Further validation of the Client Assessment of Strengths Interests and Goals

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Abstract

The Client Assessment of Strengths Interests and Goals (CASIG), a measure that assesses the treatment outcomes of individuals with serious and persistent mental illness, has previously shown adequate psychometric properties with an American sample. Since it assesses quite specific skills and needs, it is necessary to assess its cultural relevance and psychometric characteristics before using it in a different country. Hence, the purposes of this study were to (1) adapt CASIG to the culture of a Canadian setting and translate its items and directions into French, (2) determine the psychometric characteristics of the adapted English and French versions of CASIG, and (3) identify its latent constructs via an exploratory factor analysis.

The CASIG self-report (CASIG-SR) measure was administered to 224 consumers living in the community, and the CASIG informant (CASIG-I) measure to 31 clinicians answering for 172 consumers. The participating consumers also completed the Behavior and Symptom Identification Scale-32 (BASIS-32), the Short Form Health Survey-36 (SF-36), and the Camberwell Assessment of Needs (CAN). The informants also completed the clinician version of the CAN.

The CASIG-SR and the CASIG-I had adequate internal consistency, test–retest, and interrater reliabilities. Correlations of the consumers' and informants' results with the BASIS-32, SF-36, and CAN provided evidence of convergent and discriminant validity, as did contrasts between higher and lower functioning community consumers. The factor analysis also supports the construct validity of the assessment. The results confirm the psychometric adequacy of the adapted and translated CASIG in Canada.
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1. Introduction

Public systems of care for individuals with serious and persistent mental illness typically face conflicting demands from their many stakeholders. Consumers and families demand increased and individualized

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services; payers demand minimum costs; providers demand flexibility, independence, and simple requirements; and accrediting and licensing agencies demand accountability documented with extensive quantitative and qualitative evidence (Sartorius, 2000). Balancing these demands is extraordinarily difficult, but a critical element in forging a compromise is a system of documentation that thoroughly details consumers' characteristics, the services they receive, the rationale for those services, and the services' effectiveness expressed in quantitative and qualitative data. As several authors have noted (Beutler et al., 1999; Menditto et al., 1999), the ideal system of documentation should be:

(a) comprehensive, assessing the multiple outcomes relevant to consumers and clinicians including clinical (symptoms, side effects), rehabilitative (social, living, vocational functioning), humanitarian (quality of life and treatment, life goals), and public welfare (prevention of harm). All have been endorsed by NIMH (1991) as essential for accurately measuring the effects of medical and/or psychosocial treatment;
(b) capable of assessing changes over time;
(c) focused on strengths and skills, not only symptoms and "disabilities";
(d) inclusive of the multiple perspectives of family members, clinicians, and consumers;
(e) easily administered by paraprofessional staff with minimal training; and
(f) psychometrically sound and generalizable to numerous systems of care.

Compared to these criteria, almost all of the widely available assessment systems are deficient. The Behavior and Symptom Identification Scale-32 (BASIS-32; Eisen et al., 1994), for example, includes only the consumer's perspective, and its factor analytically derived scales are difficult to interpret for planning and evaluating treatment. The Multnomah Community Assessment Schedule (MCAS; Barker et al., 1994), and the Health of the Nations Outcome Scale (HoNOS; Wing et al., 1996) have relevant scales, albeit consisting of few items, but they are solely limited to the clinician's perspective. The Wisconsin Quality of Life questionnaire (Becker et al., 1993) has both consumer and informant perspectives, but its scales are too global

to plan and monitor the specifics of each consumer's treatment. Similarly, the Camberwell Assessment of Needs (CAN; Phelan et al., 1995) includes the consumer's and the clinician's perspectives, and covers a comprehensive range of outcomes. Its items, however, inquire only about general problems and do not include consumers' goals, specific skills, and interests.

Silverstein (2000) recently described what he considers the best available functional assessments, one of which is the Client Assessment of Strengths Interests and Goals (CASIG; Wallace et al., 2001). CASIG is a "new wave" assessment instrument because it includes (a) numerous areas essential to community living, (b) its results are directly relevant for treatment planning, (c) it can be repeatedly administered to assess progress, and (d) it focuses on goals and skills as well as symptoms and behavioral or cognitive difficulties. CASIG makes consumers active directors/collaborators in planning their own treatment, and the inclusion of their perspectives and those of the informants via parallel versions of the test increases communication among stakeholders. Additionally, the psychometric adequacy of CASIG with an American sample has been documented in a recent study (Wallace et al., 2001).

