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Address for correspondence: Anita Beelen, Department of Rehabilitation, Academic Medical Center, Amsterdam, PO Box 22660, 1100 DD Amsterdam, The Netherlands.
e-mail: j.a.beelen@amc.uva.nl

Validity of the Canadian Occupational Performance Measure: a client-centred outcome measurement

CHRISTINE DEDDING Department of Rehabilitation, Academic Medical Center Amsterdam,
MIEKE CARDOL Department of Rehabilitation, Academic Medical Center Amsterdam and Netherlands Institute of Health Services Research (Nivel), Utrecht,
ISALINE CJM EYSSSEN Department of Occupational Therapy,
JOOST DEKKER Department of Rehabilitation Medicine, VU University Medical Center, Amsterdam
ANITA BEELEN Department of Rehabilitation, Academic Medical Center Amsterdam and Department of Rehabilitation Medicine, VU University Medical Center, Amsterdam, The Netherlands

Objective: To study the convergent and divergent validity of the Canadian Occupational Performance Measure (COPM).

Design: Cross-sectional study.

Setting: The occupational therapy departments of two university hospitals in Amsterdam.

Subjects: One hundred and five consecutive outpatients.

Outcome MEASURES: The COPM is a measure of a client's self-perception of occupational performance in the areas of self-care, productivity and leisure. Outcome measures of the COPM are: the client's most important problems in occupational performance and a total score for performance and a total score for satisfaction for these problems. Problems reported in the COPM were compared with the Sickness Impact Profile (SIP68), the Disability and Impact Profile (DIP) and an open-ended question.

Results: Complete data were obtained for 99 clients. The identification of occupational performance problems with the COPM surpassed the items reported in the SIP68, the DIP and the open-ended question, which confirms the surplus value of the COPM. Divergent validity was further demonstrated by the low correlation coefficients between the total SIP68 scores and the COPM. Seventy-four per cent of the occupational performance problems reported in the COPM had a corresponding item in the DIP and 49% had a corresponding item in the SIP68. Convergent validity was supported by the fact that 63% of the corresponding problems in the DIP were reported to be a disruption of quality of life and 74% of the corresponding problems in the SIP68 were identified as a disability.

Conclusion: The results of this study provide supportive evidence for the convergent and divergent validity of the COPM. The data support the assumption that the COPM provides information that cannot be obtained with current standardized instruments to measure health.

INTRODUCTION

Current health care policies focus on demand induced and patient-oriented care. Demand induced care addresses the problems experienced by the patient as the starting point for treatment. In patient-oriented care hospital resources and personal care are organized around the patient rather than around various specialized departments.¹ However the concept of 'clinically defined need' remains dominant in clinical practice, possibly because neither demand-induced nor patient oriented care explicitly advocate active participation of the client during the treatment process. A client-centred approach aims to do so.

In a client-centred collaborative model, the client is involved in all phases of the treatment process: the client's opinion is crucial with regard to defining priorities for treatment, deciding on adequate treatment strategies and achieving the desired treatment outcome. The role of the therapist is to be attentive to the needs of the client and to provide all the information that is needed to make balanced decisions.^{1,2} Research findings suggest that client-centred practice leads to improvement of client satisfaction and adherence to health service programmes.^{1,3}

Since the 1980s, considerable progress has been made in the measurement of perceived health, and many different measurement instruments are now available. Some health status measures have gained widespread use in rehabilitation research: for example the Sickness Impact Profile (SIP), the Nottingham Health Profile (NHP) and the MOS Short-Form 36 (SF-36). However, these instruments provide no information about the impact of the perceived health on daily life. In other words, no distinction is made between inability to perform an activity on the one hand, and perceiving this as a problem on the other hand. Furthermore, it may well be that activities that are really important to the client are not listed in the questionnaire.

