Article

HAMMILL INSTITUTE ON DISABILITIES

Rehabilitation Counseling Bulletin
56(4) 199–214

DOI: 10.1177/0034355212469839
rcb.sagepub.com
SAGE

Empirically Derived Test Specifications for the Certified Rehabilitation Counselor Examination

Michael J. Leahy, PhD[1], Fong Chan, PhD[2,3], Connie Sung, PhD[1], and Muwoong Kim, MS[1]

Abstract

This study examined the major job functions and knowledge domains required for effective rehabilitation counseling practice in today's rapidly changing practice environment to revise and update the test specifications for the Commission on Rehabilitation Counselor Certification examination. This report describes the methodology used in this nationwide study, the primary research questions addressed, the study's principal findings and recommendations, including the new set of test specifications that will guide future versions of the Certified Rehabilitation Counselor Examination. The results of this study provide empirical support for the description of the knowledge base underlying the practice of rehabilitation counseling and contributes further empirical evidence in relation to the content and construct validity of the knowledge domains identified in this replication and extension of the most recent study completed in 2006.

Keywords

roles and functions, test specifications, rehabilitation counseling

Since the beginning of the Commission on Rehabilitation Counselor Certification (CRCC or the Commission) credentialing process in 1973, a large number of rehabilitation professionals have participated in the certification process. The Certified Rehabilitation Counselor (CRC) credentialing process has been recognized as the oldest and most established certification mechanism in the counseling and rehabilitation disciplines in the United States (Leahy & Holt, 1993). Throughout the 38-year history of the CRCC, research efforts have contributed to the establishment of certification standards and examination content. These standards represent the education level, experience, and knowledge competencies required of rehabilitation professionals to provide rehabilitation counseling services to persons with disabilities (Leahy & Szymanski, 1995).

The first efforts to apply research to inform the CRC certification examination came at the very beginning of the organization in the mid 1970s, where the Muthard and Salomone's (1969) original study on rehabilitation counselor (RC) role and function was examined carefully to set the original parameters of the examination (Leahy & Holt, 1993). Work was also underway to conduct a national role and function study for the purpose of validating, upgrading, and refining the content of the certification examination and the item pool. These studies, which were sponsored by the CRCC, and conducted by Dr. Stanford Rubin and his associates at Southern Illinois University, provided a new content classification for use in the examination and item pool (Rubin et al., 1984). Although empirical research has consistently been the foundation of the certification examination, in 1985, the Commission decided to conduct a role and function study at regular intervals to ensure the relevance and validity of the examination (Szymanski, Linkowski, Leahy, Diamond, & Thoreson, 1993).

Over the years, rehabilitation counseling skill and knowledge standards have been empirically derived from role and function and knowledge validation studies (Leahy, Chan, & Saunders, 2003; Leahy, Muenzen, Saunders, & Strauser, 2009; Leahy, Shapson, & Wright, 1987; Leahy, Szymanski, & Linkowski, 1993; Muthard & Salomone, 1969; Rubin et al., 1984). These studies have provided empirical grounding of the certification processes as well as data to specifically guide the development of test specifications for the CRC examination process. For example, findings from Leahy et al. (1993) were directly translated by the discipline's regulatory bodies to validate knowledge

[1]Michigan State University, East Lansing, USA
[2]University of Wisconsin–Madison, USA
[3]National Changhua University of Education, Taiwan

Corresponding Author:
Michael J. Leahy, Michigan State University, 463 Erickson Hall, 620 Farm Lane, East Lansing, MI 48824-1034, USA.
Email: leahym@msu.edu

standards for academic program accreditation by the Council on Rehabilitation Education (CORE) and in designing an empirically based set of test specifications for practitioner certification by the CRCC.

In examination of job functions and knowledge requirements of CRCs by Leahy et al. (2003), seven major job functions (vocational counseling and consultation, counseling intervention, community-based rehabilitation services activities, case management, applied research, assessment, and professional advocacy) and six major knowledge domains (career counseling, assessment, and consultation; counseling theories, techniques, and applications; rehabilitation services and resources; case and caseload management; health care and disability systems; and medical, functional, and environmental implication of disability) were identified. The CRCC, in using these results for the development of the test specifications of the examination, combined the major knowledge domains and subdomains to give the specifications a 12-domain organizational schema.

Most recently, Leahy et al. (2009) surveyed CRCs in 2006 to examine perceived importance of knowledge areas underlying effective rehabilitation counseling practice. They validated 12 core knowledge domains from the 2001 study (Leahy et al., 2003) that are important to the contemporary practice of rehabilitation counseling: Counseling Knowledge (Individual Counseling, Group and Family Counseling, Mental Health Counseling, Psychosocial and Cultural Issues in Counseling), Vocational Knowledge (Career Counseling and Assessment, Job Development and Placement Services, Vocational Consultation and Services for Employers), Core Rehabilitation Knowledge (Case and Caseload Management; Medical, Functional, and Environmental Aspects of Disabilities; Foundation, Ethics, and Professional Issues; Rehabilitation Services and Resources; Health Care and Disability Systems).

In the years that have passed since the last role and function and knowledge validation studies, service settings have continued to diversify and the delivery of services has continued to evolve to address not only the changing needs of persons with disabilities but also to keep pace with advances in medicine, technology, and new knowledge generation and translation in the various practice settings. Consequently, recognizing and understanding these changes is important and consistent with the accreditation requirements that CRCC regularly study and review the test specifications used to guide the certification examination (Leahy et al., 2009).

As a result of these changes, this study was undertaken. The study is designed to examine the functions and knowledge requirements of rehabilitation counseling practice in today's rapidly changing practice environments. The findings and specific data from this study will be used by the Commission to examine and develop test specifications for future versions of the CRC examination.

Research Design and Research Questions

The research design for this study includes descriptive and ex post facto approaches. The descriptive approach involves the use of principal components analysis, as a data reduction technique, to examine the factor structure underlying major job functions and knowledge domains essential to the practice of rehabilitation counseling. The ex post facto portion of the study includes comparisons of factor scores across a number of variables such as employment (practice) settings and counselor licensure status. The research questions addressed in the study, and reported here, are as follows:

Research Question 1: What major job functions are perceived by CRCs as important for effective rehabilitation counseling practice, and how often are these tasks and functions performed?

Research Question 2: What knowledge areas are perceived by CRCs as important for effective rehabilitation counseling practice, and how prepared are the respondents to effectively use these knowledge areas in practice?

Research Question 3: Do CRCs from different practice settings vary in their perceptions of the relative importance and frequency of different rehabilitation counseling job functions and knowledge areas required for rehabilitation counseling practice?

Research Question 4: Do those CRCs with counselor licensure (Licensed Professional Counselor [LPC], Licensed Clinical Professional Counselor [LCPC] or similarly titled licenses) vary in their perceptions of the relative importance of different job functions and knowledge areas required for practice compared with CRCs without counselor licensure?

Method

Participants

As the major focus of this study is on the work behavior (functions and knowledge) of CRCs, data used in this study were obtained from two samples of approximately 10% of the CRC database. To begin the process, a sample of 4,000 CRCs were randomly selected from the population of CRCs (N = 16,259). The characteristics (gender, age, race/ethnicity, years of experience, job setting, and job title) of the selected sample were then compared with the population characteristics. After confirmation of the similarity between the randomly selected sample (n = 4,000) and the population characteristics (N = 16,259), the sample was then divided into two separate samples of 2,000 each. These were then

independently compared with the population characteristics again to ensure representativeness of the two samples used in the study.

Participants from the first sample received research packets from an electronic survey platform containing the functions and skills questionnaire (*Rehabilitation Skills Inventory–Revised* [RSI-R]), and participants from the second sample were asked to respond to the knowledge requirements questionnaire (*Knowledge Validation Inventory–Revised* [KVI-R]). Data were collected from April 5, 2011, through April 29, 2011. In addition to the initial request to participate, potential participants received two additional follow-up email reminders before the end of the data collection process to increase overall response rate. After launching the study, the actual number of deliverable email address was 1,860 for the first sample and 1,855 for the second sample. The respondents received three continuing education credits for participating in the study.

For the job functions sample, 391 out of 1,860 CRCs completed the functions and skills questionnaire (RSI-R), for a usable response rate of 21.0%. Respondents included 69.8% females and 28.4% males with an average of 13.48 (SD = 10.70) years of experience in their current employment settings. The mean age of the participants was 47.10 (SD = 12.05). The majority of the respondents identified themselves as Caucasian/non-Hispanic (83.3%); the remainder of the sample included African Americans (6.5%), Hispanic/Latino Americans (2.9%), Asian Americans (1.6%), American Indian/Native Americans (0.5%), and others (1.3%). The majority of the respondents hold the title of (a) RCs (40.5%) followed by (b) rehabilitation consultants/specialists (10.4%), (c) administrators/managers (8.6%), (d) supervisors (6.8%), (e) case managers (6.5%), and (f) rehabilitation educator (5.0%).

