

THE USE OF THE MULTNOMAH COMMUNITY ABILITY SCALE AS A PROGRAM EVALUATION TOOL

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Abstract: The Multnomah Community Ability Scale (MCAS) is a standardized measure of functioning of people with mental illness living in the community. This study assessed feasibility and utility of the MCAS for routine outcome monitoring of clients enrolled in intensive community support programs. Burden related to training and administration was assessed and scale properties were evaluated, using data collected from a multi-site community mental health evaluation initiative. Minimum effort was required to achieve good inter-rater reliability and administer the measure. The validity of the MCAS for measuring change in community functioning in new program clients was supported. However, MCAS ratings for ongoing clients were stable. Future studies can assess the relevance of the MCAS for measuring improvement in this client group.

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Résumé: Le «Multnomah Community Ability Scale» (MCAS) est une mesure standardisée de fonctionnement pour les personnes atteintes de troubles de santé mentale sévères et persistants qui vivent dans la communauté. L'étude a évalué l'utilité du MCAS en tant qu'outil de monitoring des progrès des clients inscrits dans des programmes de suivi communautaire intensif. En utilisant les données provenant d'une étude multisite portant sur l'évaluation des services de santé mentale communautaire, les exigences reliés à la formation et à l'administration de l'instrument ainsi que les propriétés des échelles ont été examinées. Une bonne fidélité inter-juges a été atteinte après une formation brève. L'effort requis pour administrer l'instrument est minimal et la validité du MCAS pour mesurer le changement est bonne. Les études ultérieures pourront évaluer la pertinence du MCAS pour mesurer l'amélioration pour ce groupe de client.

The Multnomah Community Ability Scale or MCAS (Barker, Barron, McFarland, & Bigelow, 1994a; Barker, Barron, McFarland, Bigelow, & Carnahan, 1994) assesses functioning of people with mental illness living in the community. Developed in Multnomah County, Oregon, jointly by researchers and front-line staff, this public domain tool was welcomed by the mental health field due to its focus on those with severe mental illness. Since its initial development, the MCAS has been used in research studies to assess correlates of level of care (Dickerson, Ringel, & Parente, 1999) and program effectiveness (Quinlivan, 2000; Trauer, 2001). Given that the scale is relatively brief, is intended to be completed by program staff, and is accompanied by a training package, it has also been incorporated into a number of state information systems for monitoring community mental health care (Shon et al., 1999; Zani, McFarland, Wachal, Barker, & Barron, 1999). However, research tools are not necessarily appropriate for routine program monitoring and evaluation. Whereas research studies include resources for data collection, programs typically need to absorb costs for staff training and data collection. If data are to be used for system monitoring as well as within program quality improvement activity, it is important that data collection approaches are standardized and that appropriateness of the measures for assessing the clients served in the program is established.

A multi-site evaluation of community mental health programs in Ontario provided an opportunity to evaluate the MCAS for system-wide monitoring of client functioning and outcomes in programs that deliver intensive community support. The Community Mental Health Evaluation Initiative (CMHEI) knitted together six separate stud-

ies of different types to community support through a common data collection protocol. Assessment data were submitted to a central coordinating centre that was responsible for standardizing data definitions and collection strategies, and monitoring data quality across study sites. The MCAS was administered in three studies that evaluated Assertive Community Treatment (ACT) and Intensive Case Management (ICM), two common approaches for providing intensive community support. Clients were assessed at study entry, and after 9 and 18 months.

This article examines the experience of implementing the MCAS in these three studies to assess its potential role in program evaluation in community mental health services, particularly for routine outcome monitoring. Performance of the MCAS will be examined in two broad areas: burden related to training and administration; and scale properties, including score distribution, internal consistency reliability, and validity of the scale as a measure of community functioning.

STUDY PROGRAMS AND PARTICIPANTS

Assertive community treatment is a well-defined and widely implemented model of intensive support for individuals with severe and persistent mental illness (Bond, Drake, Mueser, & Latimer, 2001). A multidisciplinary team provides a full range of services to a roster of clients (ideally 80–100 per team), and services are available 24 hours per day, 7 days per week. Tenure in the program is open-ended, based on client needs and preferences. Intensive case management is another approach to providing intensive community support (Schaedle & Epstein, 2000). Similar to ACT, caseloads are small, support is provided in the community, and contact can be frequent (several times per week) if needed. In contrast to the full-service ACT approach, ICM case managers do not share caseloads but work individually with clients, providing some direct services and linking clients to other services in the community as needed. ICM programs vary in whether or not they offer service on evenings and weekends.