Unlike the above-mentioned questionnaires, a new generation of measurement instruments does focus on the client's point of view. Examples are the Impact on Participation and Autonomy (IPA) questionnaire, focusing on social participation⁴ and the Canadian Occupational Performance Measure (COPM) that addresses activities. The COPM enables a detailed exploration of activities that are important for a person. The COPM is based on a semi-structured interview. The semistructured design enables individuals to identify any activity of importance that they find difficult to perform. The conceptual basis for the COPM is derived from the Canadian Model of Occupational Performance. In this model, occupational performance is defined as the ability to choose, organize and satisfactorily perform meaningful occupations that are culturally defined and age appropriate for looking after one's self, enjoying life and contributing to the social and economic fabric of a community.²

The COPM has received international attention because it is an important method of assessment for directing occupational therapy interventions and measuring client-centred outcomes. However no clear description of the psychometric properties of the COPM can be found in the literature. Its content validity is supported by the process through which it was developed,³ but information about the reliability of the COPM is difficult to find: the authors of the COPM refer to three unpublished studies that are claimed to show acceptable test-retest reliability.³ With regard to information about the validity of the COPM, authors refer to four studies (two of which are unpublished and the third focuses on children) that are claimed to support the validity of the COPM.³ Although there are different studies in which the validity and/or reliability of the COPM have been investigated, some studies have only focused on specific diagnoses,^{5,6} and in other studies small study populations are investigated,⁷⁻¹⁰ so there is still a lack of information about the psychometric properties of the COPM. This article is part of a series of two. It evaluates the extent to which the COPM agrees with some other measures (convergent validity) and the extent to which the COPM provides new data, different from pre-existing measures (divergent validity). A second article about the reliability of the COPM is forthcoming.

METHOD

During the study period 170 outpatients, who fulfilled the inclusion criteria, were referred to the occupational therapy departments of two academic hospitals in Amsterdam, the Academic Medical Center (AMC) and the VU University Medical Center (VUMC). Inclusion criteria were: above 18 years of age, no difficulty in comprehending the Dutch language, and perceiving limitations in more than one activity of daily life. One hundred and five patients (50 from the AMC and 55 from the

VUMC) were willing to participate in the study. The medical ethics committees of the hospitals involved approved the study. All subjects gave written informed consent.

In occupational therapy, the COPM is used as an initial assessment for setting goals and planning treatment. The interview focuses on activities that the client wants, needs or is expected to perform. The importance of each activity, as perceived by the client, is first rated on a 10-point scale ranging from 1 (not important at all) to 10 (extremely important). In the next step the client selects the five most important activities, which are then rated on a 10-point scale for performance, ranging from 1 (not at all able) to 10 (able to perform extremely well), and for satisfaction, ranging from 1 (not at all satisfied) to 10 (extremely satisfied).³ The COPM was translated into Dutch in 1999.

The Disability and Impact Profile (DIP) covers a wide range of activities that may be restricted by a disabling disease. It is a self-administered questionnaire, and consists of 39 items with parallel questions about disabilities and their importance for or impact on the patient. Three items concern symptoms, whereas the other 36 items cover five domains: mobility (10 items), self-care (six items), social activities (10 items), communication (five items) and psychological status (five items). Each item is rated for its current disability aspect on a 0-10 point scale (0=maximal disability; 10=no disability) and for the importance or impact of that particular disability, also on a 0-10 point scale (0=not important at all; 10=most important of all). A weighted score for each pair of questions is calculated as follows: the deficit from the normal situation is calculated by subtracting the actual disability score from 10. This deficit is multiplied by the impact score for that item, resulting in a 'weighted deficit' (representing both the objective and subjective aspects of activity restrictions). This value is divided by 100. Subtracting this normalized weighted deficit from 1 yields a weighted item score.¹²

The Sickness Impact Profile (SIP68, a short version of the SIP136) assesses the impact of illness on daily functioning and behaviour, and consists of 68 items categorized into six subscales covering three broad dimensions: physical, psychological and social health. The physical dimension includes the subscales 'somatic autonomy' (e.g., getting dressed, walking), and 'mobility control' (behaviour related to walking and arm function). The psychological dimension consists of the subscales 'psychological autonomy and communication' and 'emotional stability' (the effect of health status on emotional behaviour). The social dimension addresses social and mobility aspects, and consists of the subscales 'social behaviour' and 'mobility range' (instrumental daily activities). All items are scored dichotomously; the number of confirmed sickness impact items makes up the sub-scale scores and the total score. Internal consistency and test-retest reliability of the SIP68 were satisfactory. The SIP68 is considered to be useful to assess various rehabilitation groups.^{13,14}

Finally, written responses to a self administered questionnaire with one open-ended question: 'In your own words, what do you experience as the three main problems caused by your health condition or disability?' were obtained.