The most frequent work settings reported by the participants were (a) federal-state rehabilitation agency (36.9%), (b) private practice (12.3%), (c) college or university (8.9%), (d) private nonprofit rehabilitation facility/organization (7.9%), (e) private/proprietary rehabilitation company (7.3%), (f) mental health center (4.2%), (g) insurance company (2.9%), and (h) workers' compensation agency (2.6%).

From the target sample of 1,855 CRCs, 409 participants completed the knowledge requirement questionnaire (KVI-R). The overall usable response rate was 22.0%. Respondents included 75.1% females and 24.2% males with an average of 12.87 (SD = 9.95) years of experience in their current employment settings. The mean age of the participants was 47.64 (SD = 11.80). The majority of the respondents identified themselves as Caucasian/non-Hispanic (75.7%); the remainder of the sample included African Americans (8.2%), Hispanic/Latino Americans (6.0%), Asian Americans (2.0%), American Indian/Native Americans (1.0%), and others (3.7%).

The majority of the respondents held the title of (a) RCs (39.8%), followed by (b) administrators/managers (13.3%), (c) rehabilitation consultants/specialists (10.3%), (d) supervisors (5.8%), (e) case managers (4.8%), and (f) rehabilitation educator (4.3%). The most frequent work settings reported by the participants were (a) federal-state rehabilitation agency (40.5%), (b) private practice (11.8%), (c) private nonprofit rehabilitation facility/organization (7.3%), (d) college or university (6.8%), (e) private/proprietary rehabilitation company (6.5%), (f) mental health center (3.5%), (g) business or industry (3.3%), and (h) insurance company (3.3%).

As can be observed, the two research samples are very compatible in terms of their demographic characteristics and, most importantly, are clearly similar to the current overall population demographics (N = 16,259) for CRCs.

In addition to other demographic questions that participants responded to in relation to disability status, education, professional credentials, and professional association membership, both samples were also asked questions about their job stress, job performance, and job satisfaction. These results indicate that the majority of both samples felt at least a moderate degree of job stress, were high performers, and were satisfied with their jobs at present.

Instrumentation

The RSI-R (Leahy et al., 1987; Leahy et al., 2003) and the KVI-R (Leahy et al., 1993; Leahy et al., 2003; Leahy et al., 2009) were selected as the primary instruments for the study. Each of these instruments were carefully reviewed, validated, and revised through a Delphi study with a panel of subject matter experts. In addition, a comprehensive Demographic Questionnaire was designed to collect descriptive data (e.g., gender, age, race/ethnicity, years of experience, job setting, job title, credentials) on the respondents.

Delphi study. To validate and revise the RSI-R and the KVI-R, this study used the Delphi method to obtain validation and consensus of expert panel members with extensive knowledge and experience in rehabilitation counseling. The first step in the Delphi study was to identify a panel of subject matter experts who could provide opinions and perspectives on each function or skill and knowledge area for rehabilitation counseling practice covered in the instruments. Twenty expert panel members identified by the CRCC Examination and Research Committee were placed into two groups, with each group participating in the Delphi study for either the RSI-R or KVI-R. Each group included 10 expert panel members, who were from a wide range of employment settings, such as insurance companies, medical centers, private not-for-profit agencies, private practice, university settings, private rehabilitation companies, and state/federal rehabilitation agency.

The Delphi study was highly productive. Findings from the panels of subject matter experts confirmed and validated the items on each of the instruments (the RSI-R and the KVI-R) through their rating and review of items on successive iterations of the two Delphi Studies. The findings were also used to modify and revise a number of the items based on panelist recommendations, eliminate any dated or redundant items, and create five new items based on their recommendations and the research team's review of what appeared missing in the instruments. After the Delphi study was completed, the RSI-R and KVI-R were revised. The RSI-R consists of 122 skill or function items, and the KVI-R consists of 92 knowledge items.

Final version of instruments. The RSI-R 2011 version is a 122-item questionnaire that uses two 5-point Likert-type scales to assess the importance and frequency of each job task item. Respondents were asked to rate the importance of each job task item using a 5-point Likert-type scale (0 = *not important*, 1 = *somewhat important*, 2 = *important*, 3 = *very important*, and 4 = *extremely important*). The respondents were also asked to rate the frequency with which they perform each task, taking into account all of the things they do over the course of the year in their work settings, using a 5-point Likert-type scale (0 = *not at all*, 1 = *very infrequently*, 2 = *somewhat frequently*, 3 = *very frequently*, and 4 = *most of the time*).

The KVI-R 2011 version is a 92-item survey instrument that uses two 5-point Likert-type scales to assess the importance of and preparedness for each knowledge item. Respondents were asked to rate the importance of each knowledge item using a 5-point Likert-type scale (0 = *not important*, 1 = *somewhat important*, 2 = *important*, 3 = *very important*, and 4 = *extremely important*). To assess levels of perceived preparedness, respondents were asked to rate the degree of preparation they believed they had received in each knowledge area through their education and training, using a 5-point Likert-type scale (0 = *no preparation*, 1 = *little preparation*, 2 = *moderate preparation*, 3 = *high degree of preparation*, and 4 = *very high degree of preparation*).

Although the RSI-R and KVI-R have been extensively used for this type of research, the 2011 versions of these instruments have been validated through the Delphi study and contain a number of new items representing evolving content relevant to rehabilitation counseling practice.

Results

Major Job Functions

In the language of job analysis, a job dimension is a collection of work behaviors or tasks with a common theme or purpose. A job can typically be described in between 5 and 10 job dimensions, and the job dimension approach to job analysis is most closely akin to the identification of essential functions (Ziemba & McMahon, 1992). In this study, the terms *job dimension* and *job function* are used interchangeably. To derive the major job dimensions of CRCs, a principal components analysis was performed based on the 122 job task items from the RSI-R 2011 version). Traditionally, the guiding principle used to determine sample size for factor analysis has focused solely on the participant-to-variable ratio. For example, Thorndike (1982) recommended a minimum of 10 participants per variable for factor analysis. Guadagnoli and Velicer (1988; cited in Floyd & Widaman, 1995) challenged such rules and argued that no sound theoretical or empirical basis exists for this across-the-board participant-to-variable ratio recommendation. Their Monte Carlo study suggested that the magnitude of the factor loadings, the number of items per factor, and the total sample size were all-important in determining the stability of the factor solutions. Specifically, they reported that with at least 10 variables loaded in the .40 range on each factor, samples as small as 150 participants produced accurate and stable solutions. In general, however, they recommended that samples of 300 to 400 participants be used when factor loadings are in the .40 range. In this study, the use of data from 391 and 409 CRCs to analyze rehabilitation counseling job functions and knowledge requirements, respectively, is deemed sufficient for the principal components analysis.

We first used the Kaiser–Guttman rule (i.e., eigenvalue greater than 1) to determine the number of factors to be retained. A 20-factor solution was indicated with several trivial factors toward the end. We then used Cattell's *scree* test as an alternative to determine the number of factors to be retained (Cattell, 1966a, 1966b; Gorsuch, 1983). This time, a 3-factor solution was indicated, which accounted for 44% of the total variance, and was judged to be parsimonious and interpretable. Next, items with factor loadings equal to or greater than .40 were retained for further analyses. For the larger factors, a subfactoring process was also used to increase the homogeneity and interpretability of the groupings. The three major rehabilitation counseling job dimensions for each job task item are presented in Table 1. Items within factors are ordered in terms of factor loadings and at the end of each item, the original instrument item number is displayed.

Factor 1: Job Placement, Vocational Assessment, and Career Counseling. This function consisted of 39 job task items, and a subsequent factor analysis of these 39 items suggested that they can be grouped into three subfactors: (a) Job Placement, (b) Vocational Assessment and Career Counseling, and (c) Occupational Information Analysis. The coefficient alpha computed for the total sample was .97, indicating high internal consistency of the items constituting this factor. The mean perceived importance rating for this factor was 2.78 (SD = 0.82), and the mean perceived frequency rating for this factor was 2.30 (SD = 0.86).

Table 1. Mean Importance of Job Functions Related to Rehabilitation Counseling Practice.