The CMHEI included three studies of intensive community support services. One study evaluated four ACT teams operating in small urban and rural areas of the province. The ages of the teams varied from 4 to 11 years. Participation in the study was sought from all new referrals to the teams during the recruitment period as well as

a random sample of current users. A second study compared ACT and ICM programs operating in the inner city of a large urban centre, and a third study compared clients receiving care from an ICM program and standard care (i.e., other community services) in a major urban centre in eastern Ontario. Participants in these latter two studies were new, consecutive admissions who were randomly assigned to one of the two programs in the evaluation.

Together, these three studies evaluated a total of seven programs that deliver intensive community support. These programs all completed the Dartmouth ACT Scale (DACTS), a standardized measure for assessing adherence to 28 standards pertaining to human resources (e.g., staff size and composition), organizational boundaries (e.g., admission criteria, hours of operation, involvement in hospital admissions), and nature of services (e.g., frequency of contact, treatment approach for concurrent disorders) (Bond et al., 2001). While the DACTS was designed to assess program fidelity to the ACT model, it provided a common and relevant set of criteria for describing and comparing the ACT and ICM programs in the study. The results indicated that all of the programs could be considered providers of intensive, individualized community support — caseload size per staff was 17 or less, the bulk of service contacts occurred in the community, and most clients had several contacts or more per week with program staff.

The present analysis included all study clients enrolled in these programs. Intensive community support programs are intended for individuals who do not readily use clinic-based services and have histories of instability, that is, frequent hospitalization and homelessness (Bond et al., 2001). Often, rates of improvement among greatly impaired individuals are significant soon after treatment entry but more modest once the individuals are stable (Streiner & Norman, 1995). This raises the question of whether the MCAS is a valid measure of community functioning both for clients new to a program and those who have been in care longer. To test the performance of the MCAS for different circumstances, the study clients were divided into two groups based on length of program participation:

- *Intensive Community Support — new clients.* This group included clients who were new admissions (in service for less than nine months) to the ICM and ACT programs.
- *Intensive Community Support — ongoing clients.* This group included a random sample of clients enrolled in four ACT

teams in the Kingston area who had been receiving services for at least nine months when they started the study.

STUDY MEASURES

Because mental illness affects many aspects of an individual's life, the goals and impacts of services and supports can be numerous and diverse, and evaluation studies need to examine the range of domains potentially affected by mental illness (Rosenblatt & Attkisson, 1993; Smith, Manderscheid, Flynn, & Steinwachs, 1997). The client assessment administered in the CMHEI was comprehensive and drew on several data sources. The following measures were used in the present analysis.

Multnomah Community Ability Scale

This 17-item measure of community function is completed by a program staff familiar with the client (Barker et al., 1994, 1994a, 1994b). Each item is rated on a five-point ordinal scale, with a lower rating indicating poorer functioning. Items are grouped into four domains: *Interference with Functioning* (5 items that assess psychiatric symptoms, physical health, and intellectual function), *Adjustment to Living* (3 items that assess daily living skills and acceptance of illness), *Social Competence* (5 items that assess social interest and skills, and meaningful activity), and *Behavioural Problems* (4 items that assess participation in treatment, substance use, and acting-out behaviours). The rating period for items in the first three domains is the past three months while the fourth measures functioning in the past year. Item responses are summed to create the subscale scores and the total score, which is not calculated if more than 25% of the items are missing for any of the subscales. As there is some controversy in the field on whether these domains are the most meaningful way to group items for calculating subscale scores (Corbiere et al., 2002; Hendryx, Dyck, McBride, & Whitbeck, 2001), the present study assesses performance of the total score only. Another CMHEI study is underway to examine the subscale structure.

For use in the CMHEI, several minor modifications to the MCAS scale items and method of data collection were made. First, in two of the studies, trained raters completed the MCAS based on an interview with the client's case manager or other available informa-

tion (e.g., clinical chart). In the other study, the provider (e.g., case manager, outreach worker) who worked most closely with the client completed the MCAS. This accommodated program preferences and resources for implementing the research study. Second, the time frame for measuring the *Behavioral Problems* subscale was decreased from one year to nine months to conform with the broader CMHEI data collection protocol. Third, the “don’t know” response category was eliminated to reduce rate of missing data. Non-response still occurred but was verified in quality assurance monitoring to truly reflect a lack of knowledge. This strategy improved data quality but would likely not be practical to implement in non-research settings.