Participants were interviewed at the hospital. In each hospital, the interviews were conducted by an occupational therapist. The therapists were trained and experienced in the use of the COPM. All spontaneous remarks made by participants about the COPM (during and after the interview) were noted.

In the week after the COPM interview, participants completed the SIP68 and the DIP, and wrote their response to the open-ended question at home.

Data analysis

Divergent validity refers to the ability to differentiate the concept under study from other constructs. Convergent validity refers to the correspondence between different methods of measuring the same theoretical construct.¹⁵

Divergent validity

Given the semi-structured design and client centred approach, it was expected that the COPM would identify problems that do not match any item in the SIP68 or the DIP. For each problem reported in the COPM two researchers assessed, independently, whether an item in the DIP or the SIP68 could be found that matched the reported COPM problem. In case of disagreement between the two researchers, a third person decided on the matching. Problems that were not covered by items in the SIP68 or the DIP were identified and described.

Additionally, Spearman's rank correlation coefficients were calculated between the performance and satisfaction scores of the COPM on the one hand, and the total SIP68 score and physical dimension score of the SIP68 on the other hand (two-sided tested). There were expected to be low correlations between both COPM scores and the total SIP68 score because the total SIP score is composed of predefined items and focuses on certain activities without taking importance into consideration. In contrast, the COPM addresses only those activities that are important to the person in question. Furthermore, it is known that there is no linear relationship between impairments and performance or problem-experience.^{3,16} Given the latter reason, it was also expected to find low correlations between the performance and satisfaction scores of the COPM and the physical domain of the SIP68.

Convergent validity

With regard to the DIP, it was expected to find agreement with items in the COPM because the DIP measures perceived health status as well as importance. It was expected that the corresponding items in the DIP would have a score indicative of a disruption of the quality of life. The authors of the DIP define a weighted score of less than 0.50 as a 'major disruption of quality of life'.¹¹ In the present analyses it was not feasible to take 'major disruptions' as the starting point for comparison with the COPM, since the COPM is not a normreferenced measure. Therefore, a milder cut-off score of 0.65 was chosen. Weighted scores ≤ 0.65 are regarded as disruptions of quality of life. The percentage agreement was calculated as the percentage of the corresponding items that had a weighted score ≤ 0.65 . The various corresponding items, which were not regarded as a disruption of quality of life according to the weighted score in the DIP, were described separately.

It was also expected to find agreement between problems with the occupational performance reported in the COPM and corresponding items in the SIP68. The percentage of agreement was calculated as the percentage of the corresponding items that were indicated as a disability by the client. The various corresponding items that were not indicated as a disability in the SIP68 were described separately.

Finally, it was expected to find agreement between the problems reported in the COPM and the problems reported in the open-ended question. To make responses compatible, all problems reported in the open-ended question and in the COPM were categorized according to the Canadian Model of Occupational Performance by two researchers, independently, not knowing the responses of the individual patients to the COPM, and then compared. The percentage of agreement was calculated as the percentage of problems reported in the open-ended question that were also reported in the COPM.

RESULTS

Study population

Although 105 consecutive patients met the criteria for inclusion in the study, the data of 99 patients (32 males) were used in the analyses. Six patients did not complete the questionnaires. The diagnoses of the clients were as follows: hand injury ($n=29$), central neurological disorders (e.g., multiple sclerosis or stroke) ($n=23$), neuromuscular diseases (e.g., limb-girdle muscular dystrophy, hereditary motor and sensory neuropathy and postpoliomyelitis syndrome) ($n=17$), and other diagnoses (e.g., chronic pain, Ehlers-Danlos, diabetes mellitus, arthrosis or arthritis) ($n=30$).

Reported problems in occupational performance (COPM)

With the COPM, 443 occupational performance problems were identified. These were subdivided into 182 self-care activities (41%), 98 activities in the area of productivity (22%), and 60 activities in the area of leisure (14%). Although the COPM measures at the level of activity, and consequently the therapist should direct the client towards activity outcomes instead of functions, some respondents repeatedly reported a problem at the impairment level, especially physical impairments (14%) and, to a lesser extent affective impairments (6%). The remaining 4% concerned cognitive, spiritual or environmental issues. Examples are given in Table 1.

