



## THE DEVELOPMENT OF OCCUPATIONAL THERAPY FUNCTIONAL CAPACITY EVALUATION INDEX (OT FCE INDEX) A SCREENING TOOL TO ASSESS PHYSICAL DEMANDS IN FUNCTIONAL CAPACITY EVALUATION.

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### ABSTRACT

**OBJECTIVES:** The development of Occupational Therapy Functional Capacity Evaluation Index (OT FCE Index) a Screening tool. to assess Physical Demands in Functional Capacity Evaluation.

**METHODS:** The less available assessment tools available to know physical demands in various occupation. There is a need for comprehensive evaluation of diverse aspects of physical demands in people with different occupation. To develop a comprehensive assessment scale to evaluate physical demands in different occupations among subjects and to assess its reliability. Face and content validity and feasibility were assessed and the new instrument was piloted among 50 normal subjects, aged between 18 and 60 years of age. The inter-rater reliability and test-retest reliability of the new instrument were also evaluated.

**RESULT:** The instrument was found to have good internal consistency (Cronbach's alpha =0.95). The inter-rater reliability (kappa statistics = 0.83) and test-retest reliability (intra-class correlation coefficient = 0.87) were found to be good.

**CONCLUSION:** OT FCE Index seems to be a promising tool to assess the physical demands of subjects with relation to their occupation.

**KEYWORDS :** Occupational Therapy(OT), Fuctional Capacity Evaluation (FCE), Occupation.

### INTRODUCTION

FCEs were often criticized because of the lack of scientific evidence to support claims of reliability and validity. Job analyses performed by work place assessments are, however, for many practitioners inappropriate, because of the time consuming process and absence of sufficient support concerning validity and reliability. And due to lack of evidence may have prevented a more widespread use of FCEs in medical disciplines.

However, it appears that self-reports and expert-based assessments continue to be predominant means to assess functional capacity. While questionnaires can be used to assess self-reported ability to perform activities, the main asset of an FCE is that it assesses the ability to perform activities and physical demands. The question of whether an FCE is useful to complement an expert assessment cannot be answered until the psychometric properties of expert assessments are known and the strength of the relationships discovered.

### METHODOLOGY

#### Screening Tool Development

The screening tool was mainly developed to aid an Occupational therapist to use to screen out for job specific physical demands. This was used to determine the specific information from the patient about their job and description of job in detail with respect to physical demand levels. And also help to reduce time to administer the job specific Functional capacity evaluation.

So in our study initially we develop the tool require for Occupational Therapist to screen out the physical demands of patients with different musculoskeletal conditions. This were used to determine the specific information from the patient about their job and description of job in detail with respect to physical demand levels.

#### Item collection.

The following scales were examined:

- (1) Test elements in the FCE according to Isernhagen
- (2) Isernhagen Work System (IWS) FCE
- (3) Dictionary of Occupational Titles, 4th, revised. Washington DC, Employment and Training Administration US Department of Labor (1991)
- (4) Spinal Function Sort (PACT-Test)
- (5) ERGOS a compactly built work simulator of industrial style design
- (6) PILE test (Progressive Isoinertial Lifting Test)
- (7) The GAPP FCE (Gibson et al., 2005) provides a method for detailed evaluation of difficulties an injured worker or client with a disability may have in performing a range of physical activities that may be required at work, such as sitting, standing, walking,

reaching, lifting, and carrying.

- (8) Physical demand Subcommittee, Content model and Classification Recommendations by Lechner 1<sup>st</sup> September 2009.
- (9) DOT Residual Functional Capacity Battery
- (10) California Functional Capacity Protocol (Ca-FCP)
- (11) Blankenship Functional Capacity Evaluation
- (12) O\*NET system

Most of these scales were developed to assess specific area of physical demands and particular diagnoses.

Each scale and their items were examined for relevance, adaptability and clarity by a multidisciplinary group of rehabilitation professionals. Measures considered useful were incorporated in the new scale. Occupational therapists were the part of the panel expert and; physiotherapist and clinical psychologists were part of the panel of suggestions.

#### Item categorisation.

The items were then broadly categorised into five domains, namely, Dynamic Load handling consist of 12 physical demands; Postural tolerance consist of 7 physical demands; Postural flexibility consist of 14 physical demands; Postural Mobility consist of 4 physical demands; Gross and Fine skills consist of 9 physical demands.

The domain of 'Dynamic Load Handlings' were included more common physical demands those used commonly during any job or work. It consists of Power grip, Pushing, Pulling, Carrying, and Lifting.