Job functions	Importance		Frequency	
	M	*SD*	*M*	*SD*
Factor 1—Job Placement, Vocational Assessment and Career Counseling (α = .97)	2.78	0.82	2.30	0.86
Subfactor A—Job Placement (α = .96)	2.80	0.90	2.25	0.94
Instruct clients in preparing for the job interview (e.g., job application, resume preparation, attire, interviewing skills) (52).	2.97	1.20	2.28	1.33
Instruct clients in developing systematic job search skills (51).	2.73	1.18	2.16	1.32
Respond to employer biases and concerns regarding hiring persons with disabilities (68).	2.76	1.25	1.78	1.23
Inform clients of job openings suitable to their needs and abilities (59).	2.91	1.23	2.42	1.38
Monitor clients' postemployment adjustment to determine need for additional services (55).	2.42	1.28	1.73	1.34
Provide prospective employers with appropriate information on clients' work skills and abilities (70).	2.56	1.29	1.73	1.33
Use supportive counseling techniques to prepare clients for the stress of the job search (50).	2.67	1.14	2.24	1.26
Use local resources to assist with placement (e.g., employer contacts, colleagues, state employment service) (57).	2.91	1.20	2.46	1.37
Develop mutually agreed upon vocational counseling goals (48).	3.05	1.23	2.78	1.37
Apply knowledge of assistive technology in job accommodation (64).	2.64	1.17	1.86	1.20
Identify hidden job leads and customized jobs/employment opportunities (119).	2.35	1.25	1.70	1.25
Provide information to help clients answer other individuals' questions, including employers, about their disabilities (34).	2.95	1.04	2.44	1.13
Identify and arrange for functional or skill remediation services for clients' successful job placements (49).	2.53	1.24	1.92	1.30
Understand the applications of current laws affecting the employment of individuals with disabilities (67).	2.89	1.10	2.35	1.18
Discuss clients' vocational plans when they appear unrealistic (47).	3.13	1.00	2.53	1.17
Recommend modifications of job tasks to accommodate clients' functional limitations (63).	2.75	1.14	1.99	1.27
Determine the level of intervention necessary for job placement (e.g., job club, supported work, on-the-job training) (66).	2.66	1.28	2.25	1.39
Counsel clients to select jobs consistent with their abilities, interests, and rehabilitation goals (43).	3.32	1.05	2.95	1.23
Discuss with clients labor market conditions that may influence the feasibility of entering certain occupations (46).	2.86	1.18	2.45	1.32
Identify educational and training requirements for specific jobs (60).	2.96	1.08	2.64	1.26
Recommend occupational and/or educational materials for clients to explore vocational alternatives and choices (44).	2.80	1.11	2.54	1.18
Subfactor B—Vocational Assessment and Career Counseling (α = .90)	2.87	0.77	2.45	0.84
Integrate assessment data to describe clients' assets, limitations, and preferences for rehabilitation planning purposes (14).	3.07	1.03	2.73	1.18
Make logical job, work area, or adjustment training recommendations based on comprehensive client assessment information (16).	2.83	1.20	2.37	1.33
Use behavioral observations to make inferences about work personality characteristics and adjustment (13).	2.63	1.11	2.28	1.27
Counsel with clients regarding educational and vocational implications of test and interview information (42).	2.83	1.14	2.54	1.23
Interpret diagnostic information to clients (e.g., tests, vocational and educational records, medical reports) (21).	3.04	1.04	2.78	1.16
Select evaluation instruments and strategies according to their appropriateness and usefulness for a particular client (8).	2.68	1.17	2.17	1.28
Match clients' needs with job reinforcers and clients' aptitudes with job requirements (15).	2.82	1.17	2.42	1.27
Identify clients' work personality characteristics to be observed through an on-the-job evaluation or simulated work situation (12).	2.26	1.24	1.67	1.24
Administer appropriate standardized tests for assessment purposes (9).	2.25	1.33	1.40	1.33
Assess clients' readiness for gainful employment (7).	3.34	1.03	3.06	1.17
Assess the significance of clients' disabilities (1).	3.65	0.69	3.35	0.90
Review medical information with clients to determine vocational implications of their functional limitations (41).	2.98	1.10	2.67	1.24
Subfactor C—Occupational information analysis (α = .89)	2.51	1.00	2.16	1.09
Classify local jobs using the DOT and ONet or other classification systems (62).	2.14	1.41	1.94	1.52
Utilize occupational information such as the DOT, Occupational Outlook Handbook, and other publications (65).	2.32	1.36	2.10	1.45
Analyze the tasks of a job (61).	2.77	1.14	2.25	1.31
Use computer-based assessment, counseling, and job-matching systems in the rehabilitation process (58).	2.13	1.26	1.70	1.33

(continued)

Table 1. (continued)

Job functions	Importance		Frequency	
	M	*SD*	*M*	*SD*
Apply labor market information influencing the task of locating, obtaining, and progressing in employment (56).	2.49	1.24	2.08	1.36
Identify transferable work skills by analyzing clients' work history and functional assets and limitations (6).	3.25	1.07	2.90	1.19
Factor 2—Counseling, Psychosocial Interventions and Case Management (α = .96)	2.75	0.70	2.33	0.70
Subfactor A—Counseling (α = .93)	3.07	0.71	2.77	0.79
Clarify for clients, mutual expectations, and the nature of the counseling relationship (18).	3.35	0.91	3.18	1.05
Adjust counseling approaches or styles according to clients' cognitive and personality characteristics (20).	3.29	0.91	3.11	1.04
Use counseling techniques (e.g., reflection, interpretation, summarization) to facilitate client self-exploration (23).	2.92	1.08	2.73	1.16
Identify one's own biases and weaknesses, which may affect the development of a healthy client relationship (19).	3.14	1.03	2.84	1.12
Develop a therapeutic relationship characterized by empathy and positive regard for the client (17).	3.53	0.83	3.38	0.95
Identify social, economic, and environmental forces that may present barriers to a client's rehabilitation (24).	3.29	0.85	3.08	0.98
Counsel clients to help them appreciate and emphasize their personal assets (33).	3.07	0.98	2.80	1.08
Counsel with clients to identify emotional reactions to disability (29).	2.95	1.01	2.43	1.14
Recognize psychological problems (e.g., depression, suicidal ideation) requiring consultation or referral (28).	3.41	0.85	2.78	1.16
Assist clients in terminating counseling in a positive manner, thus enhancing their ability to function independently (27).	2.78	1.20	2.38	1.30
Use assessment information to provide clients with insights into personal dynamics (25).	2.55	1.07	2.25	1.14
Apply psychological and social theory to develop strategies for rehabilitation intervention (22).	2.44	1.13	2.21	1.19
Prepare with clients rehabilitation plans with mutually agreed upon interventions and goals (26).	3.35	1.01	3.08	1.21
Confront clients with observations about inconsistencies between their goals and their behavior (35).	2.95	0.99	2.47	1.09
Subfactor B—Psychosocial Interventions (α = .92)	2.24	0.91	1.59	0.80
Counsel with clients using group methods for psychosocial and vocational adjustment problems (40).	1.75	1.26	0.93	1.18
Provide psychological counseling to clients regarding sexuality and disability issues (39).	1.89	1.26	1.02	1.08
Counsel with clients' family to provide information and support positive coping behaviors (38).	2.23	1.16	1.52	1.11
Use behavioral techniques such as shaping, rehearsal, modeling, and contingency management (36).	2.26	1.17	1.89	1.19
Explore clients' needs for individual, group, or family counseling (31).	2.40	1.15	2.03	1.18
Assist clients in verbalizing specific behavioral goals for personal adjustment (30).	2.61	1.12	2.26	1.21
Conduct group activities and programs such as job clubs, vocational exploration groups, or job-seeking skills groups (54).	1.98	1.39	0.99	1.27
Supervise new counselors and/or practicum or internship students in rehabilitation counseling activities (45).	2.38	1.46	1.27	1.30
Develop acceptable client work behavior through the use of behavioral techniques (53).	2.30	1.23	1.60	1.19
Assist clients in understanding stress and in utilizing mechanisms for coping (37).	2.74	1.05	2.29	1.20
Diagnose and identify treatment options for mental health issues (122).	2.32	1.35	1.68	1.43
Participate with advocacy groups to promote rehabilitation programs (98).	2.04	1.19	1.60	1.20
Subfactor C—Case Management and Advocacy (α = .87)	2.87	0.67	2.56	0.73
Collaborate with other providers so that services are coordinated, appropriate, and timely (78).	3.13	0.98	2.78	1.14
Coordinate activities of all agencies involved in a rehabilitation plan (74).	2.72	1.20	2.23	1.33
Monitor client progress (77).	3.49	0.82	3.28	1.00
Attend team conferences (105).	2.47	1.10	2.27	1.25
Explain the services and limitations of various community resources to clients (83).	2.64	1.08	2.37	1.19
Establish meaningful working alliances with the clients we serve (121).	3.01	1.01	2.99	1.17
Refer clients to appropriate specialists and/or for special services (81).	2.76	1.12	2.23	1.24
Identify and challenge stereotypic views toward persons with disabilities (100).	2.85	1.07	2.54	1.19
Determine clients' ability to perform independent living activities (5).	2.68	1.15	2.33	1.21
Obtain regular client feedback regarding the satisfaction with services delivered and suggestions for improvement (101).	2.64	1.05	2.39	1.18
Assist clients to identify needs and request accommodations or supports to address functional limitations (32).	3.15	0.98	2.69	1.14