[TABLE 1]

Validity of the COPM

Divergent validity

For 81 problems reported in the COPM no corresponding item could be found in either the DIP or the SIP68 (Table 2). These problems concerned sitting, caring for loved ones such as grandchildren or a spouse, and personal appearance.

[TABLE 2]

In agreement with the expectation, correlations (R^2) between the total SIP score and the COPM score were low. The correlation between the SIP68 and the COPM performance scores was -0.20 ($p=0.05$), and between the SIP68 and the COPM satisfaction scores it was -0.19 ($p=0.07$). The correlations between the performance and satisfaction scores of the COPM and the physical domain of the SIP68 were also low, respectively -0.21 ($p=0.04$) and -0.19 ($p=0.06$). Therefore, only the correlation between the physical domain of the SIP68 and the COPM performance score was significant as predicted.

Convergent validity

Of the 443 occupational performance problems reported in the COPM 328 (74%) had a corresponding item in the DIP, and 216 problems (49%) had a corresponding item in the SIP68. Of the 328 COPM problems that had a corresponding item in the DIP, 205 (63%) problems were also reported as a disruption of quality of life in the DIP.

Of the 216 problems that had a corresponding item in the SIP, 160 problems (74%) were also indicated as a disability in the SIP68.

Ninety-seven clients answered the open-ended question. Sixty-three per cent of the problems reported in the open-ended question matched the problems reported in the COPM.

Feasibility

Clients expressed enthusiasm about the COPM; they reported that it makes them feel that they are taken seriously as individuals instead of being generalized according to their diagnosis or age. Most clients reported that they found it helpful to spend time thinking in detail about their most important occupational performance goals, particularly with the knowledge that these goals would be incorporated in the occupational therapy treatment. A considerable number of clients ($n=37$) made remarks about the scoring system during the interview. They sometimes found it difficult to translate their problems into a score; they were afraid of being too negative or too subjective, or felt that the scoring was arbitrary, depending on the day and mood. The researchers found the COPM easy to administer, and very helpful to identify issues that are relevant for the client. The average administration time was 30-45 minutes.

DISCUSSION

The COPM seems to be unique in that it enables self-rating of any self-care, productivity or leisure activity. The broad variation in problems identified with the COPM confirms the belief that values with regard to occupational performance outcomes differ between clients, and are influenced by the physical, cultural and social environment of the client.^{1,17} To a certain extent this broad variation in problems is lost in the comparison of individual problems as reported in the COPM with the structured format of the SIP68 and the DIP, which explains the low percentage (18%) of problems unique to the COPM. For instance, all leisure activities (e.g., playing a pipe organ, horse riding, fitness) were categorized into one DIP item 'leisure activities' and into two items on the SIP68 concerning the amount of time spent on leisure activities.

CLINICAL MESSAGES

- The Dutch Canadian Occupational Performance Measure (COPM) is a valid measure of a client's self-perception of occupational performance in the areas of self-care, productivity and leisure.
- The COPM provides information that cannot be obtained with current standardized instruments.

The convergent validity of the COPM was satisfying. A significant correlation was found between the physical domain of the SIP68 and the performance score of the COPM, and there was substantial

agreement between the problems reported in the COPM and the items in the DIP and the SIP68. The items in the DIP are less detailed than the items in the SIP68, which probably explains the fact 74% of the COPM problems matched items in the DIP, and only 49% matched items in the SIP68. The higher agreement between the items indicated as a disability in the SIP68 (74%), compared to items reported as a disruption of quality of life according to the DIP (63%), can be explained by the fact that the DIP is a norm-referenced measure, whereas the SIP68 is not. Furthermore, it must be realized that for the items of the DIP an arbitrary cut-off value for disrupted quality of life was used (a weighted score ≤ 0.65).