Thus, CASIG fits the majority of the criteria listed previously. However, its adaptability to other health systems remains unknown. Some authors propose that individuals diagnosed with serious mental illness have similar needs across industrialized countries, and the same assessments can be used in each country, assuming proper translations (Phelan et al., 1995). CASIG, however, assesses quite specific skills and needs, and it is necessary to assess its cultural relevance and psychometric characteristics before using it in a different country. Hence, the purposes of this study were to (1) adapt CASIG to the culture of a Canadian setting and translate its items and directions into French, (2) determine the psychometric characteristics of the English and translated CASIG, and (3) identify its latent constructs via an exploratory factor analysis. The project provided the opportunity to investigate the underlying factor structure of CASIG and further determine its construct validity. Before discussing the study's methodology and results, however, a brief description of CASIG self-report (CASIG-SR), and its informant counterpart (CASIG-I), is in order.

2. Method

2.1. CASIG-SR

CASIG-SR (see Wallace et al., 2001 for a complete description) is a thoroughly structured interview that assesses a respondent's (a) goals for improved community functioning, (b) his/her current functional and cognitive skills, (c) medication practices (compliance and side effects), (d) quality of life and treatment, (e) symptoms, and (f) unacceptable community behaviors. The respondent's goals in five broad areas (residence, vocational/educational, social/family relationships, religion/spiritual, and physical/mental health) are elicited from three to five open-ended questions per area.

Nine areas of social and independent living skills (money management, health management, food preparation, vocational, transportation, friends, leisure, personal hygiene, and care of personal possessions) are assessed from four to nine dichotomously scored items per area. All items assess performance ("do you"), not ability ("can you") or motivation ("do you want to").

The respondent's collaboration with his/her prescribed medication regimen is assessed with eight items that survey the respondent's beliefs and attitudes about the medication and its dose. Side effects are assessed with 18 dichotomous items.

Quality of life is assessed with ratings on a 5-point scale (poor, fair, average, good, excellent) of overall lifestyle and each of 10 areas of living. Quality of treatment is assessed with five ratings of the respondent's psychiatrist and treatment team (if applicable), on the same response scale.

The respondent's symptoms in six areas (delusions/thought disorder, hallucinations, anxiety, depression, suicidal intentions, and mania) are assessed with dichotomously scored probe questions that, if answered "yes", are confirmed with open-ended follow-up questions. The scoring criteria, adapted from the UCLA Expanded BPRS (Lukoff et al., 1986), are biased to detect symptom exacerbation in its earliest stages, i.e., scoring positive on a symptom as soon as one question pertaining to that symptom is answered "yes". Finally, the respondent's performance of each of 10 unacceptable community behaviors is assessed with 10 dichotomous items.

2.2. CASIG-I

CASIG-I is the informant-completed counterpart to CASIG-R. It consists of the CASIG items phrased for the third person, minus the Quality of Life and Treatment items since they directly assess the respondent's attitudes. It is administered as a questionnaire or as a structured in-person or phone interview.[1]

2.3. Adaptation and translation

2.3.1. Adaptation

To adapt CASIG to Canadian particularities, it was first distributed to 50 staff members of the Psychiatric Rehabilitation Program at the Douglas Hospital. The Douglas Hospital is a major hospital that provides services to individuals with mental illness living in the Southwest sector of Montreal. The staff thoroughly reviewed the instrument, and completed a nine-item questionnaire about its relevance, liked and disliked characteristics, changes that should be made to its content and/or format, etc. Their reactions were favorable, and based on their comments, a few CASIG items were altered to fit the specifics of the Canadian health care system such as requiring a Medicare-Medicaid card rather than a birth certificate, obtaining vocational services from several providers rather than a "Department of Vocational Rehabilitation," and adding volunteer work to the definition of employment. The staff members' comments also prompted several modifications to improve CASIG's "usability" including changing fonts, increasing the spacing, adding lines for recording notes, and removing redundancies.

To increase CASIG's clinical value, the authors (TL and CJW) added two questions to each of the major goal sections and developed two new scales. The questions assessed a respondent's assets (skills, knowledge, money, experience, time, etc.) and the help he/she still needed to achieve the goal (none, a little, some, a lot). The scales assessed a respondent's cognitive functioning, defined by items measuring recent memory lapses and difficulties concentrating,

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[1] Copies of the CASIG-SR on CASIG-I are available on demand by writing to the first author (TL).

and his/her knowledge of the laws that define his/her rights to shape and participate in his/her own treatment. The intent of the cognitive scale was to provide information in deciding if one or more of the recently available methods of ''cognitive rehabilitation'' should be included in the treatment plan. The intent of the consumer's rights scale was to determine if instruction was needed to ensure that a respondent understood his/her rights, considered to be the first step to empowerment. After these changes and additions had been made, they were submitted to the staff, and further alterations were made as they suggested.

