86% of them were White, and 8.6% of them were Black. Finally, two-thirds of IDD clients had high school or below education, and 53% of them had more severe disabilities.

At the closure, only 31% of these clients were employed. The average working hours were 28 hours (*SD*: 12), and the average hourly wage was $10.2 (*SD*: $4.6). About 20% of clients were employed in high-quality jobs (18.7% had full-time jobs with 30 or more working hours per week, and 7.3% earned a living wage of $10.9 or more per hour).

RQ1: Differences in Closure Ratess Between Counselors With a Master's Degree in Rehabilitation Counseling and Those With a Master's Degree of Related Disciplines

As shown in Table 3, in the unadjusted model, the overall CR among clients of MRC was 32.9%, higher than 25.3% of RM but not statistically significant. However, when limiting to clients without more severe disabilities, the CR among clients of MRC counselors was 35.1%, significantly higher than 25.0% of RM counselors (p = .03). Similar findings existed when limiting counselors to those with fewer than 6 years of experience. The CR difference was statistically significant among clients without more severe disabilities (38.8% among MRC vs. 24.6% among RM, p = .02). Further adjusting for the counselor's age, sex, and client's education and age yielded similar results.

RQ2: Differences in High-Quality Closure Rates Between a Master's Degree in Rehabilitation Counseling and a Master's Degree of Related Disciples

Table 4 showed a statistically significant difference in HQCR between MRC and RM clients (23.5% in MRC vs. 18.2% in RM, p = .03 for all clients). Further limiting clients to those without more severe disabilities showed a more significant difference in HQCR (30.7% in MRC vs. 22.5% in RM, p = .01). In addition, among counselors with fewer than 6 years of

TABLE 1. Characteristics of Counselors With Intellectual and Developmental Disability Clients

	N	%
Total	152	100
State		
Connecticut	23	15.13
Florida	28	18.42
Idaha	32	21.05
Utah	69	45.39
Sex		
Women	104	68.4
Men	48	31.6
Age (mean, *SD*)	36.9	12.9
Master's degree in Rehabilitation Counseling		
No	60	39.5
Yes	92	60.5
Years of experience (mean, *SD*)	8.4	5.7
Six or more years of working experience		
No	74	48.7
Yes	78	51.3
Case load (median, interquartile range)	28	12–46
Master's degree major		
Rehabilitation counseling	84	55.26
Counseling with a spec. rehabilitation	8	5.26
Counseling without a spec.	9	5.92
Psychology (clinical or counseling)	7	4.61
Psychology (other)	4	2.63
Special education	3	1.97
Education (other)	4	2.63
Social work	9	5.92
Human development	6	3.95
Mental health counseling	6	3.95
Other	12	7.89

Note. SD = standard deviation; spec = specialist.

experience, the patterns were similar. Adjusting for covariables also showed similar results as those unadjusted results.

TABLE 2. Characteristics of Clients With Intellectual and Developmental Disability

	N	%
Total	5,186	100
State		
Connecticut	814	15.7
Florida	708	13.65
Idaha	1,710	32.97
Utah	1,954	37.68
Age (mean, *SD*)	28	11
Race		
American Indian or Alaska Native	90	1.74
Asian	63	1.21
Black or African American	447	8.62
Multiracial	87	1.68
Unknown	23	0.44
White	4,476	86.31
Education at application		
Elementary education	216	4.17
Secondary education, no HS degree	1,442	27.81
HS degree or equivalent	1,868	36.02
Postsecondary, no degree	390	7.52
Associate degree or vocation/tech	148	2.85
Special education	695	13.4
Bachelor or above	281	5.42
Other	146	2.82
Current student at application		
No	4,416	85.15
Yes	770	14.85
Severe disability status		
Less severe	2,414	46.55
More severe	2,772	53.45
Employed at closure		
No	3,560	68.65
Yes	1,626	31.35
Weekly hour working if employed (mean, *SD*)	27.8	12.1

(*Continued*)

TABLE 2. Characteristics of Clients With Intellectual and Developmental Disability (*Continued*)

	N	**%**
Hourly wage if working (U.S. dollars, mean, *SD*)	10.2	4.6
High-quality employment	1,040	20.05
Full-time job (30+ hours/week)	971	18.72
Living wage job (≥$10.9/hour)	376	7.25

Note. HS = high school; *SD* = standard deviation.