Barker et al. (1994b) proposed criterion scores for interpreting level of disability in individuals with severe mental illness — total MCAS scores of 17 to 47 indicate severe disability, 48 to 62 indicate medium disability, and 63 to 85 indicate little disability. Previous research on the MCAS has demonstrated adequate inter-rater and test-retest reliability (Hendryx et al., 2001; Trauer, 2001; Zani et al., 1999), and good predictive validity for subsequent hospitalizations and emergency room use (Hampton & Chafetz, 2002; Zani et al., 1999).

Community Functioning

Measures of socio-demographic characteristics and community functioning in the past nine months were collected using a revised version of the Canadian Toolkit for Measuring Psychosocial Outcomes developed by the International Association of Psychosocial Rehabilitation Services (Evaluation Centre @HSRI, 1995; Ontario Federation of Community Mental Health and Addiction Programs, 2000). Assessed areas included residential situation, education, financial status, legal system contact, employment experience, hospital emergency room visits, and admissions for psychiatric reasons. Current diagnoses as given by a licensed mental health professional were recorded and grouped into one of nine broad categories based on the DSM-IV (American Psychiatric Association, 1994).

Symptom Distress Scale (SDS)

Study clients completed a self-report measure of symptom distress that included the 10-item SCL-10, a measure of dysphoria, demor-

alization, and neurotic anxiety (Nguyen, Attkisson, & Stegner, 1983) combined with 5 items from the anxiety dimension of the SCL-90 (Derogatis & Cleary, 1977). Each of the 15 items is rated on a five-point scale of distress ranging from “not at all” to “extremely,” considering the past seven days. The total score is obtained by summing across all 15 items. This measure was selected for the MHSIP Consumer-Oriented Report Card and the Ohio consumer outcomes system-wide assessment (Ohio Mental Health Outcomes Task Force, 2001; Teague, Ganju, Hornik, Johnson, & McKinney, 1997; also see <<http://www.mh.state.oh.us/initiatives/outcome>>). A separate analysis of SDS baseline scores obtained from the larger CMHEI sample ($n = 432$) indicated an adequate distribution of responses and good internal consistency (Cronbach alpha = 0.92) (Dewa & Durbin, 2003).

Quality of Life Interview

The Quality of Life Interview (Lehman, 1988) was designed specifically for assessing life circumstances of individuals with severe mental illness. This self-report measure has been in the field for several decades, with adequate reliability and validity demonstrated (Jinnett, Alexander, & Ullman, 2001; Lehman, 1988; Russo et al., 1997). Only one global item — how do you feel about your life as a whole — is reported in this analysis, rated on a seven-point scale from “terrible” to “delighted.”

DATA COLLECTION

The MCAS was completed by trained research assistants or program staff. Other assessment data were collected by the research assistants, based on interviews with study participants and staff, and on reviews of program charts and admission assessments. All studies received ethics approval from a local research board, and consent was obtained from participating clients. Data were submitted to a central coordinating centre for entry and quality control (Dewa et. al., 2002). An administration manual was developed and refined through regular meetings with research staff from all of the studies to ensure common interpretation of item response categories and coding. In addition, cross-project training was held to establish inter-rater reliability for the standardized measures in the protocol, including the MCAS.

MCAS TRAINING AND ADMINISTRATION

The cross-project training was based on a “train the trainers” approach wherein a subset of interviewers from the three projects was trained, who then assumed responsibility for training other raters at their individual project sites as needed. At an initial training session, a didactic videotape developed by the original MCAS authors was viewed, the intent of items was reviewed, and response anchors were refined to enhance coding clarity.

