

CASIG: a consumer-centered assessment for planning individualized treatment and evaluating program outcomes

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Abstract

This paper reports the psychometric characteristics of a measure that assesses the treatment outcomes of individuals with serious and persistent mental illness. Unlike other outcome measures, this one is designed to be embedded in the clinical process of planning and evaluating treatment. It collects individualized data, structures how the data are used to plan and evaluate a client's treatment, and produces aggregate information relevant for research and program purposes. Two parallel versions were developed: one for the client's self-report, and one for an informant's report.

The self-report measure was administered by peer-interviewers to 244 community interviewees, and by inpatient peer-interviewers to 93 inpatient interviewees. The community interviewees also completed the BASIS-32 and SF-36. Informants for 103 of the community interviewees completed the informant version of the measure, and the CCAR. Inpatient staff completed the informant version for 161 inpatient residents without regard for matching the 93 inpatient interviewees.

The two versions had acceptable internal consistency, test-retest, and interrater reliabilities. Correlations of the community interviewees' and informants' results with the BASIS-32, SF-36, and CCAR provided evidence of convergent and discriminant validity, as did contrasts between community and inpatients interviewees.

The usefulness of the instrument for clinical, program and research purposes is discussed, with emphasis on the characteristics that enhance its value in clinical practice — assessment of meaningful outcomes, operationalization of client empowerment, comprehensiveness, easy administration, and continuity across time and provider. Also discussed is a computer-based program to summarize and present the results in a rapid, clinically meaningful manner. © 2001 Elsevier Science B.V. All rights reserved.

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1. Introduction

Measurement of the medical, psychiatric, and role functioning of individuals with serious and persistent

mental illness (SPMI) is essential for planning their treatment, designing programmatic services, and understanding the factors that affect the course of their illnesses. Clinically, the measurement pinpoints the gaps between an individual's current and desired functioning. Services are chosen to close these gaps, and repeated measurements quantify their success in doing so. Programmatically, the measurement pinpoints the areas of deficient functioning in groups

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of individuals that may be closed by implementing large-scale services. Repeated measurements quantify the programs' successes in closing the gaps, and provide an empirical basis for comparing service providers and disbursing resources accordingly. The course of SPMI may be better understood by quantifying the differences in outcomes among the major mental disorders, identifying homogeneous subgroups within a disorder, determining the relationships between outcomes and vulnerability indicators and episode-linked variables, and exploring the moderating effects of characteristics such as social class and intelligence.

Despite these benefits and the encouraging statements and guidelines issued by various stakeholders in the mental health system (e.g. National Institute of Mental Health, 1986; Newman and Ciarlo, 1994; Kaufmann and Manderscheid, 1997; Smith et al., 1997a), few providers have actually implemented systematic measurement of functional outcomes (Smith et al., 1997b). A major difficulty is that the immediate costs of the measurement are not rewarded with equally immediate paybacks. Providers are rarely, if ever, compensated for the costs of the measurement, and the value of the information cannot be realized until a sufficient — and costly — amount of it has been collected. Even then, analyzing and 'mining' the data are no mean feats.

Since the costs of the measurement are borne by the provider, the few implementations have focused on minimizing these costs. The measurement procedures have typically been encapsulated and assigned to one of the provider's existing administrative or clinical units (e.g., Quality Assurance Unit, Psychology Service, Adult Services, Accounting Department, etc.). From the provider's perspective, this minimizes any disruptive effects of the measurement on the program's ongoing services, and provides managers with a straightforward means of monitoring the procedures.

This 'isolationist' strategy has distinct limitations, however. Relegating the measurement procedures to a specific administrative unit makes their completion dependent upon that unit's budget and staff. In times of limited budgets and staff reductions, the measurement may be dropped some times for some individuals (Clardy et al., 1998; Smith et al., 1997b), seriously compromising the value of the entire set of data (Vieweg et al., 1997).

The measure is usually brief and global, completed by individuals with minimal instructions and assistance from staff. While this lessens the procedures' burden, the results are limited to one perspective, and are too general to pinpoint the specific services that need to be included in an individualized treatment plan (e.g., Smith et al., 1997b). Furthermore, while a global measure may be sufficient for comparing providers, there is not enough information to determine why their outcomes might differ. Providers may achieve different rates of competitive employment, for example, for a variety of reasons such as differences in their services, staff, clients' skills, local economic conditions, amount of resources provided by collaborating agencies such as Vocational Rehabilitation, community attitudes, etc. The global measurement gives no information to justify new services, additional staff, more funds, etc.