(continued)

Table 1. (continued)

Job functions	Importance		Frequency	
	M	*SD*	*M*	*SD*
Teach problem-solving skills to clients (117).	2.71	1.13	2.40	1.24
Determine appropriate community services for clients' stated needs (4).	3.02	1.04	2.74	1.05
Factor 3—Demand-Side Employment, Workers Compensation, and Forensic Services (α = .94)	2.20	0.82	1.64	0.72
Subfactor A—Demand-Side Employment (α = .92)	2.14	0.85	1.55	0.72
Research and secure funding, community resources, and support needed for community reentry (107).	1.91	1.31	1.20	1.24
Provide benefits counseling to social security beneficiaries seeking vocational rehabilitation services (75).	2.30	1.42	1.36	1.30
Promote public awareness and legislative support of rehabilitation programs (99).	2.13	1.25	1.44	1.15
Train clients' coworkers/supervisors regarding work and disability issues (111).	2.05	1.26	1.39	1.23
Provide consultation to employers regarding accessibility and issues related to Americans with Disabilities Act compliance (71).	2.29	1.29	1.24	1.10
Evaluate and select facilities that provide specialized care services for clients (108).	2.03	1.28	1.38	1.27
Market rehabilitation services to businesses and organizations (89).	2.23	1.35	1.45	1.24
Act as an advocate for the client and family with third-party payers and service providers (106).	2.10	1.29	1.67	1.34
Contact vendors to purchase adaptive/accommodative equipment (109).	2.15	1.27	1.48	1.26
Negotiate financial responsibilities with the referral source and/or sponsor for client rehabilitation (88).	2.02	1.31	1.52	1.38
Use social networking in the rehabilitation and placement process (120).	1.96	1.30	1.53	1.28
Negotiate with employers or labor union representatives to reinstate/rehire an injured worker (69).	2.01	1.39	0.89	1.11
Utilize demand-side employment strategies related to hiring, return-to-work and retention (118).	1.80	1.27	1.31	1.24
Conduct a review of the rehabilitation literature on a given topic or case problem to identify the research-based evidence of effectiveness of various treatment or intervention options (93).	2.17	1.25	1.61	1.17
Make sound and timely financial decisions within the context of caseload management in your work setting (87).	2.74	1.27	2.44	1.45
Apply evidence-based research results to professional practice (94).	2.19	1.16	2.05	1.25
Apply principles of rehabilitation legislation to daily practice (95).	2.26	1.19	2.32	1.28
Subfactor B—Workers' Compensation and Forensic Services (α = .86)	2.33	0.94	1.83	0.99
Understand insurance claims processing and professional responsibilities in workers' compensation (80).	1.97	1.40	1.31	1.46
Provide expert opinion or testimony regarding employability and rehabilitation feasibility (72).	2.05	1.42	1.02	1.38
Document all significant client vocational findings sufficient for legal testimony or records (86).	2.76	1.31	2.42	1.55
Discuss return-to-work options with the employer (102).	2.19	1.32	1.48	1.38
Conduct labor market analyses (112).	2.02	1.28	1.51	1.39
Report to referral sources regarding progress of cases (76).	2.49	1.28	2.24	1.39
Obtain a release for a return-to-work from the treating physician (103).	2.49	1.36	1.98	1.52
Obtain written reports regarding client progress (104).	2.68	1.11	2.66	1.32

Factor 2: Counseling, Psychosocial Interventions, and Case Management. This function consisted of 39 job task items that are representative of counseling and psychosocial adjustment interventions, and case management activities. Subsequent factor analysis of these 39 items revealed the items can yield three subfactors: (a) Counseling, (b) Psychosocial Interventions, and (c) Case Management and Advocacy. For this factor, the coefficient alpha computed for the total sample was .96, indicating high internal consistency of the items constituting this factor. The mean perceived importance rating for this factor was 2.75 (*SD* = 0.70) and the mean perceived frequency rating for this factor was 2.33 (*SD* = 0.70).

Factor 3: Demand-Side Employment, Workers' Compensation, and Forensic Services. This function comprised 25 job task items that represent activities such as job development, employer relationship, and workers' compensation rehabilitation. Subsequent factor analysis of these 25 items revealed the items can be organized into two subfactors: (a) Demand-Side Employment and (b) Workers' Compensation and Forensic Services. The coefficient alpha computed for the total sample was .94, indicating high internal consistency of the items constituting this factor. The mean perceived importance rating for this factor was 2.20 (*SD* = 0.82), and the mean perceived frequency rating for this factor was 1.64 (*SD* = 0.72).

Overall, respondents rated all job functions as important (a rating of 2.0 or above). In terms of relative importance, Job Placement, Vocational Assessment, and Career Counseling was the most important job function domain (*M* = 2.78). Counseling, Psychosocial Interventions, and Case Management (*M* = 2.75) was the second most important job function

domain, followed by the Demand-Side Employment, and Workers' Compensation and Forensic Services domains (M = 2.20). In terms of frequency, participants rated their most frequently performed job task in the Counseling, Psychosocial Interventions, and Case Management domain (M = 2.33), followed by the Job Placement, Vocational Assessment, and Career Counseling domain (M = 2.30) and the Demand-Side Employment, and Workers' Compensation and Forensic Services domains (M = 1.64).

Major Knowledge Domains

A principal components analysis of the knowledge items yielded four knowledge domains important to rehabilitation counseling practice. The four-factor solution accounted for 46% of the variance. For the larger factors, a subfactoring process was also used to increase the homogeneity and interpretability of the groupings. The four knowledge domains and the mean importance rating for each knowledge item and preparedness scale, including standard deviations, are presented in Table 2. Items within factors are ordered in terms of factor loadings and at the end of each item, the original instrument item number is displayed.

Factor 1: Job Placement, Consultation, and Assessment. This factor consisted of 27 knowledge items representing job placement and vocational consultation knowledge. A subsequent factor analysis of these 27 items yielded four subfactors: (a) Job Development and Placement Services, (b) Vocational Consultation and Services for Employers, (c) Disability Management, and (d) Assessment and Evaluation. The coefficient alpha computed for the total sample was .95 indicating high internal consistency of the items constituting this factor. The mean perceived importance rating for this factor was 2.63 (SD = 0.72) and the mean perceived preparedness rating for this factor was 2.11 (SD = 0.74).

Factor 2: Case Management and Community Resources. This factor comprised 23 knowledge items that are important to case management and community support activities. A subsequent factor analysis of these 23 items can be grouped into two subfactors: (a) Mental Health and Health Care Advocacy, and (b) Case Management and Utilization of Community Resources. The coefficient alpha computed for the total sample was .93, indicating high internal consistency of the items constituting this factor. The mean perceived importance rating for this factor was 2.58 (SD = 0.66) and the mean perceived preparedness rating for this factor was 1.97 (SD = 0.71).

Factor 3: Individual, Group, and Family Counseling and Evidence-Based Practice. This factor comprised 15 knowledge items that represented knowledge related to counseling and psychological interventions. A subsequent factor analysis of these 15 items can be organized into two subfactors: (a) Individual, Group, and Family Counseling, and (b) Evidence-Based Practice. The coefficient alpha computed for the total sample was .92, indicating high internal consistency of the items constituting this factor. The mean perceived importance rating for this factor was 2.06 (SD = 0.77) and the mean perceived preparedness rating for this factor was 2.12 (SD = 0.66).

Factor 4: Medical, Functional, and Psychosocial Aspects of Disability. This factor consisted of 16 knowledge items related to medical, functional, and psychosocial aspects of disability. The coefficient alpha computed for the total sample was .88, indicating high internal consistency of the items constituting this factor. The mean perceived importance rating for this factor was 3.23 (SD = 0.50) and the mean perceived preparedness rating for this factor was 2.74 (SD = 0.60).

Overall, respondents rated all knowledge domains as important (a rating of 2.0 or above). In terms of relative importance, Medical, Functional, and Psychosocial Aspects of Disability was the most important knowledge domain (M = 3.23). Job Placement, Consultation, and Assessment (M = 2.63) was the second most important knowledge domain, followed by the Case Management and Community Resources domain (M = 2.58) and the Individual, Group, and Family Counseling and Evidence-Based Practice domains (M = 2.06). In terms of preparedness, participants rated themselves as most prepared in the Medical, Functional, and Psychosocial Aspects of Disability domain (M = 2.74), followed by the Individual, Group, and Family Counseling and Evidence-Based Practice domains (M = 2.12), the Job Placement, Consultation, and Assessment domain (M = 2.11), and the Case Management and Community Resources domain (M = 1.97).