At the second session, about midway through the Initiative, interrater reliability was measured (Sheldon, Foo, Aitchison-Drake, & CMHEI Working Group, 2002). Four sample cases provided by the scale developers (two videotaped interviews and two paper cases) were presented and rated independently by at least two raters from each of the three study projects. The assumption underlying this approach was that these raters represented a random sample of possible raters per project. An Intraclass Correlation Coefficient (ICC) was calculated to assess the degree of agreement on item ratings. ICC determines if the variance between raters is less than the variance between cases. An ICC above 0.75 is considered excellent, between 0.40 and 0.75 is considered fair to good, and less than 0.40 is considered poor (Fleiss, 1981). ICC values were calculated for the individual items, the MCAS subscales, and the total score. The ICC values were excellent for the total score (0.97) and subscale scores (0.84 for social competence to 0.97 for adjustment to living). At the individual item level, ICC values were poor for two items (0.18 for social network and 0.27 for meaningful activities) and fair to good for two items (0.66 for intellectual function and 0.70 for social acceptability). The remaining 13 items had ICC values in the excellent range.

Across the three study sites, the background and professional training of the MCAS raters varied, including psychologists, social workers, occupational therapists, and community support workers. In two of the studies, trained research assistants completed the MCAS ratings. The third site used a “train the trainers” approach to prepare 46 local program staff to complete the MCAS. Staff viewed and rated the two taped training interviews. An ICC of 0.70 indicating adequate rating agreement was achieved with this large group. After the training, the program staff quickly developed familiarity with the MCAS, and assessments were typically completed in less than 15 minutes. Initially, several staff expressed concerns that the role

of client evaluator conflicted with their support and advocacy roles. Over time and with education by the research staff, they were able to accept that objective assessment was important for program evaluation and did not need to compromise their other roles and care activities.

EVALUATION OF SCALE PROPERTIES

Data Analysis

The distribution of scores was assessed by examining the score range, measures of central tendency, and percentile cutoffs for the lowest and highest scores to assess floor and ceiling effects. Cronbach's coefficient alpha was calculated to assess internal consistency reliability of the scale. Values greater than 0.80 are considered to be satisfactory for group level reporting (DeVellis, 1991). This analysis used study entry (baseline) MCAS ratings, and results are reported separately for new and ongoing clients.

Validation of the MCAS as a measure of community functioning was pursued through a known or extreme groups analysis, wherein a series of mutually exclusive groups hypothesized to differ a priori in the construct of interest are defined and compared (Streiner & Norman, 1995). For the present study, clients were first divided by length of stay in the program, with MCAS ratings expected to be lower for new (less than nine months in the program) than for ongoing (nine months or more in program) clients. Second, clients were divided into groups according to their functioning during the previous nine months on a series of independent indicators that were available in the study dataset, that is, hospital admission for psychiatric problems, hospital emergency room visits, legal involvement, unstable housing, and unemployment. MCAS ratings were expected to be lower in clients who had experienced any of these events. Finally MCAS ratings were compared for groups defined by subjective ratings of symptom distress and satisfaction with quality of life. The assumption was that community functioning would be lower among those who report higher levels of distress and lower quality of life.

A second set of analyses compared groups that were *not* expected to differ in community functioning. These groups included: those with and without a diagnosis of schizophrenia or psychotic disorder; males and females; and those with and without a high school education.

All of the validation analyses used baseline MCAS ratings, and T-tests assessed significance of group differences.

A final set of analyses compared scores over the three assessment periods — baseline, 9, and 18 months — to determine whether the MCAS was useful for measuring change over time. Since a different trajectory was expected for new and ongoing clients, repeated measures ANOVA was conducted and F-values were used to test significance of effects related to time, group, and time by group interaction. This latter test indicated whether the rate of change in MCAS ratings over time differed between new and ongoing programs' clients. Covariates included age, sex, and diagnosis of schizophrenia.

RESULTS

Sample

Only individuals with complete data for the three assessment periods were included in the analysis. The final sample included 156 new program clients and 88 ongoing clients, of whom almost 50% had been in the program for four years or more. Incomplete data eliminated 98 individuals from this analysis. Common reasons for loss to follow-up included: unable to locate ($N = 15$ or 25%), refusal ($N = 21$ or 23%), program drop-out ($N = 19$ or 20%), and lack of funding ($N = 22$ or 23%). Regarding this last reason, participant recruitment took longer than expected at one study, and funding ended before all follow-up interviews were completed. When individuals in the final sample were compared to those who did not complete the study ($n = 98$), there was no significant difference in age, gender, percentage with schizophrenia, past nine-month hospital use, or percentage in unstable housing. However the study group was more likely to have made an ER visit in the 90 days prior to study entry ($\chi^2 = 4.69$, $df = 1$, $p < 0.03$).