The bottom part of Table 4 presented analyses separately for full-time jobs and living wage jobs. The differences in full-time job CRs (FTCRs) were statistically significant between clients of MRC and RM (22.0% in MRC vs. 16.0% in RM, $p = .007$), and the difference was larger among clients without more severe disabilities (29.1% in MRC vs. 20.9% in RM, $p = .009$). The pattern persisted when limited to counselors with fewer than 6 years of experience and using adjusted models.

However, the living wage job CRs (LWCRs) were small and not significantly different between clients of MRC and RM (overall LWCR: 9.2% in MRC vs. 7.5% in RM, $p = .29$), neither among clients without more severe disabilities nor among clients of counselors with fewer than 6 years of experience.

RQ3: Differences in Preparedness and Knowledge, and Skills Between a Master's Degree in Related Closures and a Master's Degree of Related Disciplines

Counselors with MRC were more likely to report being prepared to handle IDD clients than those with RM (Table 5). About 37% and 38% of MRC reported "very well" and "extremely well" prepared, while only 33.3% and 16.7% of RM reported so, respectively ($p = .003$). A detailed exploration of the knowledge domain showed that counselors with MRC reported significantly higher percent of well preparedness in "Medical and Psychosocial Aspects of Chronic Illness and Disability," "Career Development and Job Placement," and "Health Care and Disability Management," and "Crisis and Trauma Invention" than those with RM (all $p < .001$) (Table 6). There was no significant difference in other knowledge domains.

DISCUSSION

This study found that counselors with an MRC had higher CRs for IDD clients with less severe disabilities than those with degrees in RM. Furthermore, MRC counselors were more likely to have HQCRs (especially FTCRs) than RM counselors. We also noticed that counselors with MRC were more likely to be prepared for managing IDD clients. The main advantages of counselors with MRC in knowledge domains were related to medical and psychological aspects of disability, career development, and disability management.

This study also affirmed our previous findings that the severity of disabilities and counselors' years of experience were important in determining employment outcomes (McKay M.M. et al., 2018a). With a larger sample size and more diverse counselors' backgrounds, we found that the effects of counselor's education on employment outcomes, especially for high-quality jobs (e.g., full-time jobs), were consistent across clients' disability severities and counselors' working experience groups. Thus, specialized training

TABLE 3. Differences in CRs Between Clients of MRC and of RM

			Unadjusted model			Adjusted model		
Counselor experience	**Outcome variable**	**Group**	**CR**	**Rate difference (95%CI)**	***p*-Value**	**Adjusted CR**	**Rate difference (95%CI)**	***p*-Value**
All years	CR for all clients	MRC	32.9%	7.6% (–1.1%, 16.3%)	.09	32.7%	7.2% (–1.4%, 15.8%)	.11
		RM	25.3%			25.5%		
	CR for clients with less severe disabilities	MRC	35.1%	10.1% (0.9%, 19.3%)	.03	36.5%	10.1% (1%, 19.1%)	.03
		RM	25.0%			26.5%		
Fewer than 6 years	CR for all clients	MRC	36.2%	7.7% (–4.3%, 19.6%)	.21	36.1%	6.7% (–4.9%, 18.4%)	.29
		RM	28.5%			29.3%		
	CR for clients with less severe disabilities	MRC	38.8%	14.1% (1.9%, 26.4%)	.02	40.1%	13.8% (1.8%, 25.9%)	.02
		RM	24.6%			26.3%		

Note. Adjusted model includes counselor's age and sex, client's age, race, education level and disability severity
CR = closure rate; MRC = master's degree in rehabilitation counseling; RM = related disciplines.

TABLE 4. Differences in High-Quality CRs Between Intellectual and Developmental Disability Clients of Counselors with MRC and RM