2.3.2. Translation

The first author (TL) translated the altered CASIG from English into French, and then submitted the translation to two bilingual colleagues for their translation back to English. The original and the back-translations were compared, and inconsistencies were resolved by altering the French version. A professional translator was then given the English and French versions, and asked to correct any grammatical errors and remaining inconsistencies.

Once the final translation was produced, the informant version, CASIG-I, was produced by changing the wording of all items to the third person except for the Rights and the Quality of Life and Treatment items. As mentioned earlier, these were administered only to the respondent.

2.3.2.1. Equivalence of the translation. Ten bilingual clinicians not associated with the adaptation and translation were asked to think of a recent client and answer the French CASIG-I and, 1 day later, the English version without consulting answers given on the initial French version. The clinicians' answers agreed exactly for 94% of the questions.

2.4. Determination of psychometric characteristics

2.4.1. Participants

A total of 310 individuals who were receiving outpatient services from the Douglas Hospital or clinics were approached and asked to participate. Eighty-six declined for various reasons, such as being not interested (35), fear of talking to strangers (18), or for no reason in particular (33). The remaining 224 participants had DSM-IV diagnoses of schizophrenia

or schizoaffective disorder (78%), affective disorder (11%), psychotic NOS (4%), and other psychological disorders (7%). Sixty-three percent were male; 83% were single, 5% were married or cohabitating, 11% divorced or separated, and 1% widowed; 77% had no children; 82.4% were Caucasian, 11.2% Asian, 3.4% African/Caribbean, 2.4% First Nations, and 0.6% Latino. Their average age was 42.77, and their average education was 10.79 years. One hundred participants completed the French translation and 124 completed the corresponding English version. The language version administered to each respondent matched his/her fluency and preference. A total of 31 clinicians completed the informant version (CASIG-I) for 172 participants (range of 1–19 completed per clinician).

2.4.2. Validity and demographic measures

Several measures described below were administered to assess CASIG's construct validity. All are available in French and English, and all have been validated and used in Canada. Two of them, the BASIS-32 and SF-36, were administered in the initial CASIG study. The IASPRS Tool Kit (Arns, 1998) was also administered to collect the demographic data summarized above. Diagnostic information was retrieved from respondents' medical records.

2.4.2.1. BASIS-32. The Behavior and Symptom Identification Scale-32 (BASIS-32; Eisen et al., 1994) is a self-report of the respondent's difficulties during the past week in 32 areas of functioning. Each area's difficulty is rated on a 7-point Likert scale, and the 32 ratings are combined to yield totals on five factor analytically derived scales: Psychosis, Anxiety/Depression, Impulsivity, Interpersonal Relations, and Living Skills.

2.4.2.2. SF-36. The Short Form Health Survey-36 (Ware and Sherbourne, 1992) is a self-report of the respondent's status in eight areas of health including physical functioning, physical limitations in role functioning, pain, general health status, vitality, social functioning, emotional limitations in role functioning, and general mental health.

2.4.2.3. CAN. The Camberwell Assessment of Needs (Phelan et al., 1995) is a self- and clinician's

report of the respondent's functioning in 22 areas including housing, food, cleaning, hygiene, daily activities, physical health, psychotic symptoms, treatment or illness information, psychological distress, personal security, social security, security of others, alcohol, drugs, social relationships, emotional relationships, sexual life, care of children, education, financial tasks, use of the telephone, and use of public transportation. The respondent and his/her clinician independently rate both the respondent's difficulty functioning and the assistance provided to the respondent in each of the 22 areas. These two ratings are combined to yield one of three possible responses per area: (a) no difficulties, (b) no important difficulties, thanks to someone's intervention, or (c) important difficulties.

2.4.3. Procedure

All individuals with a serious and persistent mental illness who lived in the community and received services from the Douglas Hospital rehabilitation services were eligible to participate. Only those with a primary diagnosis of a psychotic disorder, between the ages of 18 and 65, and who could express themselves fluently in French or in English were asked to participate. The rehabilitation services' primary clinicians were approached, and the study was explained during several group and individual meetings. The clinicians were asked to review their case rosters, select eligible individuals, meet with them at a mutually convenient time, explain the study, and refer them to the project staff if they were at all interested. The project staff met with the prospective participants, explained the study again, answered any and all questions, and enrolled individuals only if they were capable of giving informed consent.