The opposite of the isolationist strategy is to embed the measurement in the routine clinical procedures for planning and evaluating individualized treatment. Planning begins by administering the measure and summarizing the results. The summary is then reviewed by the clinician and the individual to identify the gaps between the individual's current and desired functioning. Services are selected to close the gaps, and continued measurement is the quantitative monitor of the services' efficacy and effectiveness. Services that are not efficacious and/or effective can be eliminated or modified. The embedded measurement becomes the empirical justification for treatment, and provides the structure and focus for the planning and evaluation procedures. Idiosyncratic variations among clinicians are reduced, and the sometimes burdensome task of planning treatment is considerably eased.

The results can be aggregated across all of the individuals in a program, and used to guide a program's TQM/TQI procedures and to compare providers' efficacy and effectiveness. The aggregated results would also be the raw data for investigations of the course of SPMI and the factors that affect it. In either case, little if any additional costs would be required, since all individuals would have been measured during their routine clinical procedures.

This embedding strategy has been advocated by various authors and stakeholder organizations. Bartlett (1997), for example, notes that "clinical

information systems ... as a routine part of their operations [ought to] collect reliable, valid data about important outcomes". Mee-Lee (1997) suggests that treatment costs will always be optimized if they are based "on client-driven, assessment-based ... clinical treatment". The Outcomes Roundtable (Smith et al., 1997b) champions outcome measurement at all levels of care, and suggests that the measurement always include the individual's perspective, be adaptable to different health care systems, measure areas of personal functioning that are affected by the disorder being assessed, and be capable of repetition at clinically meaningful intervals. National Institute of Mental Health (1986) defines 'good' outcome measures as those that are relevant to the target group of individuals, include the perspectives of all stakeholders, and produce psychometrically sound scores with clear and objective referents that are understandable by a wide audience and useful in providing clinical services.

Unfortunately, the current measures of functional outcomes, even those specifically designed to help practitioners plan treatment (e.g., Kennedy, 1992; Weaver, 1994; Weiss and Chapman, 1993; Outcome Advantage by Strategic Advantage, Inc.) are insufficient to be embedded in routine clinical procedures as the empirical anchor for treatment planning. Either they simply list the functional outcomes to be assessed (e.g., Kennedy, 1992) without providing methods to measure them (e.g., Weaver, 1994), or they focus almost exclusively on symptoms (e.g., Weiss and Chapman, 1993; Outcome Advantage). The purpose of this paper is to report the psychometric characteristics of a functional outcome measure specifically designed to be embedded as the empirical anchor for treatment. The measure, the Client's Assessment of Strengths, Interests, and Goals (CASIG), systematizes the process of planning individualized treatment planning, and collects reliable and valid data for research and program evaluation.

2. Methods

The next several sections describe the content and administration of CASIG and its informant version, Staff Observations and Client Information (SOCI), including the procedures used to validate their

content. The remainder of this section will then describe the procedures used to determine CASIG and SOCI's reliability and validity.

2.1. CASIG

CASIG is administered as a structured interview that surveys the individual's goals for improvement in five major areas of community functioning, and measures the individual's current social and independent living skills, medication compliance and side effects, quality of life, quality of treatment, symptoms, and performance of unacceptable community behaviors.

2.1.1. Goals

The individual's goals for improvements in living arrangements, financial/vocational resources, social and familial relationships, religious activities, and physical and mental health, are surveyed with from three to five open-ended questions per area. The initial question asks about the individual's expectations for improvements in the next year (e.g., "Would you like to improve your health in the next year?"), and the remaining questions ask the individual how these might be accomplished, and the amount and type of support he/she needs to achieve these improvements. Additional questions clarify the responses as needed.

2.1.2. Social and independent living skills

The individual's current performance in 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 — is assessed with from four to nine yes/no items per area. The items are a subset of those in the Independent Living Skills Survey (ILSS; Wallace et al., in press) with slight modifications. All assess performance during the past 90 days (e.g., "In the past 90 days, did you use local public transportation such as the bus or train to go places yourself?"), except for the personal hygiene and care of personal possessions items that assess performance within a time frame specific to each item (e.g., the last 7 days for bathing, last 3 days for emptying trash, etc.). All items assess performance ('did you'), not ability ('can you') or motivation ('want to').

2.1.3. Medication practices

The individual's compliance with medication is assessed with eight yes/no items that survey attitudes and beliefs (e.g., "Do you need to take medication when you feel better?" "Is medication an important part of your treatment?"), and actual cooperation with the prescribed dose and interval (e.g., "For the last 3 months, have you usually taken your medication as prescribed?").