Counselor experience	Outcome variable	Group	Unadjusted model CR	Unadjusted model Rate difference (95%CI)	Unadjusted model *p*-Value	Adjusted model Adjusted CR	Adjusted model Rate difference (95%CI)	Adjusted model *p*-Value
high-quality employment (full time 30+ hours/week or wage ≥$10.9 per hour)								
All years	CR for all clients	MRC	23.5%	5.3% (0.5%, 10.2%)	0.03	22.0%	3.9% (0.04%, 7.8%)	0.05
		RM	18.2%			18.0%		
	CR for clients with less severe disabilities	MRC	30.7%	8.2% (1.6%, 14.9%)	0.01	31.9%	7.9% (1.5%, 14.4%)	0.02
		RM	22.5%			23.9%		
Fewer than 6 years	CR for all clients	MRC	23.6%	6.6% (–0.4%, 13.6%)	0.06	22.0%	5.1% (–0.3%, 10.4%)	0.07
		RM	17.0%			16.9%		
	CR for clients with less severe disabilities	MRC	32.4%	10.0% (1.0%, 19.0%)	0.03	33.1%	9.0% (0.3%, 17.8%)	0.04
		RM	22.5%			24.0%		
Full-time job (30+ hours/week)								
All years	CR for all clients	MRC	22.0%	6.0% (1.7%, 10.3%)	0.007	20.7%	4.6% (1.1%, 8.1%)	0.009
		RM	16.0%			16.1%		
	CR for clients with less severe disabilities	MRC	29.1%	8.2% (2.1%, 14.3%)	0.009	30.4%	8.1% (2.1%, 14.1%)	0.008
		RM	20.9%			22.2%		
Fewer than 6 years	CR for all clients	MRC	21.9%	6.4% (0.2%, 12.6%)	0.04	20.7%	5.2% (0.3%, 10.1%)	0.04
		RM	15.5%			15.5%		
	CR for clients with less severe disabilities	MRC	30.5%	9.3% (1.1%, 17.4%)	0.03	31.4%	8.8% (0.8%, 16.8%)	0.03
		RM	21.2%			22.6%		

(*Continued*)

TABLE 4. Differences in High-Quality CRs Between Intellectual and Developmental Disability Clients of Counselors with MRC and RM (*Continued*)

			Unadjusted model			Adjusted model		
Counselor experience	**Outcome variable**	**Group**	**CR**	**Rate difference (95%CI)**	***p*-Value**	**Adjusted CR**	**Rate difference (95%CI)**	***p*-Value**
Living wage job (≥$10.9/hour)								
All years	CR for all clients	MRC	9.2%	1.7% (−1.5%, 4.8%)	0.29	7.8%	0.6% (−1.7%, 2.8%)	0.63
		RM	7.5%			7.3%		
	CR for clients with less severe disabilities	MRC	13.0%	2.6% (−1.1%, 6.3%)	0.17	13.1%	1.8% (−1.7%, 5.2%)	0.33
		RM	10.4%			11.3%		
Fewer than 6 years	CR for all clients	MRC	8.9%	1.5% (−2.4%, 5.3%)	0.46	7.8%	0.0% (−2.8%, 2.8%)	0.99
		RM	7.4%			7.8%		
	CR for clients with less severe disabilities	MRC	13.7%	3.2% (−1.9%, 8.2%)	0.22	13.7%	1.6% (−3.4%, 6.5%)	0.53
		RM	10.5%			12.2%		

Note. Adjusted model includes counselor's age and sex, client's age, race, education level, and disability severity.
CR = closure rate; MRC = master's degree in rehabilitation counseling; RM = related disciplines.

TABLE 5. Preparedness of Knowledge and Skills in Handling Intellectual and Developmental Disability Clients

	Preparedness, *N* (%)				
Counselor degree	**Slightly well**	**Moderately well**	**Very well**	**Extremely well**	**Total**
Master's degree in rehabilitation counseling	3 (3.3%)	20 (21.7%)	34 (37.0%)	35 (38.0%)	92
Related disciplines	8 (13.3%)	22 (36.7%)	20 (33.3%)	10 (16.7%)	60
Total	11 (7.2%)	42 (27.6%)	54 (35.5%)	45 (29.6%)	152

Pearson $\chi^2(3) = 13.7595$, $p = .003$

in rehabilitation counseling may provide additional assurance in improving employment outcomes among clients.