2.4.4. Interviewers

Four interviewers with an undergraduate degree in either occupational therapy or psychology were trained to administer the four measures. Training to administer CASIG-SR began with explaining its rationale, thoroughly reviewing its items and modeling the appropriate tone and method of asking each, demonstrating the administration with a participant, and then monitoring each trainee's administration with two participants whose cognitive dysfunctions made the process particularly challenging. The train-

ees had no difficulty; indeed, the initial study (Wallace et al., 2001; see also Lecomte et al., 1999) was conducted with peer inpatient and outpatient interviewers. Training to administer the Tool Kit, CAN, SF-36, and BASIS-32 consisted of thoroughly reviewing each one's instructions.

The interviewers were continually monitored throughout the project, and each was observed by the first author (TL) as they conducted a minimum of two additional interviews. Each interviewer continued to meet criteria during the entire project.

2.4.5. Administration

The four tests were administered to each participant in a random order. Although BASIS-32 and SF-36 are typically administered as paper-and-pencil questionnaires, there was sufficient variation in participants' reading skills that the questions were read to them. Each test's response scale was copied in large type on a section of cardboard, and participants pointed to their responses or said them aloud as the questions were read. The median time needed to answer CASIG-SR was 1 h with a range of 30 min to 4 h; the entire assessment process required a median of 2 h. Breaks were given as requested, and participants were thanked at completion and given $20 (CN) for their time.

Each participant's primary clinician (case manager, occupational therapist, psychiatric nurse, or rehabilitation therapist) was asked to complete CASIG-I and the informant version of the CAN. A total of 31 clinicians completed both for 172 participants. Their median time to completion was 45 min each for CASIG-I and CAN.

3. Results

All analyses were conducted using SPSS version 10.1.4. Like the initial study (Wallace et al., 2001), the analyses focused on reliability and construct validity. The BASIS-32 and SF-36 were administered in both studies, and comparisons can be drawn between their results here and in the initial study. The CAN was included in this study because it has been validated in French and English, and, like CASIG, it is comprehensive and elicits both self- and informant reports. Additionally, an exploratory factor analysis was per-

formed to identify the statistically determined "constructs" underlying CASIG.

3.1. Reliability

3.1.1. Internal consistency

Table 1 presents coefficient alpha for each CASIG-SR and CASIG-I scales for this and the initial study (Wallace et al., 2001). The results of this study are almost identical to those of the initial one, and range from acceptable to excellent. For both studies, the few scales with lower values of alpha include items that describe "low-frequency high-consequence" events that can lead to emergencies and a client's removal from the community. These items have a low base rate, hence little variance and poor reliability, but their inclusion fulfills a critical clinical function by alerting staff to potentially damaging events. For example, the item "Steal other's property in the last 3 months" is included in the Community Behaviors Scale so that the staff will elicit the rare positive response that will alert them to conditions that will substantially affect a client's tenure in the community.

3.1.2. Client/case manager agreement

Table 1 also presents the correlations between the clients' CASIG-SR reports and the clinicians' corresponding CASIG-I reports. CASIG-I is a mirror image of CASIG-SR, and the correlations are a measure of the agreement between clients and their clinicians. Of course, this is not "interrater reliability" as typically operationalized in a psychometric context, i.e., two well-trained raters observing and independently scoring an examinee's responses. Within that context of "two reporters of the same event," the results from this study not only resembled those reported in the initial study, but they matched the agreement reported in similar studies (Achenbach et al., 1987). Only for the Cognitive scale did the two "reporters" seem to be viewing different phenomena. Inspection of the individual items indicated that the clinicians were rating the clients' cognitive skills considerably lower than how the clients rated themselves.

3.1.3. Test–retest reliability

Table 1 presents the stability coefficients for 26 participants who agreed to have CASIG-SR readmi-

Table 1
CASIG-SR and CASIG-I (descriptives for current study and reliability coefficients for current and initial studies)