Job Function and Knowledge Importance Across Settings

As mentioned previously, RCs are employed in multiple job or practice settings (e.g., state/federal vocational rehabilitation [VR], private not-for-profit rehabilitation, proprietary rehabilitation, insurance rehabilitation, rehabilitation hospitals, and mental health centers). One of our research questions asked whether CRCs from different practice settings vary in their perceptions of the relative importance of different rehabilitation counseling job functions and knowledge areas required for rehabilitation counseling practice. For this analysis, we grouped work settings into the following categories: (a) state VR, (b) private nonprofit rehabilitation, (c) proprietary rehabilitation, (d) college/university, and (e) other settings. MANOVA was used to explore the relationship between employment settings, and the perceived importance of job functions and knowledge areas.

Job functions. A MANOVA was computed to test the differences among RCs who worked in these five employment settings on the linear combination of the eight major RC job functions (combination of functions and subfunctions). The

MANOVA revealed a significant multivariate effect, Wilks's Lambda = .41, $F(42, 2518) = 12.66$, $p < .001$, $\eta^2 = .15$, the partial eta squared (η^2) of .15 indicate that the effect for group differences in our MANOVA accounted for 15% of the group differences; therefore, a univariate ANOVA was computed for each dependent variable. The alpha level was divided by 8 for each pairwise comparison to control for Type I error ($\alpha = .01/8 = .0013$). The results indicated significant differences on seven of the eight RC job functions. RCs across employment settings rated Demand-Side Employment Practice as similarly important. Significant differences were found for Job Placement ($\eta^2 = .07$), Vocational Assessment and Career Counseling ($\eta^2 = .06$), Occupational Information Analysis ($\eta^2 = .07$), Counseling ($\eta^2 = .05$), Psychosocial Interventions ($\eta^2 = .10$), Case Management and Advocacy ($\eta^2 = .06$), and Workers' Compensation and Forensic Services ($\eta^2 = .10$). The effect sizes (η^2) for the differences among employment settings for these knowledge domains are considered medium.

Post hoc comparisons using the Bonferroni procedure indicated that practitioners in state VR agencies ($M = 3.06$) rated Job Placement as more important than practitioners in private nonprofit rehabilitation ($M = 2.49$) and college/university ($M = 2.45$) settings. Practitioners in state VR agencies ($M = 3.07$) also rated Vocational Assessment and Career Counseling as more important than practitioners who work in private nonprofit rehabilitation ($M = 2.65$), college/university ($M = 2.56$), and other ($M = 2.70$) settings. Practitioners in state VR ($M = 2.59$) and proprietary rehabilitation ($M = 2.82$) settings rated Occupational Information Analysis as more important than practitioners in private nonprofit rehabilitation settings ($M = 2.06$). Practitioners in proprietary rehabilitation settings ($M = 2.81$) rated Counseling as less important than practitioners in state VR ($M = 3.13$) and private nonprofit rehabilitation ($M = 3.21$) settings. Practitioners who work in proprietary rehabilitation settings ($M = 1.78$) also rated Psychosocial Interventions as less important than practitioners who work in state VR ($M = 2.31$), private nonprofit rehabilitation ($M = 2.59$), college/university ($M = 2.34$), and other ($M = 2.49$) settings. Surprisingly, practitioners in proprietary settings ($M = 2.61$) rated Case Management and Advocacy as less important than practitioners in state VR ($M = 3.00$) and private nonprofit rehabilitation ($M = 2.99$) settings. Finally, practitioners in proprietary rehabilitation settings ($M = 2.79$) rated Workers' Compensation and Forensic Services as more important than practitioners in state VR ($M = 2.29$), private nonprofit rehabilitation ($M = 2.01$), college/university ($M = 1.89$), and other ($M = 2.09$) settings.

Knowledge domains. A MANOVA was computed to test the differences among RCs who worked in these five employment settings on the linear combination of the nine RC knowledge domains (combination of domains and subdomains). Upon finding a significant multivariate F, Wilks's Lambda = .51, $F(36, 1942) = 7.51$, $p < .001$, $\eta^2 = .15$, the partial η^2 of .15 indicates that the effect for group differences in our MANOVA accounted for 15% of the group differences; therefore, a follow-up univariate ANOVA was computed for each dependent variable. The alpha level was divided by 9 for each pairwise comparison to control for Type I error ($\alpha = .01/9 = .001$). The results indicated significant differences on five of the nine RC knowledge domains. RCs across employment settings rated Vocational Consultation and Services for Employers, Assessment and Evaluation, Case Management and Utilization of Community Resources, and Medical, Functional, and Psychosocial Aspects of Disability as similarly important. Significant differences were found for Job Development and Placement Services ($\eta^2 = .06$); Disability Management ($\eta^2 = .09$); Mental Health and Health Care Advocacy ($\eta^2 = .09$); Individual, Group, and Family Counseling ($\eta^2 = .07$); and Evidence-Based Practice ($\eta^2 = .05$). The effect sizes (η^2) for the differences among employment settings for these knowledge domains are considered medium.

Post hoc comparisons using the Bonferroni procedure indicated that counselors who work in state VR agencies ($M = 3.12$) rated Job Development and Placement Services as more important than practitioners who work for private nonprofit rehabilitation ($M = 2.61$) and other ($M = 2.73$) settings. Practitioners who work in proprietary rehabilitation settings ($M = 2.61$) consistently rated Disability Management as more important than practitioners who work in state VR ($M = 2.05$), private nonprofit rehabilitation ($M = 1.86$), college/university ($M = 2.07$), and other ($M = 2.12$) settings. Conversely, practitioners who work in proprietary rehabilitation settings ($M = 2.22$) consistently rated Mental Health and Health Care Advocacy as less important than practitioners who work in state VR ($M = 2.66$), private nonprofit rehabilitation ($M = 2.74$), college/university ($M = 2.83$), and other ($M = 2.66$) settings. Practitioners in proprietary rehabilitation settings ($M = 1.97$) also rated Individual, Group, and Family Counseling as less important than practitioners in nonprofit rehabilitation ($M = 2.59$), and college/university ($M = 2.48$) settings. In terms of Evidence-Based Practice, practitioners in college/university settings ($M = 2.45$) rated the importance of this knowledge domain significantly higher than practitioners in state VR ($M = 1.81$) and proprietary rehabilitation ($M = 1.71$) settings.

Impact of Counselor Licensure on Perceptions of Importance

One of our research questions asked whether CRCs with counselor licensure (LPC, LCPC, or other similarly titled licenses) varied in their perceptions of the relative importance of different job functions and knowledge areas required for practice compared with CRCs without counselor licensure.

RCs hold different types of professional licensure for their practice (e.g., Licensed Clinical Mental Health Counselor [LCMHC], Licensed Mental Health Counselor [LMHC], LCPC, Licensed Professional Clinical Counselor [LPCC], Licensed Clinical Social Worker LCSW], Licensed Social Worker [LSW], LPC, or Licensed Rehabilitation Counselor [LRC]). For this analysis, we grouped the respondents into two categories: (a) those who have the LPC credential and (b) those who do not have LPC credential. All other forms of licensure were not included in this analysis. MANOVA was used to explore the relationship between with/without licensure, and the perceived importance of job functions and knowledge areas.

Job functions. A MANOVA was computed to test the differences among RCs with or without LPC licensure on the linear combination of the eight major RC job functions (combination of functions and subfunctions). However, the multivariate F, Wilks's Lambda = .97, $F(8, 381) = 1.37$, $p > .05$, was not statistically significant. The results indicated no significant differences on any of the eight RC job functions. RCs with or without LPC licensure rated all the job functions, including Job Placement, Vocational Assessment, and Career Counseling; Occupational Information Analysis; Counseling, Psychosocial Interventions; Case Management and Advocacy; Demand-Side Employment; and Workers' Compensation and Forensic Services as similarly important.

Knowledge domains. A MANOVA was computed to test the differences among RCs with or without LPC licensure on the linear combination of the nine RC knowledge domains (combination of domains and subdomains). The MANOVA revealed a significant multivariate main effect for licensure, Wilks's Lambda = .95, $F(9, 399) = 2.16$, $p < .05$. However, the partial eta squared (η^2) = 0.05 indicated a small effect accounting for 5% of the effect of group differences in our MANOVA. Univariate ANOVA results indicated no significant differences on any of the nine RC knowledge domains. RCs with or without LPC licensure rated all the knowledge domains, including Job Development and Placement Services; Vocational Consultation and Services for Employers; Disability Management, Assessment, and Evaluation; Mental Health and Health Care Advocacy; Case Management and Utilization of Community Resources; Individual, Group, and Family Counseling; Evidence-Based Practice; and Medical, Functional, and Psychosocial Aspects of Disability as similarly important.

