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VOCATIONAL EVALUATION AND WORK ADJUSTMENT BULLETIN

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GUIDELINES FOR CONTRIBUTORS

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Evaluating Professionals

CARLISS Y. WASHINGTON, Rh.D.
Southern University, Baton Rouge, LA

DARRELL W. TAYLOR, Ph.D
Rehabilitation Institute
Southern Illinois University at Carbondale, Carbondale, IL

V.R. MAY, Rh.D.
May Rehabilitation & Therapy Services, Richmond, VA

STANFORD E. RUBIN, Ed.D
Rehabilitation Institute
Southern Illinois University at Carbondale, Carbondale, IL

Abstract: *The purpose of this investigation was to identify the job functions and associated job tasks performed by impairment rating and functional capacity evaluating professionals. The investigation also sought to determine the extent to which the professional disciplines differed in their perception of the importance of these job functions in the work disability evaluation process as defined by the National Association of Disability Evaluating Professionals (NADEP).*

The Disability Evaluator Job Task Inventory was developed for this study and completed by 96 members of the NADEP. Via principal components factor analyses the following three item areas were found to be parts of the job of disability evaluating professionals: Assessment of Physical and Cognitive Tolerance for Work Activities, Intake Information Collection and Processing, and Neurological and Orthopaedic Evaluation. Further analyses revealed a significant difference among professional disciplines as to their perception of the importance of the Neurological and Orthopaedic Evaluation job function in performing work disability evaluations.

The results of the study can be used as a basis for establishing content areas for establishing certification examination test items. The results of this investigation may also be used to guide pre-service and continuing education curricula for individuals who are or will be performing work disability evaluations.

Having reached alarmingly high rates, industrial injuries are becoming a matter of national economic concern (Niemeyer, Jacobs, Reynolds-Lynch, Bettencourt, & Lang, 1994). Workers' compensation costs in 1989 alone were an estimated 45 billion dollars, representing almost 2% of the total wages earned by employees covered by workers' compensation insurance (Niemeyer et al., 1994).

Accurate evaluation of the extent of the injured worker's disability is an essential component in the process of returning the worker to positions that are both physically and mentally appropriate. Functional capacity evaluation in the work disability evaluation process is directed at accurately measuring the evaluee's ability to perform essential work activities.

Several attempts to conceptually describe the work disability evaluation process have been documented by clinical practitioners in rehabilitation and medical settings (Hart, Isernhagen, & Matheson 1993; Feuerstein & Hickey, 1992; Matheson, 1988; May, 1984a; May, 1984b; May, 1988; simulation activities, materials handling assessment, an gross muscle strength testing. May (1988) later docu mented the specific clinical staff members who provide functional capacity evaluation services and delineate their roles and functions from his clinical experience With reference to protocol, Hart et al. (1993) noted that th functional capacity evaluation process involves (a) recor ing the evaluee's history, (b) conducting preevaluatio screening, (c) performing functional capacity testing, (interpreting the results of the evaluation, and (e) writing report of the findings. Wickstrom (1990) suggested that th functional capacity evaluation sequence in the work di ability evaluation process includes tests of manual mater als handling capabilities, aerobic capacity, posture an mobility tolerance, and anthropometric measure Feuerstein and Hickey (1992) applied an ergonomic co cept to the clinical assessment of occupational injury. Th approach involved the assessment of the musculoskelet neurologic, and cardiovascular status of the evaluee, well as the psychological and behavioral factors as the affect the capacity to perform the required job tasks. It als included an assessment of the evaluee's physical capabi ties as they relate to the biomechanical and psychologic demands of the job.

Bear in mind that all of the above functional capaci models referenced this evaluation process within a co trolled, clinical environment. May (1993) took the fun tional capacity evaluation model out of the clinical settin and demonstrated its utility in non-traditional rehabilit tion and work settings, such as on death-row in the Depar ment of Corrections, Commonwealth of Virginia.

In the final analysis, however, it is Matheson (1984) wh is credited with not just coining the term "Work Harde ing" for treatment programs designed to functionally r store industrially injured workers to work, but with co ceptualizing the work capacity evaluation process whi evolved from his widely-accepted industrial treatme methodology. From the early structure of Matheson (1984) work capacity evaluation process comes today work disability evaluation and functional capacity eval ation models publicized and promoted by Isernhage (1988), Isernhagen (1995), and May (1993; 1996). The com mon denominator among the above clinical authors ar their described programs is the recognition and applic tion of the early work of Dr. Matheson into each of his or h own published model.