Coefficient	CASIG-SR							CASIG-I		
	Mean (S.D.)	Alpha		Client/case manager		Stability		Mean (S.D.)	Alpha	
Study	Current	Initial	Current	Initial	Current	Initial	Current	Current	Initial	Current
N	224	243	224	103	181	25	26	181	103	181
Money management	1.63 (0.27)	0.591	0.586	0.591	0.528	0.732	0.454*	1.60 (0.35)	0.811	0.836
Health management	1.63 (0.31)	0.636	0.741	0.416	0.723	0.831	0.824**	1.57 (0.40)	0.496	0.907
Nutrition	1.57 (0.35)	0.876	0.861	0.642	0.709	0.487	0.899**	1.47 (0.38)	0.901	0.887
Vocational	1.54 (0.24)	0.883	0.844	0.600	0.486	0.797	0.331	1.40 (0.26)	0.830	0.878
Transportation	1.36 (0.21)	0.649	0.693	0.585	0.464	0.909	0.854**	1.46 (0.57)	0.703	0.607
Friends	1.69 (0.30)	0.875	0.867	− 0.015	0.345	0.445	0.154	1.67 (0.39)	0.392	0.934
Leisure	1.58 (0.21)	0.636	0.526	0.288	0.343	0.637	0.580**	1.53 (0.28)	0.675	0.608
Personal hygiene	1.82 (0.21)	0.556	0.582	0.198	0.222	0.811	0.642**	1.88 (0.25)	0.758	0.891
Care of possessions	1.81 (0.22)	0.800	0.495	0.050	0.310	0.743	0.583**	1.79 (0.27)	0.853	0.719
Medication practices	1.84 (0.17)	0.565	0.525	0.078	0.219	0.827	0.461*	1.81 (0.25)	0.852	0.748
Side effects	1.30 (0.22)	0.881	0.817	0.132	0.157	0.950	0.699**	1.21 (0.21)	0.780	0.812
Rights	1.69 (0.30)	NA	0.745	NA	NA	NA	0.561**	NA	NA	NA
Cognitive difficulties	1.40 (0.33)	NA	0.757	NA	− 0.005	NA	0.401*	1.48 (0.33)	NA	0.759
Quality of life	2.63 (0.53)	0.855	0.759	NA	NA	0.945	0.780**	NA	NA	NA
Quality of treatment	3.04 (0.55)	0.916	0.894	NA	NA	0.917	0.789**	NA	NA	NA
Symptoms	1.46 (0.32)	0.763	0.705	0.257	0.321	0.713	0.815**	1.29 (0.29)	0.708	0.754
Community behaviors	1.06 (0.11)	0.511	0.548	0.298	0.371	0.629	0.623**	1.06 (0.13)	0.643	0.595

NA = not applicable in the study.
  * $p < 0.05$, two-tailed.
  ** $p < 0.01$, two-tailed.

nistered 2 weeks after their initial testing. The 26 were chosen to be representative of the entire sample's age, education, and gender. Pearson PM correlations were calculated, and the values are presented in Table 1 along with the coefficients from the initial study as a comparison.

All of the scales have acceptable to excellent stability except Friends. One item, "Did you do things together with your friends," changed during the 2 weeks for 6 of the 26 participants from "no" to "yes." A likely explanation is the reactive effect of the question itself. Once the question was posed during the initial testing, participants were prompted to consider doing something with a friend in the subsequent 2 weeks. The stability of the Vocational scale was also somewhat lower than expected; however, the changes reflected the introduction of a supported employment program at Douglas Hospital in the interim between the two testings. Three of the twenty-six were accepted into the program.

3.2. Validity

3.2.1. BASIS-32

The correlations of the CASIG-SR scales with the five scales of the BASIS-32 provide evidence of CASIG's convergent and discriminant validity (Campbell and Fiske, 1959). As in the initial study, the CASIG-SR Symptom scale total converged with the BASIS-32 Psychosis and Anxiety/Depression scales ($r = 0.546$, $df = 221$, $p < 0.0001$; $r = 0.609$, $df = 221$, $p < 0.001$, respectively); the total of the CASIG Community Behaviors scale converged with the BASIS-32 Impulsivity scale ($r = 0.394$, $df = 221$, $p < 0.001$); CASIG Friends scale converged with the BASIS-32 Relationships scale ($r = -0.279$, $df = 221$, $p < 0.001$); and CASIG Quality of Life scale converged with the BASIS-32 Role Performance scale ($r = -0.470$, $df = 221$, $p < 0.001$). One of the added scales, Cognitive Difficulties, was significantly correlated with the BASIS-32 Role Performance scale ($r = 0.485$, $df = 221$, $p < 0.001$). Those respondents having difficulties with their cognitive functions such as memory and attention would likely have difficulties fulfilling their major instrumental roles such as being wage earners and spouses. All of the other correlations were nonsignificant as anticipated, confirming CASIG's discriminant validity.