The domain of 'Postural tolerance' was included the routine sustain posture required during any job and work. Its consist of tolerance of Standing, Sitting, Walking, Squatting, Kneeling, Crouching. As per the Indian context we were included the Sustain Cross Leg Position which is commonly practice during the work.

The domain of 'Postural flexibility' was included the more off body movement like reaching, rotation and bending for job or work; it's also includes ability alter the position, kneel down and squat down. This domain signifies more trunk movement with respect to limbs and static balance.

The domain of 'Postural Mobility' was included to change the body position from one place to other that's is walking, climbing and crawling. This was consist of lower limb functions.

The final domain of Gross and Fine skills was included the hand dexterity like fingering, handling, & twisting or alternate wrist movements; hand strength like pinch and key grip strength; Foot

control operation is specific demand of work or job and Balance to maintain posture upright during job or work.

### Scoring.

Five-point scale was formulated for assessment with 0 indicating Not Applicable and 1 to 5 suggesting able to do, mild restricted, moderately restricted, severely restricted and unable to do respectively. Precise words without jargon were used in the scoring key so that ambiguity and vagueness could be avoided. Items formulated were specific and with a single idea to prevent confusion

### Conduction of study

The scale was piloted in a group of 50 consecutive subjects attending the occupational therapy programme, aged between 18 and 60 years of age who gave written informed consent.

Subject with a no clinical diagnosis were included in study. Subjects with chronic unstable co-morbid medical conditions like pregnancy, psychiatry illness, and severe cardiac dysfunction and communication barriers or difficulty to understand or follow instructions were excluded from the study.

1	Age	Numbers	Percentage (%)
	18-30	22	44
	31-40	12	24
	41-50	7	14
	51-60	9	18
2	Type of Work	Numbers	Percentage (%)
	Very Heavy	2	
	Heavy	12	24%
	Moderate	16	32%
	Light	16	32%
	Sedentary	4	8%
3	OT FCE Index Score	Maximum Score	Mean Score
	Dynamic Load Handling	60	23.4
	Postural Tolerance	35	5.3
	Postural Flexibility	70	16.8
	Postural Mobility	20	2.27
	Gross & Fine Skills	45	17.15

### Reliability

Occupational Therapy Functional Capacity Evaluation (OT FCE) Index was scored by two occupational therapists concurrently to assess inter-rater reliability. It was also scored again after 3 weeks to assess test-retest reliability.

The instrument was found to have good internal consistency (Cronbach's alpha = 0.95). The inter-rater reliability (kappa statistics = 0.83) and test-retest reliability (intra-class correlation coefficient = 0.87) were found to be good.

The expert group reviewed the scale and the results of the study following which alterations were made to the scale. Face and content validity of the scale, its feasibility for routine use and its coverage of different facets for functions were specifically examined. A few items Crawling and Crouching is not applicable in maximum cases were removed and others rearranged into different domains.

### DISCUSSION

Instruments, which assess physical demands, are needed to help therapists set appropriate goals for intervention. The currently available functional measures have been developed for other populations, which limit their utility in the Indian context. In India where there is dearth of FCE evaluation for occupational therapists as well as intervention centres, there is dire need of developing and standardising measures specific to the population.

In our study the OT FCE Index play vital role administered the job specific FCE actual test in subjects; as it consist of overall occupations job specific physical demands as per Indian context. Various studies support that they evaluates the job analysis or job site information from the patient to know about patients physical demands before conducting the Functional Capacity Evaluation.

Lechner DE et al (1994) discuss in their study that such tools or test help us the predicted level of work was compared with the actual level of work. They concluded that such test can be used in making decisions regarding return to work after injury, pre-employment placement, and

vocational exploration.

Lakke (2012) She recommended that information to a physical FCE and assessment for fitness for work in that they provide a wider understanding of the person and the obstacles that need to be overcome to return to work.

Reneman (2004) concluded that self-reports are the predominant source of information on which clinical decisions are based.

The results of this research are inconclusive, but a lower score than the 1st percentile may possibly still be sufficient to perform work. The reason for this low performance should be identified within a biopsychosocial context. Additional assessment of physical demands by means of a workplace assessment may be recommended in these cases. Further research about the validity and utility of the normative values from this study should focus on the concurrent validity of the normative values and results adapted from workplace assessments also with patients having difficulty to perform work.

### CONCLUSION

OT FCE Index seems to be a promising tool to assess the physical demands of subjects with relation to their occupation. To our knowledge, the results of the present study are the first normative data in Indian context. The results should provide tools for clinicians to improve their judgments and recommendations for the physical part of work ability. This research contributes to closing the gap between workload and work capacity with normal individuals as well as physical disabled. We suggest that this research will be guides to support clinical decision-making.

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