Discussion

The results of this study provide a new empirically based description of the knowledge base underlying the practice of rehabilitation counseling, as well as an updated description of the functions associated with contemporary practice for CRCs across all practice settings. These empirical findings are intended for use by the Commission to examine and set test specifications for future versions of the CRC examination.

The samples randomly drawn from the CRCC database for the RSI-R and KVI-R studies were very carefully constructed to ensure that each sample was reflective of the overall CRC population characteristics (N = 16,259). This was especially important as we anticipated that we would achieve a response rate, based on other studies using an electronic survey platform (e.g., Phillips & Leahy, 2012), of somewhere between 20% and 25%. As can be observed, the response rate for the RSI-R study was 21% and the KVI-R study was 22%. The two research samples were very compatible in terms of their demographic characteristics and, most importantly, were clearly similar to the current overall population demographics for CRCs. The only differences that appear important in relation to practice settings were that fewer individuals from the college or university settings and more individuals from the state-federal VR agencies participated in the study than what would have been anticipated from the actual demographic proportions in the database.

In the process of conducting this study, two survey instruments (RSI-R and KVI-R) were significantly revised to include content that reflects new practices (job tasks and functions) and knowledge requirements for RCs in today's more complex human service delivery environments. These newer areas were developed based on expert opinion of our Delphi panelists (subject matter experts) and a review of contemporary literature in these areas. As a result of the Delphi study, we were able to confirm and validate the items in each of the instruments (the RSI-R and the KVI-R). We were also able to modify and revise a number of the items based on panelist recommendations, eliminate any dated or redundant items, and create new items based on their recommendations and what appeared missing in the instruments.

These results also provide further validation of the importance of those more traditional knowledge areas and professional functions associated with the role of the RCs, which have been empirically described in previous studies (e.g., Leahy et al., 1993; Leahy et al., 2003; Leahy et al., 2009; Rubin et al., 1984). The results of this study differ somewhat in organizational structure from the current 12-knowledge domain solution (Leahy et al., 2009) that CRCC uses to guide the test specifications for the certification examination. That structure was based on the 2001 study (Leahy et al., 2003), as there was not a factor analysis included on items in the 2006 study. These differences, however, are primarily related to a greater degree parsimony achieved in the overall description, and additional depth and range within each of the knowledge domains that were identified.

An analysis on the impact of employment settings on the perceived importance of job functions and knowledge domains was also performed. The results of this analysis provided additional evidence that the instruments performed as one would have anticipated in relation to setting differences.

The results, for the most part, are also very consistent with previous research (Leahy et al., 1993; Leahy et al., 2003; Leahy et al., 2009) related to differences in relation to the practice setting of the respondents. Although differences exist in importance level of the function and knowledge domains, there is also significant agreement about the commonality of the function and knowledge domains across employment settings, which further supports the use of these findings in setting the new test specifications. Furthermore, as one would expect, there were more differences in function than in knowledge across settings, which also supports the use of the knowledge domains validated and organized in this study for use in the development of new test specifications for future CRC examinations.

One of the research questions asked whether CRCs with counselor licensure (LPC) varied in their perceptions of the relative importance of different rehabilitation counseling job functions and knowledge areas required for rehabilitation counseling practice compared with CRCs without counselor licensure. The analysis of the data for this question indicated that there were no statistically significant differences in relation to knowledge importance and no difference between these groups in relation to the job functions, indicating that these two groups are highly similar.

In the 2006 study (Leahy et al., 2009) that examined perceived importance of knowledge areas underlying effective rehabilitation counseling practice, they validated 12 core knowledge domains, which were identified in the 2001 study (Leahy et al., 2003), that are important to the contemporary practice of rehabilitation counseling. Although the current and previous studies are very similar in terms of knowledge importance item means, a direct comparison is not possible because the 2006 study used a 4-point Likert-type scale, rather than the more typical 5-point scale used in the current investigation and the studies in 1993 and 2001.

The primary purpose of this investigation was to conduct a role and function analysis of CRCs in today's diverse practice environments to identify the factor structure underlying major job functions and knowledge domains essential to the practice of rehabilitation counseling. In other words, this study identifies and describes what they actually do in practice to effect positive outcomes with the clients they serve, as well as examine what the RC needs to know to provide effective services to individuals with disabilities. For CRCC, the primary application of the knowledge gained through this study is to utilize the data described here (major job functions and knowledge domains) to examine their current test specifications for potential modification in light of these new findings.

Setting the New CRC Examination Test Specifications

The results from the KVI-R that identified the knowledge domains and subdomains, along with individual knowledge areas, were selected as the primary data to set the new organizational structure and test specifications for the CRC examination. Data about the frequency of tasks and functions performed, as measured in this study through the use of the RSI-R, were also used as additional information to assist in the decision-making process in setting the new test specifications. In terms of organizational schemas, the CRCC Examination and Research Committee decided to use the new structure reported here for the knowledge domains, as the factor analytic structure had not been updated since the 2001 study. They also decided, with the agreement of the research team, that the knowledge items will be organized under a combination of factors and subfactors (as was done in 2001) to increase the homogeneity of the individual knowledge area included and to improve on the interpretability of the organizational structure. For the most part, the original structure of the KVI-R results was used in the design of the new CRC examination test specifications. Changes that were made include a relabeling of some of the knowledge domains to better reflect subdomain content and the movement of a few items in the specifications to better reflect homogeneity of content within domains and interpretability. The research team and the CRCC Examination and Research Committee agreed that each of the knowledge domains and subdomains attained a level of empirical importance sufficient to be included in the test specifications and thus represented as items in future versions of the CRC examination.

Once the overall structure of the specifications was set, the next step in the process undertaken by the Examination and Research Committee with the research team was to review all the importance data reflected in the subdomains to assign the number of items that should be selected for each knowledge area in the new specifications. This process involves the application of formula developed by CRCC that identifies the number of items based on the actual importance data reflected in each subdomain. In addition, the CRC examination is based on a conjunctive scoring model, where knowledge subdomains are classified as either counseling content or rehabilitation/disability content (Saunders, Barros-Bailey, Chapman, & Nunez, 2009). In the examination process, participants must pass both the counseling and rehabilitation/disability portions of the examination to pass the CRC examination. Table 3 displays the new domains and subdomains for the CRC examination.

Summary and Conclusion

The results of this study provide empirical support for the description of the knowledge base underlying the practice of rehabilitation counseling and contributes further empirical evidence in relation to the content and construct validity of the knowledge domains identified in this replication and extension of the most recent study completed in 2006 (Leahy et al., 2009). Over the past 20 years, including this

Table 2. Mean Importance of Knowledge Domains Related to Rehabilitation Counseling Practice.