3.2.2. CAN

The correlations between the CASIG-SR and CAN self-report scales, and between the CASIG-I and CAN informant scales, provide further evidence of CASIG's convergent and discriminant validity. A detailed review of the CAN scales indicated that 10 of its 22 scales matched 6 CASIG-I and CASIG-SR scales. As indicated in Table 2, the resulting correlations were significant for both CASIG-I and CASIG-SR. However, the two CAN scales that assessed interpersonal functioning, Social Relationships and Emotional Relationships, were not significantly correlated for either the informant or self-report CAN with the Friendship scale on either CASIG-SR or CASIG-I. The distributions of responses to the two CAN scales for both the self-report and informant versions were markedly skewed, with the vast majority of respondents indicating "no difficulty." This restricted variance limited the correlations of these scales with all other variables.

3.2.3. SF-36

Based on the results of the initial CASIG study, it was anticipated that the SF-36's eight scales would correlate with CASIG-SR's Symptoms and Side Effects scales. The results are presented in Table 3, and provide strong evidence of convergent validity. This study's significant correlations between CASIG-

Table 2
Correlations between CAN and matching CASIG-SR/-I scales

CAN scale	CASIG scale	CASIG-SR r ($N = 204$)	CASIG-I r ($N = 140$)
Food	Nutrition	− 0.662	− 0.455
Hygiene	Personal hygiene	− 0.409	− 0.616
Cleaning	Care of possessions	− 0.432	− 0.410
Transportation	Transportation	− 0.460	− 0.217
Psychotic symptoms	Symptoms	0.183	0.211
Psychological distress	Symptoms	0.494	0.521
Alcohol	Community behaviors	0.222	0.327
Drugs	Community behaviors	0.270	0.514
Self safety	Community behaviors	0.218	0.187
Others' safety	Community behaviors	0.188	0.256

All correlations $p < 0.001$, two-tailed, $df = 221$.

Table 3
Correlations between SF-36 and matching CASIG scales

CASIG-SR ($N = 223$)	SF-36							
	Physical function	Physical limit	Pain	General health	Vitality	Social function	Emotion limit	Mental health
Symptoms	− 0.276**	− 0.406**	− 0.337**	− 0.371**	− 0.267**	− 0.450**	− 0.492**	− 0.375**
Cognitive difficulty	− 0.199*	− 0.374**	− 0.316**	− 0.396**	− 0.309**	− 0.442**	− 0.460**	− 0.272**
Side effects	− 0.301**	− 0.388**	− 0.343**	− 0.359**	− 0.277**	− 0.288**	− 0.309**	− 0.264**
Quality of life	− 0.189*	− 0.262**	− 0.236**	− 0.404**	− 0.469**	− 0.436**	− 0.428**	− 0.207*

* $p < 0.01$, two-tailed, $df = 221$.
** $p < 0.001$, two-tailed, $df = 221$.

SR's Quality of Life scale and each of the SF-36 scales were not found in the initial study. These correlations replicate the negative relationship noted in various literature reviews (e.g., Diener, 2000) between chronic illness and subjective well-being in the general populace. One of the two added CASIG scales, Cognitive Difficulties, was also significantly correlated with the SF-36 scales, perhaps indicating that difficulties concentrating and remembering were seen as part of generally poor physical and mental functioning.

3.2.4. Contrasted groups

Two groups of participants with maximally different functioning levels were selected, and their scores were compared to determine if CASIG could discriminate between them. One group was receiving services in a "special needs" program designed to offer basic occupational therapy activities to individuals who had been institutionalized for many years and now lived in group homes. The other group consisted of higher functioning individuals who lived independently and were seeking to return to work, and who were receiving community vocational services at the Wellington Center. Eighty-eight participants were in the first group and 72 were in the other. The two groups did not significantly differ in their sociodemographic data, apart from the "special needs" group being slightly older (mean age: 45.5 vs. 41.9) and consisting of more single participants (85% vs. 79%). As indicated in Table 4, the CASIG-SR scales assessing living skills and community functioning were, as expected, significantly higher for participants receiving the vocational services than for participants receiving the special needs services. However, the CASIG-SR scales assessing symptoms, quality of life

and treatment, and medication compliance and side effects did not discriminate the special needs from the vocational service participants. Furthermore, the self-report cognitive difficulties did not significantly differ between the two groups.