Table 1 describes the sample at study entry. Overall, these individuals represented a group experiencing chronic and severe mental illness. A mean of 16 years had elapsed since the first psychiatric hospitalization. Levels of education were low, as were incomes. Few were married (8%) or had worked for pay in the past nine months (16%). The majority of individuals had a diagnosis of schizophrenia or a psychotic disorder, and most had been prescribed psychotherapeutic medication. Problems in community functioning were present in a number of areas, particularly for the new clients. Compared to

the ongoing users, new clients were more likely to have experienced a hospital admission in the past nine months (67.5% versus 18.2%, $\chi^2(1) = 54.6$, $p < .001$) or an emergency room visit in the past 30 days (49.4% versus 8.0%, $\chi^2(1) = 42.7$, $p < .001$), live in unstable

Table 1
Baseline Sample Description

Domain	New Clients ¹ (N = 156)	Ongoing Clients ¹ (N = 88)	Total Clients (N = 244)	χ^2 or F value (df)	P-value
<i>SOCIO-DEMOGRAPHICS</i>					
Age (mean)	39.7	43.2	41.0	5.80 (1,242)	0.02*
% Male	61.5	61.4	61.5	0.00 (1)	0.98
% Married or living together	5.8	12.5	8.2	3.39 (1)	0.07
% Did not complete high school ²	46.5	39.8	44.0	1.02 (1)	0.31
Average monthly income (\$)	784.3	1004.1	868.8	21.21(1,219)	0.00*
<i>ILLNESS</i>					
% Schizophrenia disorder	65.8	69.3	67.1	0.31 (1)	0.58
% Mood disorder	36.8	28.4	33.7	1.76 (1)	0.19
% Prescribed psychotherapeutic med. past 9 months	93.6	95.5	94.3	0.36 (1)	0.55
Age at first psychiatric admission (mean, sd)	25.3 (8.9)	24.8 (8.2)	25.1 (8.6)	0.19 (1,209)	0.67
<i>FUNCTIONING</i>					
% Hospitalized in past 9 months ³	67.5	18.2	49.6	54.56 (1)	0.00*
% Emergency visits in past 90 days ⁴	49.4	8.0	34.4	42.73 (1)	0.00*
% Arrested, jail, parole/probation in past 9 months	29.5	5.7	20.9	19.26 (1)	0.00*
% Unstable housing ⁵	48.7	12.5	35.7	32.17 (1)	0.00*
% Paid employment in past 9 months ⁶	15.0	17.2	15.8	0.20 (1)	0.65
% Satisfied with quality of life ⁷	31.3	53.4	39.6	11.26 (1)	0.00*
% Moderate or higher symptom distress ⁸	34.5	12.5	26.2	13.69 (1)	0.00*

1 The new group includes clients in the programs for less than 9 months. The ongoing group includes clients in the programs for 9 months or more. This latter group were all using ACT.

2 Less than 12 years of education.

3 Hospitalized one or more times for psychiatric reasons in past 9 months.

4 Visited a hospital emergency room for psychiatric reasons at least once in past 90 days

5 Expected to be in current setting for less than 60 days OR moved 3 or more times in past 9 months OR currently living in shelter/on street.

6 Worked for pay in a full-time or part-time job in the past 9 months.

7 Quality of life global rating of 5 or more indicating mostly satisfied to delighted.

8 Mean score on symptom distress scale of 3 or more indicating moderate or higher distress.

housing situations (48.7% versus 12.5%, $\chi^2(1) = 32.2, p < .001$), or have legal issues (29.5% versus 5.7%, $\chi^2(1) = 19.3, p < .001$). The new clients were younger on average than ongoing clients (39.7 years versus 43.2 years, $F(1, 242) = 5.80, p = 0.02$), and their mean monthly incomes were significantly lower (\$784 versus \$1004, $F(1, 219) = 21.2, p < 0.001$). New clients were more likely to report moderate or high symptom distress (34.5% versus 12.5%, $\chi^2(1) = 13.7, p < 0.001$) and lower rates of satisfaction with their overall quality of life (31.3% versus 53.4%, $\chi^2(1) = 11.26, p < 0.001$).

MCAS DESCRIPTIVE STATISTICS

As shown in Table 2, the descriptive statistics on the MCAS data reflect a number of scale strengths. For the total sample there is a wide distribution of scores, with minimal skew. The overall mean total of 58.5 falls within the moderate level of impairment according to the categories defined by Barker et al. (1994b). Cronbach's coefficient alpha of 0.88 indicates satisfactory internal-consistency reliability.