Divergent validity was supported by the low correlation between the satisfaction score of the COPM and the SIP68, and the low correlation between the performance score of the COPM and the total SIP score. The identification of occupational performance problems using the COPM provided more detailed information, and the problems exceeded those identified by clients in the open-ended question. It was expected to find a higher agreement between the problems reported in the COPM and the issues raised in the open-ended question. The discrepancy can be explained by the interaction between the client and the interviewer, which enables clients to reflect on their situation and reformulate the problems they experience. In addition, the wording of the open-ended question was not directed towards reporting problems in activities and hence problems such as pain, a loss of strength or restricted range of motion were frequently reported as one of the three main problems instead of the activity itself that was restricted. A few respondents repeatedly reported problems at the impairment level in the COPM as well, although the researchers tried to focus the interview on activity outcomes. This was respected, since in a client-centred approach it is the client who defines the goals for treatment, even when this is not in accordance with the design of the instrument.

Although in the Netherlands one is used to scoring on a scale between 1 and 10, individual interpretation is inevitable. For one person a '6' indicates dissatisfaction, while others consider this to be a moderate score. In practice, however, the interpretation problem is of less importance, since the COPM is used *within* the individual and changes in performance and satisfaction are evaluated by comparing the initial assessment scores with the reassessment scores. In research one must be aware that the scores are not as objective as they seem.

Given this study, the COPM was not considered to be useful for clients with one clear problem in the field of activity, since they have already indicated their treatment goal. However, in clinical practice the scoring for performance and satisfaction for that particular problem can still be useful, since this reflects the perception of the client and offers the possibility to detect change from the client's point of view.

In general, the COPM is experienced as a very helpful tool with which to bring the theory of the client-centred approach into practice. This can only be achieved when the therapist is trained in the principles of client-centred practice and has been trained to administer the semi-structured interview. Moreover, introduction of the COPM in a multidisciplinary team demands reconsideration of current clinical practice, since this can be in conflict with the principles of client-centred practice.

In conclusion, the data suggest that the COPM provides information that cannot be obtained with standardized instruments to measure health. Its strength lies in the self-rating of *any* activity of importance, leading to an open dialogue between client and therapist about expectations and treatment outcomes. The results of this study provide supportive evidence for the convergent and divergent validity of the COPM.

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TABLES

Table 1 Examples of problems reported in the COPM

	<i>n</i>	(%)
At the activity level		
Self-care (Drive a car, ride a bike, tie one's shoelaces, turn the tap on/off, put on make-up, get up from the toilet, dress oneself, lock the door)	182	(41)
Productivity (Iron clothes, take care of children, work on the computer, open jars, maintain the garden, all kinds of paid and unpaid jobs)	98	(22)
Leisure (Visit friends and family, play with grandchildren, dance, travel, visit a theatre, all kinds of handicrafts and sports)	60	(14)
At the impairment level		
Physical (Strength, hyperpathy, grasping, reaching, pain, coordination)	59	(13)
Affective (Asking for help, feeling vulnerable, feeling lonely, feeling dependent, accepting limitations)	26	(6)
Cognitive (Concentration, memory)	6	(1)
At the spiritual level (Not wanting to depend on anybody, being able to do as you wish, being able to live/act spontaneously)	8	(2)
At the environmental level (House or surroundings not accessible for wheelchair, feeling cold in the house because energy costs are too high)	4	(1)

All identified problems ($n = 443$) were categorized into four levels 'activity', 'impairment', 'spiritual' and 'environmental'. Within the 'activity' level, problems were categorized as 'self-care', 'productivity' and 'leisure'. Within the 'impairment' level, problems were: categorized as 'physical', 'affective' and 'cognitive'.

n = number of identified problems within the category; % = percentage of all identified problems.

Table 2 Examples of individual-specific activities identified in the COPM only ($n = 81$)

Sitting In the car Behind the computer On a couch Sitting straight
Interdependence Taking care of grandchildren Taking care of spouses Asking for help
Personal appearance Wet shaving Good shaving and cleaning the shaver Blow-drying hair Doing one's hair (pigtail, a bun) Putting on make-up Depilating
Remaining Using the telephone Opening the garage door Making choices Turning pages of the newspaper Drying dishes Going to the toilet at night. Reading in bed Injecting insulin

Individual-specific activities identified in the COPM that were not covered by items in the SIP68 or the DIP ($n = 81$) could be categorized into 'sitting' ($n = 20$), 'interdependence' ($n = 14$), 'personal appearance' ($n = 12$) and 'remaining' ($n = 35$).
 n = number of identified problems within the category.

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