The results for CASIG-I were quite similar to those for CASIG-SR, except for the Personal Hygiene, Side Effects, and Community Behaviors scales. Both groups were rated by their clinicians as close to the maximum on the Personal Hygiene scale, and the markedly skewed distributions left little "room" to detect differences. As expected, the clinicians rated the special needs group as engaging in significantly

Table 4
t values of comparisons between participants in lower vs. higher functioning settings

Scale	CASIG-SR	CASIG-I
Money	$t(157) = − 6.82$***	$t(121) = − 5.61$***
Health	$t(157) = − 6.86$***	$t(126) = − 8.83$***
Nutrition	$t(156) = − 5.23$***	$t(118) = − 5.30$***
Vocational	$t(157) = − 3.67$***	$t(130) = − 11.56$***
Transportation	$t(157) = − 3.30$***	$t(128) = − 2.17$*
Friends	$t(157) = − 2.08$*	$t(123) = − 4.05$***
Leisure	$t(157) = − 2.22$*	$t(126) = − 6.28$***
Personal hygiene	$t(157) = − 3.39$***	$t(128) = − 1.20$
Care of possessions	$t(157) = − 3.21$*	$t(114) = − 3.84$***
Medication practices	$t(155) = − 1.90$	$t(122) = − 1.62$
Side effects	$t(153) = 0.44$	$t(119) = − 2.67$*
Rights	$t(156) = − 3.94$***	NA
Cognitive difficulties	$t(157) = − 1.32$	$t(126) = 1.85$
Quality of life	$t(157) = 1.88$	NA
Quality of treatment	$t(157) = − 1.49$	NA
Symptoms	$t(157) = 0.55$	$t(127) = − 1.53$
Community behaviors	$t(157) = 1.25$	$t(128) = 3.03$**

* Two-tailed, $p < 0.05$.
** Two-tailed, $p < 0.01$.
*** Two-tailed, $p < 0.001$.

more unacceptable community behaviors than the vocational services group. The clinicians also rated the latter as experiencing significantly more medications' side effects than the former, but this may have been due to the clinicians at the Wellington Center setting being less certain about their ratings (54% of the assessments were rated as very accurate) than clinicians at the special needs program (91% of the assessments were rated as very accurate).

3.3. Construct validity

As described in detail in the initial article, CASIG was developed to provide clinicians with the comprehensive information needed to plan and evaluate individualized services. Thus, no consideration was given in its development to statistical considerations such as normally distributed responses or on clustering grouping of items on a distribution. This approach included items with extreme base rates and markedly skewed distributions that, although unsuited to analytic methods such as factor analysis, alerted them to impending infrequent but costly events such as a relapse of symptoms, a change in adherence to a

medication regimen, or removal from current housing.

Despite this emphasis on utility, the items and scales generated appeared to cluster into several meaningful domains: independent living skills, symptoms and medications (compliance and side effects), quality of life and treatment, and unacceptable community behaviors. Hence, an exploratory factor analysis, Principal Components with Varimax rotation and Kaiser normalization, was conducted to determine if the scales clustered as anticipated.

The results are presented in Table 5, and suggest that the relationships among the 17 scales are more complex than the simple structure of four domains suggested above. The scree plot revealed that the most variance was explained by the first three factors, explaining a cumulative 39.1% of the variance, with a second drop after the sixth factor adding an extra 23.25% to the variance explained (a seventh factor would have added less than 5% to the variance). Six factors were extracted with eigenvalues greater than 1, accounting for a cumulative 62.37% of the variance of the 17 scales. The first factor confirmed the expected domain of independent living skills, and indicated

Table 5
Factor loadings[a] and communalities of the scales

Scale	Factors and communalities						
	1	2	3	4	5	6	h^2
Money	0.690						0.567
Health	0.847						0.759
Nutrition	0.835						0.713
Transportation	0.384					0.577	0.495
Leisure	0.391		0.622				566
Personal hygiene	0.363				0.584		0.578
Care of possessions	0.423			0.430			0.467
Rights	0.541						0.356
Friends				0.787			0.678
Vocational						0.804	0.713
Medication practices			0.512		0.340		0.468
Side effects		0.795					0.676
Symptoms		0.785					0.689
Cognitive difficulties		0.769					0.646
Quality of life		− 0.423	0.662				730
Quality of treatment			0.862				0.771
Community behaviors					− 0.738		0.728
Eigenvalues	3.468	2.524	1.272	1.231	1.057	1.050	NA
Percent variance[a]	17.689	12.592	8.842	8.676	7.320	7.251	62.37[b]

[a] After rotation.
[b] Cumulative loading ≥ 0.30.

that, except for friendship, these skills are relatively unitary and generally independent of symptoms and medications. The second factor seemed to reflect discomfort and distress. The loadings indicated that symptoms, medication side effects, and difficulties with concentration and memory are associated with lower ratings of one's quality of life. The third and fifth factors included high positive loadings on adherence with medication; the third also included high positive loadings on quality of life and treatment, and the fifth included a high positive loading on performing personal hygiene behaviors and a high negative loading on performing unacceptable community behaviors.