Table 2
MCAS Descriptive Statistics

MCAS Descriptive Statistics (baseline ratings)	New Clients ¹ (<i>N</i> = 156)	Ongoing Clients ¹ (<i>N</i> = 88)	Total Clients (<i>N</i> = 244)
Mean	53.7	67.0	58.5
Median	53.0	68.0	57.0
Range (min, max)	(26.0, 78.0)	(45.0, 85.0)	(26.0, 85.0)
Standard deviation	9.6	9.0	11.3
Percentile values (10th, 90th)	(42.0, 68.0)	(54.9, 78.1)	(44.0, 74.0)
Level of Disability ² :			
1. High (17-47):	1. 26.9	1. 3.4	1. 18.4
2. Medium (48-62)	2. 55.1	2. 23.9	2. 43.9
3. Low (63+):	3. 17.9	3. 72.7	3. 37.7
Skew (standard error)	0.41 (0.2)	-0.39 (0.3)	0.12 (0.2)
Coefficient alpha	0.83	0.82	0.88

¹ The new group includes clients in program for less than 9 months and the ongoing group includes clients in the program for 9 months or more.

² Percentage of clients per disability category is reported.

As expected, the subgroup analyses indicate a different distribution of scores for new and ongoing clients, with the latter group more likely to score in the low disability category. Only 3.4% of ongoing clients scored less than 48, demonstrating poor overall function, and almost three-quarters scored in the low disability category. With a 90th percentile score of 78 for ongoing clients, the possibility of a ceiling effect is suggested for some clients, in that score ratings at the upper level (i.e., which approach the highest possible total score of 85) may be limited in capturing further improvements in functioning. This finding raises concerns about the sensitivity of the measure for assessing functioning of individuals who have been in service longer and reached a more stable level of functioning. However, it should be noted that only a small minority scored in these upper ranges.

VALIDITY

To assess construct validity, the present study pursued a known-groups analysis. A series of hypotheses were tested about expected similarities and differences in community functioning between client subgroups, defined by independent indicators of functioning (e.g., patterns of service utilization, presence of mental health symptoms, presence of behaviours indicative of community adaptation). The results are reported in Table 3. On every measure where a difference was expected, with the exception of participation in any paid employment, the MCAS ratings were significantly different in the hypothesized direction. As well, where a difference was not expected (i.e., sex, education, type of disorder), significant differences were not found. These findings are quite striking. The MCAS appears to provide a good summary measure of community functioning that is consistent with other independent indicators of functioning, including the subjective experience of the client

RESPONSIVENESS

Responsiveness pertains to the ability of a measure to detect changes over time. A repeated measures ANOVA was conducted to assess the extent to which the MCAS ratings change over time, and hence are suitable for monitoring outcomes in programs providing intensive community support. Covariates in the analysis included age, sex, and diagnosis of schizophrenia. The significant main effect between groups indicated that MCAS ratings differed between new

and ongoing clients ($F = 36.32, p < .001$). As well, there was a significant interaction effect such that the rate of change in MCAS scores over time differed between the two groups ($F = 42.99, p < .001$). Specifically, as shown in Figure 1, among new program clients, there was an increase in scores from baseline to nine months, which then levelled off. Among ongoing clients, MCAS scores remain stable. The final MCAS ratings are similar for the two groups.

Table 3
MCAS Ratings and Community Function

INDICATOR	MCAS RATING ⁷	t-value (<i>df</i>)	<i>p</i> -value
In program less than 9 months	67.0 (No) 53.7 (Yes)	10.61 (242)	0.00
Hospitalized in past 9 months ¹	61.9 (No) 54.9 (Yes)	5.07 (240)	0.00
Emergency room visit in past 90 days ²	61.8 (No) 52.2 (Yes)	6.87 (242)	0.00
Arrested, jail, parole/probation past 9 months	60.6 (No) 50.7 (Yes)	5.89 (242)	0.00
Unstable housing ³	62.2 (No) 51.8 (Yes)	7.72 (242)	0.00
Any paid employment in past 9 months ⁴	58.2 (No) 61.0 (Yes)	-1.42 (238)	0.16
Moderate or higher symptom distress ⁶	60.7 (No) 54.2 (Yes)	4.04 (231)	0.00
Satisfied with quality of life ⁵	56.8 (No) 62.1 (Yes)	-3.57 (233)	0.00
<i>Group Differences Not Expected</i>			
Male	59.8 (No) 57.7 (Yes)	1.42 (242)	0.16
Schizophrenia/psychotic disorder	58.9 (No) 58.4 (Yes)	0.31 (241)	0.76
Completed high school	57.1 (No) 59.7 (Yes)	1.81 (241)	0.07

¹ Hospitalized one or more times for psychiatric reasons in past 9 months.