Matheson (1988) depicted functional capacity evalu tion in the work disability evaluation process as bein highly specialized, utilizing individuals from a variety professional disciplines (e.g., physicians, chiropracto physical therapists, occupational therapists, vocation evaluators and rehabilitation counselors) in the healt rehabilitation and human service professions. Each these professions has well-developed standards of pra tice, but none of the professions has standards for th

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as there being a paucity of empirical research directed at describing the job tasks of work disability evaluation professionals when involved with evaluating the functional capacity of injured workers. Matheson (1984; 1985) may have laid the ground work for a comprehensive, consistent functional evaluation protocol, but even his published guidelines do not guarantee consistent applications among clinical examiners/evaluators in varying professions. Therefore, to better understand the applications of this process, ascertain specific progroups in performpairment functional evaluaidentify functions sented by evaluation one must the spefessional volved in ing imrating and capacity tions, the job repre- each identified profession, and determine the differences in opinion among the professional groups regarding their perceived ranking of the established job functions in terms of "important" vs "not-important". In keeping with this premise, the primary goals of this investigation were: (a) to identify the job functions and associated job tasks performed by disability evaluators and (b) to determine the extent to which the professional disciplines who participate in the disability evaluation process differed in their perception of the importance of these functions.

Each of these professions has well-developed standards of practice, but none of the professions has standards for the practice of functional capacity evaluation in the work disability evaluation process (Hart et al., 1993).

Method

The 359 active members of the National Association of Disability Evaluating Professionals (NADEP) were sent the Disability Evaluator Job Task Inventory (DEJTI). Ninety-six completed questionnaires were returned resulting in a total usable response return rate of 26.7%. The great majority of the respondents were male (89.6%). Mean number of years experience as a disability evaluator was 11.8. The education level of the respondents was reported as either Bachelor's (12.5%), Master's (17.7%), Ph.D. (11.5%), M.D. (32.3%), or Other (26%). Of 25 respondents listing "Other", 24 were Doctors of Chiropractic. The professionals represented in this sample are consistent with those identified by Matheson (1984) and May (1984b) as being those who provide these services within the context of their clinical practices.

The DEJTI was constructed specifically for this study. A stratified (by professional discipline) proportional random sample consisting of 40 NADEP members were asked to develop an initial task identification list. Using the lists developed by the content validation participants, 114 work disability evaluation job tasks were identified. These job task items were sent to the original sample of NADEP questionnaire contained 86 job tasks items.

The questionnaire was directed at identifying wh NADEP members perceived as the most important jo tasks performed by the disability evaluation professiona who provide work disability evaluation services. A 5-poi Likert-type rating scale was used for the respondents indicate the importance of each task in performing wo disability evaluations: 1 = not important, 2 = minimal important, 3 = moderately important, 4 = very importar and 5 = extremely important.

Results

Job Functions of Disability Evaluation Professionals

Using the responses on the survey instrument, the inve tigators sought to identify, through factor analysis, the jo functions within a set of 86 work disability evaluation jo task items. The first step in the factor analysis was th computing of the intercorrelation among job task item Pearson's product moment correlation between each pa of job tasks was calculated and the resultin intercorrelation matrix was factored by the principal com ponents method. The factor matrix was then rotated o thogonally to the varimax criterion in order to maximiz both the independence between factor groupings and th homogeneity of items within each factor. Th Kaiser-Guttman criterion of an eigenvalue cutoff of 1.0 o greater was used to determine the initial number of facto to be extracted (Rummel, 1970). A scree test was conducte on the results of the initial factor analysis to determine th optimal number of factors to request in subsequent facto analyses of the data. A pre-established factor loading crit rion of .35 or higher was used for item retention (Chil 1970). Cronbach's coefficient alpha was used to asse reliability on each factor (Cronbach, 1990).

Since the questionnaire contained 86 items and 96 r sponses were received, it was not possible to do a sing factor analysis on the entire group of 86 items. As a resul the 86 items were randomly split into two subsets of 4 items each. A principal components factor analysis wa run on each subset. Each factor analysis (FA-I and FA-I yielded three factors. Based on an examination of the item on each factor yielded by FA-I as well as the items found o each factor in FA-II, it became evident that both facto analyses had yielded similar item groupings conceptuall Therefore, it was possible to create three groups of item (each consisting of all the items of one factor from each o the original three factor solutions which were conceptuall similar). The three such produced item groupings wer labeled: Job Function I, Assessment of Physical and Cogn tive Tolerance for Work Activities; Job Function II, Intak Information Collection and Processing; and Job Functio III, Neurological and Orthopaedic Evaluation (see Tabl 1).