Working can bring unique meanings to a person's life, including those with IDD. In a recent review of the employment outcomes among people with IDD (Almalky HA, 2020), most studies demonstrated that employment positively impacts a person's self-respect and self-assurance regardless of whether the employment is in a sheltered supported or competitive environment. However, 50% of them have been employed in any form, and only 26% of them are employed in an integrated work environment. As mandated in the RSA mission statement, people with disabilities should be able to work in a competitive integrated environment. Although persons with IDD may encounter unique challenges in

TABLE 6. Percent of Reporting "Well Prepared" in Knowledge Domains Between Counselors With MRC and RM

	Degree		
Knowledge domain	**MRC**	**RM**	***p*-Value**
Professional orientation and ethical practice	69 (75%)	37 (61.67%)	.24
Counseling theories, techniques, and evidence-based practice	66 (71.74%)	42 (70%)	0.13
Group and family counseling	25 (27.17%)	26 (43.33%)	0.15
Crisis and trauma counseling and interventions	22 (23.91%)	27 (45%)	0.05
Medical and psychosocial aspects of chronic illness and disability	69 (75%)	22 (36.67%)	0.0001
Assessment, occupational analysis, and service implementation	38 (41.3%)	22 (36.67%)	0.13
Career development and job placement	36 (39.13%)	16 (26.67%)	0.0001
Demand-side employer engagement	14 (15.22%)	6 (10%)	0.12
Community resources and partnerships	29 (31.52%)	16 (26.67%)	0.87
Case management	37 (40.22%)	21 (35%)	0.5
Health care and disability management	37 (40.22%)	9 (15%)	0.0001
Research, methodology, and performance management	46 (50%)	32 (53.33%)	0.53

the competitive integrative environment, as Wehman P. et al. pointed out (Wehman P et al., 2018), persons with IDD can work competitively. Still, they require more workplace and family support, more job skill training, and more opportunities for internships and work-based learning. In a recent systematic review, Nevala et al. (2019) summarized more than 30 studies, including both quantitative and qualitative studies, and concluded that people with IDD could have a better chance to seek employment through secondary education and further training in job skills with proper teaching methods. In a randomized clinical trial in which high school aged youth with autism were randomly assigned to receive either an intervention with structured support and internship or no intervention, those in the intervention group had significantly higher percentages of obtaining employment after graduation than those in the control group (Wehman P et al., 2020). Our study showed that clients of MRC counselors were more likely to obtain high-quality jobs, especially full-time jobs, than those of RM counselors. However, the rates of living wage employment were low among IDD clients of both MRC and RM counselors, regardless of what working experience and degree types the counselors had. This could be due to most job placements being in the service industry (Wehman P et al., 2020). Therefore, given that more and more jobs are computerized or automated, the current job market is more competitive and requires more mental demands than before. There is an urgent need for counselors to facilitate such transitions.

The current study provided more substantial evidence to support rehabilitation counseling education than our previous reports and raised more concerns about the knowledge gaps in counselors with other disciplines. We found that counselors with MRC were more likely to report being prepared to handle clients with IDD than RM counselors, suggesting that some aspects of training in rehabilitation counseling may provide more confidence for counselors, especially for those junior counselors with fewer than 6 years of experience. As indicated in our study, MRC counselors reported being more prepared in knowledge and skills such as medical and psychological management, career development, and job placement, allowing them to feel more confident to manage clients' needs with IDD.

The essential competencies of rehabilitation counseling have recently been re-evaluated (Leahy MJ et al., 2019). Through surveying practicing counselors, the study confirmed the importance of traditional knowledge areas such as medical and psychological knowledge of chronic illnesses, and job development. They provided a detailed list of the updated knowledge domains for inclusion in the CRC examination. These findings were similar to our outcome-based analysis.

In addition, from the client's employment outcome point of view, the most important skills are job skills and social skills. Such skills may be acquired through secondary education and/or working in a competitive integrated environment (Nevala N et al., 2019). For example, in an intervention study on 126 students with disabilities, those receiving training in direct skills reported better preparation for the interview process and job placement (Oursler J et al., 2019). A meta-analysis on job-related social skill training also suggested that direct instruction at schools had the largest effect on obtaining social skills among people with disabilities (Park EY et al., 2016). Furthermore, a close bond between clients and counselors based on the work alliance framework may help persons with IDD follow through the rehabilitation process and build necessary skills in work and social interactions (Lustig D et al., 2003; Phillips BN et al., 2014). Rehabilitation counseling based on the work alliance model has been shown to improve employment outcomes among clients with disabilities (including those with IDD) (Lustig D et al., 2003). Therefore, a curriculum for

training counselors should emphasize knowledge and skills about job skills, job placement, and social skills, as suggested in both our study and in the recent evaluation of CRC exam domains (Leahy MJ et al., 2019).