² Visited a hospital emergency room for psychiatric reasons at least once in past 90 days.

³ Expected to be in current setting for less than 60 days OR moved 3 or more times in past 9 months OR currently living in shelter/on street.

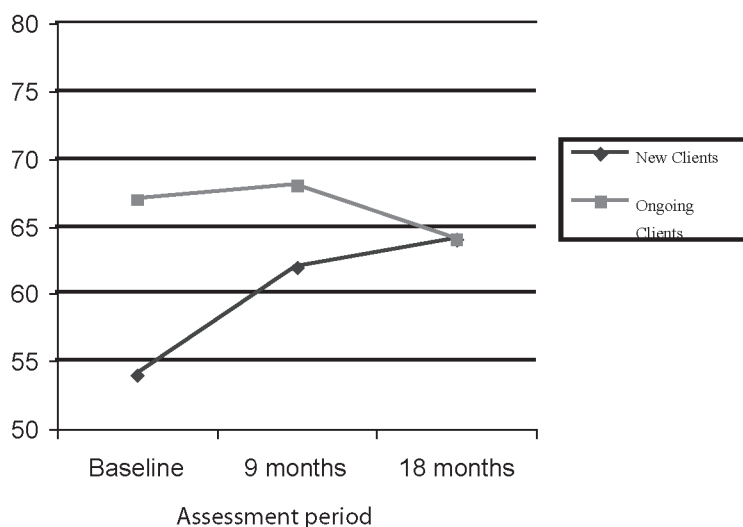
⁴ Worked for pay in a full-time or part-time job in the past 9 months.

⁵ Quality of life global rating of 5 or more indicating mostly satisfied to delighted.

⁶ Mean score on symptom distress scale of 3 or more indicating moderate or higher distress.

⁷ Baseline MCAS rating.

Figure 1
MCAS Ratings Over Time



These patterns of change are consistent with the results of a separate study that assessed client change in rates of hospitalization, emergency room use, and housing instability (CMHEI Working Group, 2004). On these indicators, new clients demonstrated improvement over time, whereas ongoing clients were stable. At 18 months, indicator values for both groups were similar.

DISCUSSION

The aim of the present study was to evaluate use of the Multnomah Community Ability Scale for routine outcome monitoring in intensive community support programs. Such measures need to be easy to use, while obtaining reliable and valid data. The MCAS is relatively brief and can be completed by a case manager or other provider familiar with the client. It is multidimensional, with domains relevant to individuals with severe mental illness living in the community, and it has graded response options to capture a range of levels of functioning. The MCAS has the potential to be superior to single indicators of community functioning (Zani et al., 1999), yet it is not as burdensome to complete as other measures of functioning currently available in the field (Dickerson, 1997).

The present study assessed the demands placed on programs for MCAS training and data collection. The results were encouraging. Assessments were typically completed in less than 15 minutes. Good inter-rater reliability was achieved during a relatively brief, one-half day of training using the materials developed by the scale authors. The train-the-trainer approach was used successfully to teach local program staff with varying skills and experience to administer the MCAS. This feature is important for a tool intended for routine use, as programs need to be able to conduct training as needed — for example, for new staff and periodically for ongoing staff (about annually) to prevent rater drift. Implementation of the MCAS by a network of case management programs at one of the study sites has provided further evidence of its feasibility and perceived usefulness. The MCAS was added to a common client assessment administered by the network at intake and annually. The ratings are reported annually to the Ontario Ministry of Health and Long Term Care, and also serve as a resource for program staff in determining program eligibility and monitoring client progress. The scale is not used for outcome evaluation.