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Items Comprising the Three Derived Factors (Job Functions) of Work Disability Professionals (n=96)

FACTOR I: Assessment of Physical and Cognitive Tolerance

	Mean	SD
Report findings to appropriate source.	4.54	.69
Support evaluation-based conclusions with necessary documentation.	4.54	.77
Determine functional abilities of the evaluee.	4.48	.74
Gain evaluee's commitment to give maximum effort.	4.30	.88
Interpret results of functional capacity evaluations.	4.13	.93
Evaluate injured worker's tolerance for repetitive work tasks.	4.00	.95
Measure grip strength of evaluee.	3.93	1.03
Identify evaluation instruments and techniques according to appropriateness for a particular evaluee.	3.92	.96
Measure evaluee's manual dexterity.	3.89	.95
Assess lifting capacity of the evaluee.	3.89	1.10
Evaluate stooping, kneeling, crawling, carrying,and push/pull.	3.88	1.08
Evaluate sitting/posture tolerance of evaluee.	3.76	1.07
Assess evaluee's physical capacity on simulated work tasks.	3.75	.99
Evaluate upper extremity coordination of evaluee.	3.73	1.06
Assess lifting stamina of evaluee.	3.72	1.12
Evaluate standing tolerance of evaluee.	3.70	1.13
Evaluate walking tolerance of evaluee.	3.66	1.00
Measure evaluee's finger dexterity.	3.63	1.11
Evaluate manual materials handling capability.	3.56	1.02
Assess evaluee's cognitive capacity on simulated work tasks.	3.56	1.10
Evaluate balancing ability of evaluee.	3.54	1.11
Evaluate posture tolerance of evaluee.	3.53	1.09
Use simulated work tasks to		
Conduct job analysis.	3.42	1
Confront evaluee on results of tests if needed.	3.34	1
Administer ADL checklist to evaluee.	3.31	1
Conduct spinal function sort-performance assessment and capacity test.	3.27	1
Evaluate climbing abilities of evaluee.	3.20	1
Explain results of functional capacity evaluation to evaluee.	3.13	1
Assess evaluee's ability to manipulate crates.	2.97	1

FACTOR II: Intake Information Collection and Processing

	Mean	S
Develop concise written report to referring party in a manner understandable to all possible readers.	4.59	
Carefully document all facts and results in objective, operational, specific terms.	4.54	
Write cogent report.	4.47	
Document services provided.	4.31	
Identify problems with consistency of effort.	4.19	
Review evaluee's medical records.	4.18	1
Examine fit between physical capacity of evalueeand physical demands of the job.	4.18	1
Obtain evaluee's medical history.	4.07	
Identify job modifications necessary for client to return to work.	4.00	1
Review evaluee's work history.	3.90	
Provide a comparison of evaluee's pre-injury and post-injury job options.	3.85	1
Develop rapport with evaluee.	3.83	1
Solicit evaluee's perception of current health status.	3.79	
Refer evaluee to other professionals as necessary.	3.77	1
Assess demands of the specific job in specific environment to establish information regarding body mechanics, temperature, and other environmental factors.	3.77	1

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Document evaluee's primary health concern in his/her own words.	3.75	.96
Obtain detailed work history from evaluee.	3.75	1.05
Identify available job options that are compatible with the evaluee's skills.	3.68	1.13
Evaluate general employability behaviors of worker.	3.64	1.08
Identify worker behavior problems.	3.63	1.07
Identify vocational needs.	3.56	1.18
Rank order evaluee's health problems in order of significance for capacity to work.	3.54	1.10
Assess psychosocial adjustment of evaluee.	3.40	1.04
Obtains a picture of evaluee's lifestyle from evaluee.	3.36	1.10
Collect social history from evaluee.	3.32	1.07
Consult with all professionals working on evaluee's case.	3.31	1.21
Obtain evaluee's educational history from evaluee.	3.30	1.07
Collect family history from evaluee.	3.22	1.19