	Importance		Preparedness	
Knowledge domains	*M*	*SD*	*M*	*SD*
Factor 1—Job Placement, Consultation, and Assessment (α = .95)	2.63	0.72	2.11	0.74
Subfactor A—Job Development and Placement Services (α = .92)	2.99	0.77	2.52	0.77
Vocational implications of functional limitations associated with disabilities (23).	3.45	0.82	3.02	0.86
Occupational and labor market information (24).	2.99	0.97	2.54	1.00
Job analysis (35).	2.77	1.11	2.48	1.10
Job modification and restructuring techniques (36).	2.90	1.04	2.32	1.03
Job placement and job development strategies (38).	3.12	1.05	2.52	1.02
Job readiness including seeking and retention skills development (42).	2.96	0.99	2.41	1.01
Ergonomics, job accommodations, and assistive technology (37).	3.03	0.99	2.30	1.03
Transferable skills analysis (52).	2.95	1.03	2.44	1.08
Theories of career development and work adjustment (22).	2.76	0.93	2.65	0.89
Subfactor B—Vocational Consultation and Services for Employers (α = .89)	2.50	0.80	1.92	0.81
Supported employment strategies and services (39).	2.60	1.14	2.22	1.07
Psychometric concepts related to measurement (reliability, validity, standard error of measurement) (80).	2.79	1.12	2.38	0.98
Marketing strategies and techniques for rehabilitation services (53).	2.12	1.21	1.49	1.10
Insurance programs (e.g., Medicare, Medicaid, group and individual, short- and long-term disability, personal injury/no-fault liability) (87).	2.33	1.13	1.71	1.05
Consultation process with employers related to management of disability issues in the workplace (40).	2.80	1.06	1.99	1.08
The workplace culture, environment, and business terminology (54).	2.38	1.02	1.80	1.10
Employer development for job placement (41).	2.74	1.15	1.97	1.10
Evidence-based practice and research utilization (82).	2.29	1.13	1.94	1.13
Program evaluation procedures for assessing the effectiveness of rehabilitation services and outcomes (32).	2.45	1.03	1.80	1.03
Subfactor C—Disability Management (α = .83)	2.19	0.92	1.71	0.88
Workers' compensation laws and practices (45).	2.28	1.15	1.78	1.17
Forensic rehabilitation (expert testimony, life care planning, and earnings capacity evaluation) (49).	1.99	1.29	1.35	1.20
Disability prevention and management strategies (46).	2.24	1.14	1.69	1.08
Principles of caseload management (66).	2.15	1.22	1.87	1.15
Evidence-based psychiatric rehabilitation practices (64).	2.27	1.13	1.84	1.05
Subfactor D—Assessment and Evaluation (α = .80)	2.64	0.80	2.14	0.80
The tests and evaluation techniques available for assessing clients' needs (29).	2.95	0.92	2.60	0.90
Interpretation of assessment results for rehabilitation planning purposes (30).	3.05	0.91	2.56	0.92
Credentialing issues related to the rehabilitation counseling profession (74).	2.36	1.05	1.74	1.11
Computer-based and online assessment tools (75).	2.20	1.14	1.66	1.11
Factor 2—Case Management and Community Resources (α = .93)	2.58	0.66	1.97	0.71
Subfactor A—Mental Health and Health Care Advocacy (α = .90)	2.57	0.73	2.04	0.72
Human sexuality and disability issues (70).	2.66	1.05	2.05	1.03
Health promotion and wellness concepts and strategies for people with chronic illness and disability (63).	2.36	1.23	1.91	1.12
Computer-based job-matching systems (76).	2.59	1.16	2.37	1.09
Substance abuse and treatment (47).	2.72	1.08	2.15	1.07
Theories and techniques of clinical supervision (72).	2.56	1.17	2.06	1.08
Implications of medications as they apply to individuals with disabilities (78).	2.91	0.97	2.42	0.96
Advocacy processes needed to address institutional and social barriers that impede access, equity, and success for clients (69).	2.08	1.16	1.73	1.05
Services available through client advocacy programs (e.g., Client Assistance Program [CAP], legal aid) (84).	2.96	1.02	2.27	1.01
Diagnostic and Statistical Manual of Mental Disorders (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000) (77).	2.94	0.92	2.00	1.01
Services available from one-stop career centers (83).	2.35	1.09	1.90	1.05
Professional roles, functions, and relationships with other human service providers (68).	2.62	1.06	2.11	1.06
Human resource practices, diversity in the workplace, and workplace supports for people with disabilities (89).	3.26	0.93	2.72	1.01
Research databases (e.g., Cochrane Collaboration, PsycINFO, and MEDLINE) for locating empirically validated interventions (92).	1.42	1.21	0.88	1.14

(continued)

Table 2. (continued)

Knowledge domains	Importance		Preparedness	
	M	*SD*	*M*	*SD*
Subfactor B—Case Management and Utilization of Community Resources (α = .86)	2.59	0.68	1.87	0.78
Negotiation, mediation, and conflict resolution strategies (61).	2.48	1.05	1.68	1.02
Managed care concepts (e.g., preferred provider organization, health maintenance organization, point of service, evidence-based practice, and provincial/territorial health insurance programs) (86).	2.51	1.08	1.75	1.05
Case management process and tools (60).	2.87	0.97	2.06	1.09
Health care benefits and delivery systems (62).	2.53	1.06	1.68	1.10
Programs and services for specialty populations (e.g., school-to-work transition, spinal cord injury, traumatic brain injury, mental health, developmental disability, substance abuse, correctional) (85).	1.92	1.16	1.42	1.03
Techniques for working effectively in teams and across disciplines (56).	2.91	0.95	2.28	1.09
Social security programs, benefits, work incentives, and disincentives (48).	3.03	0.96	2.19	1.07
Techniques for working with individuals with limited English proficiency (57).	2.24	1.08	1.34	1.10
Demand-side employment issues related to hiring, return to work, and retention (88).	2.63	1.02	1.97	1.03
Methods and techniques used to conduct labor market surveys (67).	2.74	0.97	2.32	1.04
Factor 3—Individual, Group, and Family Counseling and Evidence-Based Practice (α = .92)	2.06	0.77	2.12	0.66
Subfactor A—Individual, Group, and Family Counseling (α = .90)	2.27	0.83	2.31	0.72
Family counseling theories (9).	1.94	1.09	1.89	0.98
Family counseling practices and interventions (10).	1.97	1.08	1.84	1.02
Group counseling theories (7).	1.89	1.13	2.36	0.98
Group counseling practices and interventions (8).	1.92	1.17	2.26	0.96
Individual counseling theories (11).	3.01	1.00	2.99	0.80
Human growth and development (14).	2.44	1.00	2.43	0.90
Societal issues, trends, and developments as they relate to rehabilitation (6).	2.71	0.90	2.41	0.86
Subfactor B—Evidence-Based Practice (α = .89)	1.87	0.86	1.96	0.76
Rehabilitation research methods and statistics (44).	1.74	1.17	2.10	1.05
Educating employers on disability-related issues (e.g., ADA, job accommodation, compliance/disability law) (81).	1.93	1.14	1.94	1.05
Rehabilitation research literature related to evidence-based practice (43).	2.15	1.14	2.10	1.05
Establishing and maintaining effective working alliances with the clients we serve (90).	1.47	1.08	1.33	1.11
Individual and family adjustment to disability (79).	1.91	1.14	2.39	0.98
Systematic review/meta-analysis (91).	1.61	1.20	1.39	1.24
Dual diagnosis and the workplace (71).	2.01	1.24	1.66	1.18
Historical and philosophical foundations of rehabilitation counseling (1).	2.16	1.11	2.75	0.87
Factor 4—Medical, Functional, and Psychosocial Aspects of Disability (α = .88)	3.23	0.50	2.74	0.60
The psychosocial and cultural impact of disability on the individual (27).	3.30	0.74	2.85	0.89
Community resources and services for rehabilitation planning (20).	3.18	0.85	2.41	0.97
Individual counseling practices and interventions (12).	3.21	0.88	2.95	0.82
The services available for a variety of rehabilitation populations, including persons with multiple disabilities (17).	3.37	0.76	2.49	0.93
Medical aspects and implications of various disabilities (26).	3.40	0.70	2.98	0.87
Behavior and personality theory (13).	2.79	0.95	2.66	0.84
Environmental and attitudinal barriers for individuals with disabilities (16).	3.27	0.78	2.82	0.87
The functional capacities of individuals with disabilities (33).	3.41	0.75	2.77	0.95
Rehabilitation terminology and concepts (3).	3.19	0.84	3.11	0.79
The psychosocial and cultural impact of disability on the family (28).	2.92	0.91	2.46	0.97
Diversity and multicultural counseling issues (15).	2.99	0.90	2.61	0.91
Risk management and professional ethical standards for rehabilitation counselors (5).	3.45	0.77	2.98	0.86
Case recording and documentation (58).	3.34	0.86	2.76	1.04
Laws and public policy affecting individuals with disabilities (2).	3.29	0.85	2.79	0.85
The case management process, including case finding, planning, service coordination, referral to and utilization of other disciplines, and client advocacy (18).	3.39	0.76	2.70	1.01
Rehabilitation techniques for individuals with psychological disabilities (50).	3.16	0.90	2.44	0.96

Note: CAP = Client Assistance Program.

Table 3. CRCE 2012 Test Specifications.