Medication side effects are assessed with 18 yes/no items that begin with the stem "Does your current medication cause you problems like ..." and then continue with each of 18 side effects (e.g., thirsty, nervous or jittery, weight gain). The stem can be repeated as often as necessary to emphasize the context.

2.1.4. Quality of life (QOL)

The individual's QOL is assessed with 10 self-ratings of his/her finances, fun, safety of possessions, personal safety, health, family, friends, housing, abilities, and life in general (scale points of 'poor, fair, average, good, excellent' for each area). An open-ended question asks the client what he/she would like to change in his/her life.

2.1.5. Quality of treatment (QOT)

The individual's QOT is assessed with five self-ratings of his/her psychiatrist's skill, courtesy, access, listening, and explanation of treatment; five more self-ratings of the same qualities of the staff; and an 11th item that asks for an overall rating of treatment (same scale points as QOL). An open-ended question asks the individual what he/she would like to change in his/her treatment.

2.1.6. Symptoms

Six symptoms (delusions/thought disorder, hallucinations, anxiety, depression, suicidal intentions, and mania) are assessed with present/absent items that consist of probes, follow up questions, and scoring criteria adapted from the UCLA Expanded BPRS (Lukoff et al., 1986). The adaptation was designed to detect an impending relapse and rehospitalization, and was explicitly biased in favor of avoiding false negatives at the cost of increased false positives. A false negative misses an opportunity to prevent a

relapse, while a false positive simply leads to further assessment by a trained specialist.

Negative symptoms were not assessed, since they are less likely to presage a relapse than the six that are assessed, and they are difficult to rate accurately (e.g., low interrater reliability of 'flattened affect, anhedonia' etc.). They are likely, however, to be a significant factor in planning treatment, and the clinician will need to observe them and adjust the content and pace of the individual's services accordingly.

2.1.7. Unacceptable community behaviors

The individual's performance of behaviors that are unacceptable in community settings is assessed with 10 yes/no items, each of which begins with the stem "In the last 90 days, did you ..." and adds one of the unacceptable behaviors (e.g., use street drugs, physically abuse others, steal possessions, engage in illegal sexual activities).

2.1.8. Specific goals

As each area of social and independent living skills, each symptom, and each unacceptable behavior is assessed, the individual is asked if he/she wishes to make it a personal goal to improve that skill area, manage that symptom, or not engage in that unacceptable behavior. After assessment of medication compliance, the individual is asked if he/she would like to learn more about his/her medications and take care of them without assistance.

2.2. SOCI

SOCI is the informant-completed counterpart to CASIG. It is administered as a questionnaire, and consists of the CASIG items phrased for the third person, except for those that assess symptoms. The symptom items begin with the stem "In the past 3 months, has there been evidence of the client experiencing ..." and continues with each symptom. Items about clients' goals, QOL, and QOT are not included since they directly assess individuals' attitudes, and informants' information is less relevant.

2.3. Validation of content

Several methods were used to validate CASIG and SOCI's content. First, the guidelines for care of SPMI individuals published by various stakeholders' groups

were reviewed, and their common recommendations for the focuses of that care were identified. The National Institute of Mental Health (1991) guidelines, 'Caring for People with Severe Mental Disorders' for example, notes that "four domains encompass the important areas to be [treated]: 1) clinical; reduction or elimination of symptoms; 2) rehabilitative; improvement or restoration of social and vocational functioning; 3) humanitarian; increase in a sense of well-being and personal fulfillment; and 4) public welfare; prevention of harm." All are included in CASIG and SOCI.

Second, detailed critiques about the content were solicited from more than 100 clinicians and managers who worked in diverse facilities as case managers, social workers, rehabilitation therapists, occupational therapists, psychologists, clinical records documentarians, nurses, psychiatric technicians, mental health workers, program chiefs, and information technology specialists. They were selected to represent the wide range of staff who work with SPMI individuals and their clinical and financial records. They were asked to evaluate CASIG and SOCI's content based on the criterion of discriminating between SPMI individuals who had and had not adapted to the demands of living in open, supervised or partially supervised community residences. The aim was to include primarily items that measured 'critical', not necessarily 'polished,' community functioning, since measures of polished functioning are widely available (e.g., Social Adjustment Scale-II; Schooler et al., 1979). Approximately 30 of the evaluators provided ongoing feedback throughout CASIG's development (i.e. a longitudinal 'focus' group), while the other 70 provided feedback once (i.e. a cross-sectional 'focus' group).