Our study has several strengths. We have included counselors from four states, leading to a more diverse background of counselors and their clients. We focused on the CRs in IDD clients with a larger sample size. In addition, our statistical analyses were based on the causal inference framework and used multilevel logistic models to account for the clustering of clients within counselors. Our adjusted and unadjusted models showed similar results, strengthening the internal validities of our findings. Finally, the current study addressed the needs of helping IDD clients to obtain high-quality jobs, which are more important in a competitive integrative environment. This is an urgent issue of VR in the 21st century.

There were some limitations in our study. First, the number of counselors who managed IDD clients was few, and although nonresponse rates were low in UT, the non-response rates were higher in CT and FL. Additional studies based on more states and more diverse counselors and clients will provide stronger evidence of the needs for new training for counselors. Second, although we excluded clients who were less likely to be employed due to age, more severe disabilities, and other reasons, many clients might not be employed at the exit for reasons beyond the capabilities of counselors. Third, we did not know the client's health conditions, skills, social support, and community environment. All these factors are essential for job opportunities. Fourth, our CRs were broadly defined, and it might be desirable to study different types of jobs in addition to overall CR and HQCR. Fifth, work alliance between counselors and clients has been shown to improve clients' CR. However, we could not assess the extent of work alliance between counselors and their clients in our study. Presumably, counselors with more working experience may be more likely to know how to establish work alliance with their clients. Sixth, in this study, we did not know whether counselors received training other than counseling skills. Training such as people skills and social media skills may help improve CRs in IDD clients as these skills can broader the job opportunities in modern society. Finally, our results should be replicated in other states and among clients with other sociodemographic characteristics.

In summary, an MRC may allow counselors to be better prepared for managing clients with IDD than a master's degree in other disciplines. The CRs, especially HQCRs, were higher among counselors with an MRC than those with degrees in other disciplines. VR agencies and education institutes should provide additional and more targeted training to counselors to prepare for the challenge of placing their clients into a competitive integrative environment. The preservice and continuing education curricula should be developed based on the outcomes of clients and tailored to the needs of both clients and counselors in the current digital age.

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Journal of Applied Rehabilitation Counseling (JARC)
JARC Continuing Education Credit (CEU) Study Guide

Please read the article by Yu et al. included in the current issue of JARC, "Having a Master's Degree in Rehabilitation Counseling Leads to Higher Closure Rates among Persons with Intellectual and Developmental Disabilities from the Outcome-based Perspective" The following steps must be completed to obtain three CEU credits.

1. Answer the five questions listed below. An 80% pass rate must be obtained to receive CEU credit.
2. Submit this form and the appropriate non-refundable administration fee ($25.00 - NRCA members; $40.00 - non-members) to the NRCA office (address above).
   Checks/money orders payable to: National Rehabilitation Counseling Association.
   Credit Card Payment: ____VISA ____MasterCard ____American Express ____ Discover
   Card Number _____
   Card Expiration Date (mm/yy): _____ Card CVV _____
   Billing Address _____
   Billing Phone Number _____
   Signature _____
   Total Amount Submitted $_____
3. Include a self-addressed stamped envelope or valid email address _____ along with the form and fee to the NRCA office.
4. The NRCA office will send the CEU certificate to you. You will be responsible for submitting your CEU certificate to CRCC (1699 E. Woodfield Road, Suite 300, Schaumburg, IL 60173).
   Name (Please Print) _____ NRCA Membership# _____

Multiple Choice Questions

1. What percent of rehabilitation counselors having a Master's degree in rehabilitation counseling?
   a. 30%
   b. 40%
   c. 60%
   d. 80%

2. What is the closure rate among clients with intellectual and developmental disabilities (IDD)?
   a. 10%
   b. 30%
   c. 50%
   d. 60%

3. Having a Master's degree in rehabilitation counseling will:
   a. Have a higher overall closure rate among clients with IDD
   b. Have a higher closure rate on high quality employment among clients with IDD
   c. Have a higher closure rate on full time job among clients with IDD
   d. All of above

4. Based on the current research, what are important client's factors that affect the closure rate among clients with IDD?
   a. Disability severity
   b. Gender
   c. Race/ethnicity
   d. Education

5. What different knowledge domains are important in helping improve closure rates between counselors with a Master's degree in rehabilitation counseling and with other degrees?
   a. Medical and Psychosocial Aspects of Chronic Illness and Disability
   b. Career Development and Job Placement
   c. Health Care and Disability Management
   d. All of above