Knowledge domains and subdomains	
Domain 1—Assessment, Appraisal, and Vocational Evaluation	
A.	The tests and evaluation techniques available for assessing clients' needs
B.	Psychometric concepts related to measurement
C.	Interpretation of assessment results for rehabilitation planning purposes
D.	Computer-based job-matching systems
E.	Computer-based and online assessment tools
Domain 2—Job Development, Job Placement, and Career and Lifestyle Development	
A.	Theories of career development and work adjustment
B.	Vocational implications of functional limitations associated with disabilities
C.	Methods and techniques used to conduct labor market surveys
D.	Transferable skills analysis
E.	Occupational and labor market information
F.	Job analysis
G.	Ergonomics, job accommodations, and assistive technology
H.	Job readiness including seeking and retention skills development
I.	Job placement and job development strategies
J.	Job modification and restructuring techniques
K.	Demand-side employment issues related to hiring, return to work, and retention
L.	Services available from one-stop career centers
Domain 3—Vocational Consultation and Services for Employers	
A.	The workplace culture, environment, and business terminology
B.	Marketing strategies and techniques for rehabilitation services
C.	Employer development for job placement
D.	Consultation process with employers related to management of disability issues in the workplace
E.	Educating employers on disability-related issues
Domain 4—Case Management, Professional Roles and Practices, and Utilization of Community Resources	
A.	Principles of caseload management
B.	Case management tools
C.	The case management process, including case finding, planning, service coordination, referral to and utilization of other disciplines, and client advocacy
D.	Case recording and documentation
E.	Professional roles, functions, and relationships with other human service providers
F.	Techniques for working effectively in teams and across disciplines
G.	Health promotion and wellness concepts and strategies for people with chronic illness and disability
H.	The services available for a variety of rehabilitation populations, including persons with multiple disabilities
I.	Techniques for working with individuals with limited English proficiency
J.	Negotiation, mediation, and conflict resolution strategies
K.	Advocacy processes needed to address institutional and social barriers that impede access, equity, and success for clients
L.	Human resource practices, diversity in the workplace, and workplace supports for people with disabilities
M.	Programs and services for specialty populations
N.	Organizational structure of rehabilitation counseling practice settings
O.	Social security programs, benefits, work incentives, and disincentives
P.	Services available through client advocacy programs
Q.	Community resources and services for rehabilitation planning
R.	Supported employment strategies and services
S.	School to work transition for students with disabilities
T.	Financial resources for rehabilitation services
U.	Independent living services
V.	Health care benefits and delivery systems
W.	Laws and public policy affecting individuals with disabilities

(continued)

Table 3. (continued)

Knowledge domains and subdomains	
Domain 5—Foundations of Counseling, Professional Orientation and Ethical Practice, Theories, Social and Cultural Issues, and Human Growth and Development	
A.	Individual counseling theories
B.	Individual counseling practices and interventions
C.	Human growth and development
D.	Societal issues, trends, and developments
E.	Diversity and multicultural counseling issues
F.	Theories and techniques of clinical supervision
G.	Clinical problem-solving and critical-thinking skills
H.	Internet-based counseling tools and resources
I.	Risk management and professional ethical standards
J.	Ethical decision-making models and processes
Domain 6—Group and Family Counseling	
A.	Family counseling theories
B.	Family counseling practices and interventions
C.	Group counseling theories
D.	Group counseling practices and interventions
Domain 7—Mental Health Counseling	
A.	Behavior and personality theory
B.	Techniques for individuals with psychological disabilities
C.	Dual diagnosis and the workplace
D.	Human sexuality and disability issues
E.	Substance abuse and treatment
F.	Treatment planning for clinical problems
G.	*Diagnostic and Statistical Manual of Mental Disorders*
Domain 8—Medical, Functional, and Psychosocial Aspects of Disability	
A.	Medical aspects and implications of various disabilities
B.	Medical terminology
C.	Rehabilitation terminology and concepts
D.	The psychosocial and cultural impact of disability on the individual
E.	The psychosocial and cultural impact of disability on the family
F.	Environmental and attitudinal barriers for individuals with disabilities
G.	The functional capacities of individuals with disabilities
H.	Implications of medications as they apply to individuals with disabilities
I.	Individual and family adjustment to disability
J.	Appropriate medical intervention resources
K.	Work conditioning or work hardening resources and strategies
Domain 9—Disability Management	
A.	Disability prevention and management strategies
B.	Managed care concepts
C.	Insurance programs
D.	Workers' compensation laws and practices
E.	Forensic rehabilitation
Domain 10—Research, Program Evaluation, and Evidence-Based Practice	
A.	Historical and philosophical foundations of rehabilitation counseling
B.	Program evaluation procedures for assessing the effectiveness of rehabilitation services and outcomes
C.	Research databases for locating empirically validated interventions
D.	Rehabilitation research literature related to evidence-based practice
E.	Research methods and statistics
F.	Evidence-based practice and research utilization
G.	Evidence-based psychiatric rehabilitation practices
H.	Systematic review/meta-analysis

study, there have been four large-scale national research initiatives (Leahy et al., 1993; Leahy et al., 2003; Leahy et al., 2009; Szymanski et al., 1993) that have identified and defined the specific job functions and competencies important to the practice of rehabilitation counseling and the achievement of positive outcomes with the consumers they serve. These last four national studies have sampled the same population of interest and used parallel definitions of variables, research questions, and research instruments.

Each successive replication and extension of this line of inquiry has added to the evidence-based (DePalma, 2002) foundation of underlying knowledge dimensions essential for rehabilitation counseling practice. These studies and prior research have provided the discipline with consistent empirically based evidence of an established and mature discipline that is able to respond appropriately to the evolutionary demands and pressures of a dynamic human service field. These studies have also contributed directly to the content and construct validity of the empirically derived test specifications used for the CRC examination.

Acknowledgments

The authors extend their great appreciation to Ms. Cindy Chapman, CEO of Commission on Rehabilitation Counselor Certification (CRCC), for her exceptional assistance and support in carrying out this study. They would also like to thank all the members of the CRCC Examination and Research Committee for their help and support. These members include Shawn Saladin, Charles Degeneffe, Debra Harley, Ann Neulicht, Patricia Nunez, and Michael O'Brien.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study was commissioned and funded by the This study was commissioned and funded by the Commission on Rehabilitation Counselor Certification (CRCC).

References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Cattell, R. B. (1966a). *The scientific use of factor analysis*. New York, NY: Plenum.

Cattell, R. B. (1966b). The scree test for the number of factors. *Multivariate Behavioral Research, 12*, 289–325

DePalma, J. A. (2002). Proposing an evidence-based policy process. *Nursing Administration Quarterly, 26*(4), 55–61.

Floyd, F. J., & Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological Assessment, 7*, 286–299.

Gorsuch, R. L. (1983). *Factor analysis* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Guadagnoli, E., & Velicer, W. F. (1988). Relation of sample size to the stability of component patterns. *Psychological Bulletin, 103*, 265–275.

Leahy, M. J., Chan, F., & Saunders, J. L. (2003). Job functions and knowledge requirements of certified rehabilitation counselors in the 21st century. *Rehabilitation Counseling Bulletin, 46*, 66–81.S

Leahy, M. J., & Holt, E. (1993). Certification in rehabilitation counseling: History and process. *Rehabilitation Counseling Bulletin, 37*, 71–80.

Leahy, M. J., Muenzen, P., Saunders, J. L., & Strauser, D. (2009). Essential knowledge domains underlying effective rehabilitation counseling practice. *Rehabilitation Counseling Bulletin, 52*, 95–106.

Leahy, M. J., Shapson, P. R., & Wright, G. N. (1987). Rehabilitation practitioner competencies by role and setting. *Rehabilitation Counseling Bulletin, 31*, 119–130.

Leahy, M. J., & Szymanski, E. M. (1995). Rehabilitation counseling: Evolution and current status. *Journal of Counseling & Development, 74*, 163–166.

Leahy, M. J., Szymanski, E. M., & Linkowski, D. C. (1993). Knowledge importance in rehabilitation counseling. *Rehabilitation Counseling Bulletin, 37*, 130–145.

Muthard, J. E., & Salomone, P. (1969). The roles and functions of the rehabilitation counselor. *Rehabilitation Counseling Bulletin, 13*, 81–168.

Phillips, B. N., & Leahy, M. J. (2012). Prediction of membership in rehabilitation counseling professional associations. *Rehabilitation Counseling Bulletin, 55*, 207–218.

Rubin, S. E., Matkin, R. E., Ashley, J., Beardsley, M. M., May, V. R., Onstott, K., & Puckett, F. D. (1984). Roles and functions of certified rehabilitation counselors. *Rehabilitation Counseling Bulletin, 27*, 199–224.

Saunders, J. L., Barros-Bailey, M., Chapman, C., & Nunez, P. (2009). Rehabilitation counselor certification: Moving forward. *Rehabilitation Counseling Bulletin, 52*, 77–84.

Szymanski, E. M., Linkowski, D. L., Leahy, M. J., Diamond, E., & Thoreson, R. (1993). Validation of rehabilitation counseling accreditation and certification knowledge areas: Methodology and initial results. *Rehabilitation Counseling Bulletin, 37*, 109–122.

Thorndike, R. L. (1982). *Applied psychometrics*. Boston, MA: Houghton Mifflin.

Ziemba, T. M., & McMahon, B. T. (1992). Reinforcing the need for progressive human resources practices. In N. Hablutzel, & B. T. McMahon (Eds.), *The Americans With Disabilities Act: Access and accommodations* (pp. 101–128). Orlando, FL: Paul M. Deutsch Press.