All of the evaluators were interviewed at length to elicit their comments about the extent to which the broad areas assessed by CASIG and SOCI surveyed 'critical' functioning (e.g., "Does this area of functioning characterize individuals who adapt to the community and their residences from those who do not adapt to community living?" "Should this area be included?" "Is an area missing?"). After all the areas had been reviewed, they commented similarly about each item in each area. The interviews were either audio recorded or the responses were noted verbatim. The interviews were examined in detail, the respondents were contacted again for clarification as needed,

and the responses were incorporated into subsequent revisions.

Third, CASIG and SOCI were submitted for approval to the Client Assessment Work Group of the state's (California) Task Force on Reorganization of the State Hospitals. The task force had been established by state law to facilitate the transition of the hospitals' funding from state to county control, and recommend a treatment assessment measure that would be consumer-focused/driven. The work group consisted of senior clinicians, managers, and consumer members of California's Mental Health Network. The work group reviewed all of the generally available measures, and made suggestions to increase CASIG and SOCI's coverage and reword some items. After these suggestions had been incorporated into CASIG and SOCI, the task force approved them. They were the only measures approved by the group.

Fourth, the SPMI individuals who were the interviewees for the reliability and validity research described below made several suggestions for rewording of the items to make them easier to administer. All of these suggestions were incorporated.

2.3.1. Modifications to CASIG and SOCI for inpatient facilities

As Leaf and Webb (1994) have noted, assessing individuals' social and independent living skills is complicated by the constraints, rules, and resources of their living environments. Environments that provide skilled nursing care, for example, typically restrict individuals' opportunities to manage their own funds, prepare meals, use public transportation, and engage in off-site recreational and vocational activities. Items that assess skills relevant for such a setting might lead to a ceiling effect if administered to individuals living in less restrictive settings, such as semi-autonomous living centers; and vice versa.

Hence, during the validation of the content, the clinicians helped developed two sets of items to assess social and independent living skills: one for restricted environments, such as skilled nursing care units, and one for open-access environments, such as independent living community residences. Some items were specific to each environment (e.g., "pay by cash or your own check for your rent and food" for community residences); others were similar for both except for the 'settings' that were described (e.g., "withdraw

and deposit funds from the trust office” versus “withdraw and deposit funds from a bank”); and some items were the same for both (e.g., “keep most of your money and resist giving it away”). All of the items to assess Personal Hygiene and Care of Personal Possessions were the same regardless of setting, as were all items on all scales other than the social and independent living skills.

2.4. Reliability and validity

2.4.1. Interviewees

CASIG was administered to 244 SPMI interviewees who lived in various community facilities, and 93 SPMI interviewees who were residents of a state hospital.

2.4.1.1. Community interviewees The 244 community interviewees were members of Project Return, a consumer-operated self-help organization that maintained ‘clubs’ at various community sites such as the YMCA, and larger community residences such as board and care homes. Each club was operated by a facilitator-member who conducted periodic meetings with fellow members to plan recreational activities, review local and regional policies that affected their lives, and organize advocacy activities. All of the members had been diagnosed with a major mental illness, and were receiving care from the local county’s continuing care teams.

Interviewees were recruited during two to three consecutive meetings at each club. The project was thoroughly explained at each meeting, attendees’ questions were answered, and a written summary was distributed and posted on the club’s bulletin board. A total of 244 club members expressed their interest in participating. The project was described again in detail during individual meetings, and each of the 244 signed an informed consent form.

The 244 averaged 43 years old (28–55); 57.4% were male; 22% were African American, 11.7% Pacific Islander, 7.9% Hispanic, 52.7% Caucasian, 5% mixed, 0.7% other; 62.3% had never been married, 29% were divorced or widowed, and 8.7% were married or cohabiting; and 91.1% had graduated from high school.

2.4.1.2. Inpatient interviewees The 93 inpatient

interviewees lived on unlocked units of a state hospital, and participated in the hospital’s ‘day-treatment’ activities. Interviewees were recruited individually; each was approached, the project was thoroughly explained, questions were answered, and an interview was scheduled if consent was obtained. All were diagnosed with SPMI, and all had either been continuously hospitalized for more than 5 years or had multiple episodes of ‘revolving-door’ inpatient care. They averaged 44 years old (31–60), 63% were male; 7% were African American, 5.7% Hispanic, 87.3% Caucasian; 98.2% had never been married; and 85% had graduated from high school.