FACTOR III: Neurological and Orthopedic Evaluation

	Mean	SD
Determine if client is magnifying symptoms.	4.28	.91
Conduct general evaluation of musculo-skeletal system pathology of evaluee.	4.19	1.03
Conduct neurological examination of evaluee's coordination, strength, and reflexes.	4.10	1.13
Measure extremity joint ROM of evaluee.	4.03	1.04
Evaluate active movement of evaluee's trunk and shoulders.	3.96	.99
Evaluate joint range of motion of evaluee.	3.96	1.00
Conduct a musculoskeletal evaluation of evaluee's strength.	3.95	1.07
Evaluate pathology (injury/disease process) of the injured worker.	3.94	1.11
Conduct sensory and motor neurological evaluation of evaluee.	3.93	1.02
Provide expert witness testimony if needed.	3.91	1.11
Conduct orthopaedic examination of evaluee including inclinometer and goniometer ROM testing.	3.91	1.27
Measure spine ROM of evaluee.	3.86	1.13
Determine neurological causes of evaluee's diminished grip strength.	3.86	1.2
Evaluate muscle strength.	3.84	1.0
Evaluate active movement of evaluee's legs.	3.83	1.0
Conduct neurological evaluation of evaluee's spinal and peripheral tracts.	3.77	1.2
Assign rating to physical impairment of evaluee.	3.73	1.2
Measure flexibility of the evaluee.	3.71	1.0
Conduct gait analysis of evaluee.	3.66	1.0
Document chief complaints of evaluee with Numerical Pain Intensity Scale and Pain Frequency Scale.	3.60	1.0
Measure pinch strength of evaluee.	3.48	1.1
Conduct static-isometric consistency tests with evaluee.	3.41	1.1
Assess prolonged flexion dexterity of evaluee.	3.31	1.1
Measure evaluee's blood pressure.	2.99	1.2

Cronbach's alpha reliability coefficients for each of th three pairs of item groupings were .95 (Job Function I), .9 (Job Function II), and .94 (Job Function III). These Cronbac alpha results serve to further validate the merged iten groupings. Table 1 shows the item groupings that resulte when the items on the paired factors were merged an provides the importance scale mean rating and standar deviation for each item.

Differences in Job Functions among Professional Disciplines

To examine the relationship between the self-reporte importance of the job functions and professional disciplin of disability evaluators, a Multivariate Analysis of Vari ance (MANOVA) was computed. The respondents' mea scores for each of the three job functions (factors) were th dependent variables. The independent variable was pro fessional discipline with five levels (categories). Because o the small number of respondents in the professional disci pline category of physical therapy (n=10), occupationa therapy (n=5), and exercise physiology and kinesiology (n=4), these disciplines were grouped into one category (Physical Assessment, n=19) based on the similarity o their physical assessment job roles described in the litera ture (Hart et al., 1993; Feuerstein & Hickey, 1992 Matheson, 1988; May, 1984b; Wickstrom, 1990). Vocationa evaluation (n=7), forensic assessment (n=3), and psychol ogy (n=3) were grouped into a Vocational and Behaviora Assessment category (n=13) based on literature indicatin their roles in vocational and behavioral assessment (Har et al., 1993; Feuerstein & Hickey, 1992; Matheson, 1988

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Wickstrom, 1990). The remaining three categories (disciplines) were Medicine (n=31), Chiropractic (n=24), and Rehabilitation (n=9).

A significant MANOVA was obtained (Wilk's Lambda) $F(12, 235) = 7.63$, $p < .0001$. To determine how the groups differed, three ANOVAs were conducted. The group means and F values for the five professional disciplines are reported in Table 2.

A significant F was found for Job Function III (Neurological and Orthopaedic Evaluation). The Duncan's New Multiple Range Test, a post hoc comparison, was used to indicate which group means differed significantly. The mean rating of importance of Job Function III (Neurological and Orthopaedic Assessment) in the work disability evaluation process for the Chiropractic discipline differed significantly from the mean rating for the Physical Assessment discipline, the Vocational and Behavioral Assessment discipline, and the Rehabilitation discipline. The Medicine discipline also differed significantly from the Vocational and Behavioral Assessment discipline and the Rehabilitation discipline in their overall mean item rating for Job Function III. The overall mean item importance rating for Job Function III by those in the Physical Assessment discipline was significantly different than that of the Vocational and Behavioral Assessment discipline. However, the mean group ratings of the Chiropractic and Medicine disciplines were not significantly different. The order of the group means suggests that respondents from the disciplines of chiropractic and medicine found the job tasks that make up Job Function III (Neurological and Orthopaedic Assessment) to be more important to the work disability evaluation process than did the other disciplines (Rehabilitation, Physical Assessment and Vocational and Behavioral Assessment).