The fourth and sixth factors likely reflected the unique characteristics of this sample. The fourth included positive loadings on leisure, friends, and care of personal possessions. The factor seemed to reflect those respondents who lived independently, cared for their own residences, and engaged in the more interpersonal leisure activities (e.g., go to a movie with a friend vs. read a newspaper). Hence, they responded on the friendship scale that they engaged in activities with their friends. The sixth factor likely reflected the fact that respondents who worked used their own or the public transportation system to get to and from their workplaces. Respondents who did not work did not use any means of transportation on a consistent basis.

4. Discussion

The results indicate that the study fulfilled its three purposes. First, adapting CASIG's items to the specifics of the Canadian system of mental health care was straightforward, with changes made to only a few items. The other changes—increasing the spacing and size of the font and adding the Cognitive Difficulties and Rights scales—enhanced CASIG's user-friendliness and coverage, and will be incorporated in the USA version. More importantly, the anecdotal comments of the clinicians, clients, and test administrators were positive and quite similar to those made when the USA version was developed and validated (Wallace et al., 2001).

Second, the psychometric characteristics of the translated CASIG-SR and CASIG-I were acceptable

and appear to resemble those of the original study. The internal consistency and stability coefficients were similar, and the "client/case manager agreement" reliability was also adequate in this study. The reliability coefficients of the two added scales, Cognitive Difficulties and Rights, were generally acceptable, and their good internal consistency reflected their development as measures of constructs (difficulty thinking, knowledge of one's rights) rather than low base-rate observations potentially useful for clinical decision making.

The validity coefficients for the BASIS-32 and SF-36 administered in both studies were similar and reflected good convergent validity. The contrasted-groups results were also similar or superior in this study, although the two studies are not strictly comparable. The lower functioning respondents in the initial study were administered a specialized version of CASIG's independent living skills tailored for their long-term inpatient setting. This study administered only the community-oriented version for all respondents. Finally, the results of the correlations of CASIG with CAN confirmed all of the other discriminant and convergent validity coefficients.

Hence, the results confirm the psychometric adequacy of the adapted and translated CASIG-SR and CASIG-I, and indicate that CASIG will retain its advantages in Canada. It measures a large array of domains relevant to community functioning; it focuses on skills and goals and not only on deficits and maintenance of the status quo; it includes consumer and stakeholder perspectives; its results provide information that is directly applicable to planning and evaluating treatment services; and it can be repeatedly administered in multiple settings as consumers transition among different treatment facilities.

CASIG does not, however, assess the resources and constraints of various treatment settings. As Pratt and Mueser (2002) noted, optimizing interventions to achieve individualized treatment success depends on thorough assessments of the individual—his/her strengths, deficits, symptoms, and co-morbid conditions—and the environmental conditions that will affect the interventions' implementations and outcomes. At present, this environmental assessment depends upon the clinicians' detailed knowledge of myriad local details about the available treatment and residential settings. Though CASIG covers many areas

relevant to community functioning, it only offers a big picture rather than an in-depth assessment of each area covered. Since CASIG is meant to be used by clinicians, we would expect them to recognize CASIG answers that could necessitate more probing (drug abuse, for instance). Another limitation of the instrument is the dichotomous format of most of the scales. Though some would argue that dichotomous items limit the array of possible statistical analyses by restricting variance, we found that this ''yes/no'' format was easier for people with serious mental illness to understand and, therefore, enabled us to obtain reliable responses.

Third, the results of the factor analysis should be interpreted cautiously. The scales were developed to fulfill clinicians' needs for decision-making and not to reflect a set of constructs. Hence, they are atheoretical, and adding another measure could markedly change the results. Nonetheless, four of the factors seem ''interpretable'', and perhaps reflect clinicians' sensible categories of treatment-relevant information. The first factor appears to reflect independent living skills, the second appears to reflect distress related to the effect of the illness, and the third and fifth reflect medication adherence and its salutary effects. From a clinical perspective, the independent living skills needed to live successfully in various residential treatment settings will vary across settings, reducing distress from the illness will always be a major treatment goal for all stakeholders, and the collaboration between consumer and clinician about optimal medication treatment will be a key element in the treatment's success. These factors are most likely the ones considered by clinicians and consumers as they collaboratively plan the services that will achieve consumers' goals and monitor the services' effectiveness.

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