The CMHEI researchers made wording clarifications to MCAS scale items during the training, which may have increased inter-rater reliability. A number of other projects are also underway to improve rating consistency. An expanded version of the MCAS produced by Dickerson, Origoni, Pater, Friedman, and Kordonski (2003) includes revised item and anchor definitions, and a shortened rating period of one month to increase rating precision and consistency across items. ICC scores indicated excellent inter-rater reliability. O'Malia, McFarland, Barker, and Barron (2002) created and evaluated a self-report version of the MCAS that included revised item definitions and a three-month rating period for all items, and they reported good test-retest reliability. These various revisions to the original scale should be reviewed if wider implementation of the measure is considered.

The results of the known-groups comparisons supported the validity of the tool as a measure of community functioning. Out of eight comparisons where differences were expected, the MCAS distinguished between groups on all but one measure: participation in any paid employment. Given that most people worked on only a part-time and casual basis during the reporting period, employment may not be a valid indicator of community functioning against which to assess the MCAS. The MCAS ratings did not differ for those with

and without schizophrenia, affirming the focus of the measure on function, independent of diagnosis. It is particularly encouraging that MCAS ratings were also associated with self-report measures of community functioning, as there is often little correlation between observations from these two data sources (Brown, Burlingame, Lambert, Jones, & Vaccaro, 2001; Crane-Ross, Roth, & Lauber, 2000).

The MCAS was able to distinguish between new program clients who were experiencing difficulties in a number of areas, and more stable ongoing clients. This is a valuable feature, given current efforts to develop systematic strategies for linking clients to an appropriate level of support. In previous research, MCAS ratings were able to differentiate between clients in inpatient and outpatient care (Brown et al., 2003; Shon et al., 1999) and in independent versus highly supervised living arrangements (Dickerson et al., 1999). The MCAS has also been used as a measure of severity to determine capitation payment category (McFarland, Bigelow, Smith, & Mofidi, 1997). Results of previous research and the present study report MCAS ratings in the 40s for inpatients (Brown et al., 2003; Shon et al., 1999), in the 50s for ambulatory clients receiving a high level of community support (Hampton & Chafetz, 2002; Trauer, 2001), and in the 60s for clients in lower intensity outpatient care (Brown et al., 2003).

In the present study, scale scores for new clients increased during the first nine months after program entry, and then stabilized. For ongoing clients, MCAS ratings remained stable throughout the 18 months of the study. While it appears that the MCAS is responsive to change over time in some clients, the clustering of ratings at the higher end of the scale after 18 months raises the question of whether the measure would be sensitive to continued improvement in functioning once clients have secured stable housing and reduced frequency of crises. The process of recovery and related milestones may be broader than the scope of the MCAS. For example, work is an area of potential growth, yet only one MCAS item is concerned with participation in productive activity. Consumer feedback received by O'Malia et al. (2002) suggested that the MCAS should solicit more information about employment status. Further research is needed to assess the usefulness of the scale as clients make progress in their recovery and realize greater community participation through work and other activities.

LIMITATIONS

Several limitations need to be considered when interpreting study findings. First, inter-rater reliability for study raters was calculated midway through the project. As it was not reassessed, any decline in reliability and resulting bias would not have been detected. Second, the study sample was drawn from seven programs located in urban centres that provide intensive support to adults with severe mental illness. Findings may reflect unique features of program clients and need to be replicated for clients in other settings. As it is possible that the indicators and ratings of functioning would differ for clients in more isolated areas, the validity of the MCAS for rural clientele needs to be tested. Also, this study cannot speak to the appropriateness of the MCAS for older adults and youth, as these age groups were not represented in the sample. Third, due to lack of agreement in the field about the composition of the MCAS subscales, this study only evaluated the performance of the total score. However, calculation of subscale scores can provide more specific information about client areas of strength and weakness. The value of the MCAS will increase when a robust subscale structure is identified and validated.

CONCLUSION

This study assessed performance of the MCAS in a number of areas and found the tool to be a suitable candidate for use in routine outcome monitoring of individuals with severe mental illness. Inter-rater reliability was achieved after a brief training, and program staff were able to complete assessments in less than 15 minutes. Analyses supported the validity of the MCAS as a measure of community functioning. Once a subscale structure is agreed, total scores can be unbundled to better understand client areas of strength and limitation.

The study clients were enrolled in intensive community support programs, focused on promoting community adjustment in the context of instability and crisis. The MCAS captured improvement in those new to the programs, but ratings were stable for ongoing clients and mainly fell in the low disability category, based on norms established by the authors. The aims of more stable clients may shift from basic functioning to community participation and citizenship, suggesting that the decision to use the MCAS must be aligned with program mission and objectives.

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