Table 2
Job Function Mean Scores by Professional Discipline (n=96)

	Professional Disciplines					
Job Function	1	2	3	4	5	F
I. Assessment	3.70	3.56	4.05	3.58	3.76	1.74
II. Intake	3.84	3.78	3.57	3.86	4.19	1.76
III. Neurological	4.12	4.03	3.66	3.11	3.44	7.45*

* $p < .0001$

Note: Professional Disciplines are labeled as follows: 1=Chiropractic, 2=Medicine, 3=Physical Assessment (Occupational Therapy, Physical Therapy, Exercise Physiology/Kinesiology), 4=Vocational and Behavioral Assessment (Vocational Evaluation, Forensic Assessment, Psychology), and 5=Rehabilitation

Discussion

In this study, 96 functional capacity examiners involv in the work disability evaluation process rated the imp tance of 86 specific tasks to their current jobs. Usin modified principal components analysis, three fact were identified: Assessment of Physical and Cogniti Tolerance for Work Activities, Intake Information Coll tion and Processing, Neurological and Orthopaedic Eva ation.

A total of three items did not achieve the preestablish .35 minimum factor loading for retention in the fi grouping. Item #17, refer evaluee for work hardeni received the lowest mean rating. This may be due t change in attitudes and/or reimbursement by third pa payors of work hardening programs since such progra lack standardization and research-based efficacy. Based literature reviews, there have been no program eval tions on standardized work hardening programs. It #35, give depositional testimony if needed, received mean item rating of 3.92 by the respondents which in cates that work disability evaluators consider this to b very important part of the work disability evaluation p cess. Item #2, assess lowering capacity of evaluee, receiv a mean item rating of 3.58 by the respondents wh suggests that this is a moderate to very important part the work disability evaluation process. While these ite were not identified as part of any of the global job functio in this study, their ratings suggest that they are import job tasks in the work disability evaluation process.

The results also indicated that several of the professio disciplines differed significantly in their overall mean it rating of importance for Processing, Neurological a Orthopaedic Evaluation (Job Function III). Differences the perception of importance of Job Function III may ha been influenced by what each group tends to focus within the work disability evaluation process (i.e., t medicine, chiropractic, and physical assessment dis plines focus on medical and medical related tasks a therefore perceive those tasks as more important th professionals who focus more on other areas in the wo disability evaluation process). Although no significa difference was found among the ratings of importance the remaining two job functions across disciplines, t mean importance ratings by each discipline indicate th individuals in the Physical Assessment discipline had t highest mean rating (4.05) in Job Function I (Assessment Physical and Cognitive Tolerance for Work Activitie Again this result is consistent with the primary foci of t individuals in this discipline in the work disability eva ation process.

The results of this study confirm the descriptions in t rehabilitation literature (Hart et al., 1993; Feuerstein Hickey, 1992; Matheson, 1988; May, 1984a; May, 198 May 1988; May 1993; Wickstrom, 1990) of the work disab ity evaluation process. However, given the results of t current study, these previous non-empirically based d scriptions of the work disability evaluation have provid a partial picture at best. The present study provides the fi

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ability evaluation process.

By drawing upon this study's identified job tasks and functions, the Commission on Disability Examiner Certification (CDEC) can begin to hypothesize the knowledge and skills essential for effectively performing functional evaluations within the work disability evaluation process. The CDEC can use the results of the present investigation for establishing content areas, for developing test items, and for establishing the content validity of its current certification examination offered to work disability evaluators (examiners) who complete training in performing the work disability evaluation model developed and published by the National Association of Disability Evaluating Professionals (May, 1994).

Aside from the CDEC's applications, the results of the current investigation can be used to guide the content of pre-service and in-service education curricula for individuals who are or will be performing work disability evaluations. Additionally, the results of this study might also be used to determine curriculum modifications warranted in the various educational settings involved in work disability evaluation.

Given the return rate of 26.7%, generalization of the results of this study to either all NADEP members or the entire population of disability evaluators cannot be determined with any known degree of accuracy. This study has the same limitation that was evident in previous studies that have investigated similar research questions. Past research on the identification of job tasks and/or competencies of rehabilitation practitioners, as well as the current study, has usually surveyed accessible populations (e.g., certified practitioners or those who were members of a particular professional organization). Therefore, generalization of the results of this study may be limited since the NADEP members who responded in this study (as well as the total current NADEP membership) may not be representative of the total population of disability evaluators.

Disability evaluation is a rapidly developing field and includes a diverse group of professionals. Thus, one can expect the list of identified tasks to change over time with advancements in the field. As a consequence, future replication should be conducted if an accurate, empirically based description of work disability evaluation is to be maintained.

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