2.4.2. Interviewers

In both settings, CASIG was administered and scored by peer-interviewers. This continued the high level of consumer involvement that began with the Client Assessment Work Group, and allowed data to be collected en masse rather than trickle in as clinicians administered CASIG during occasional intakes and periodic treatment reviews. Furthermore, it demonstrated that CASIG was straightforward to administer and less difficult than some clinicians and managers had noted. The community interviewers also administered BASIS-32 and SF-36; neither was administered to the inpatient interviewees, since the staff believed that they would not be able to read the items.

2.4.2.1. Training and monitoring interviewers As detailed in Lecomte et al. (1999), the interviewers were trained in 3 h of didactic presentations and practice. The didactic material explained CASIG-SOCI’s purposes, demonstrated its procedures, highlighted the importance of confidentiality, and detailed the interpersonal qualities needed to conduct the interview. The practice interviews were conducted with the trainees serving as both interviewees and interviewers. All interviews were audiotaped, and the tapes were reviewed by the trainer who provided feedback during an hour of individual supervision.

Eighteen members of Project Return interviewed an average of 13.56 of their peers (S.D. = 9.72, range of 1–32). All 18 had been diagnosed with either a schizophrenia spectrum, schizoaffective, or affective disorder. All 244 interviews were audiotaped, and

each was reviewed from beginning to end to confirm that the procedures were followed and the responses were scored correctly. In 219 interviews, all procedures were implemented perfectly and responses were recorded exactly. The errors in the other 25 interviews were minor recording mistakes, and were corrected before the data were analyzed. Since the tapes were reviewed as the data were collected, the interviewers were given feedback about their errors and asked to increase their carefulness.

Twelve residents of the state hospital interviewed an average of 7.75 of their peers (S.D. = 7.22, range of 1–12). All 12 were diagnosed with a schizophrenia spectrum disorder. Interviewers were monitored with the same methods as the Project Return interviewers, and the results were much the same. In 85 interviews, all procedures and recording of responses were perfect. The errors in the remaining eight were also minor recording mistakes, and interviewers were given feedback as the data were collected.

2.4.3. Staff

A total of 15 staff completed SOCIs and CCARs for 103 of the 243 community interviewees. The 103 were living in sheltered community facilities such as board and care homes, and the residential care staff completed the SOCIs. Unfortunately, the large case-loads of the community-based case managers who monitored the other 140 interviewees allowed only brief and cursory contacts that precluded completion of SOCIs.

A total of 22 staff completed SOCIs for 161 inpatient residents who lived on four units of the state hospital. Due to several administrative constraints, the SOCIs were completed months before CASIG, and no effort was made to administer the latter to clients for whom the former had been completed.

2.4.4. Validation measures

Three measures were administered to evaluate CASIG and SOCI's construct validity: (a) Behavioral And Symptom Identification Scale — 32 (BASIS-32; Eisen et al., 1994), (b) Short Form Health Survey — 36 (SF-36; McHorney et al., 1994), and (c) Colorado Client Assessment Record (CCAR; Ellis et al., 1991).

2.4.4.1. BASIS-32 The BASIS-32 is a self-report measure that assesses the degree of difficulty, rated

on a seven point scale, that a respondent has experienced in the past 7 days in 32 areas of functioning such as 'managing day-to-day life' and 'role functioning'. The ratings are summed to obtain totals for five factor analytically derived scales: Psychosis, Impulsivity, Anxiety/Depression, Interpersonal Relations, and Living Skills.

2.4.4.2. SF-36 The SF-36 is a self-report measure that assesses eight areas of health, including physical functioning, physical limitations in role functioning, pain, general health; vitality, social functioning, emotional limitations in functioning, and general mental health.

2.4.4.3. CCAR The CCAR is an informant-completed measure that assesses the presence/absence of 60 'problem' areas (e.g., Belligerent, Dishonest, Fearful, Nervous, Absenteeism, Social Skills Problem) grouped into nine scales: Feeling/Mood/Affect, Thinking/Mental Processes, Medical/Physical problems, Substance Use, Interpersonal Relations, Role Performance, Socio-Legal, and Self Care/Basic Skills.

2.4.5. Procedures

2.4.5.1. Community Each club's facilitator compiled the names of members who expressed interest in the project, and distributed the names to project staff who individually conducted the informed consent procedures. If consent was given, a nearby interviewer was contacted, given blank copies of CASIG, BASIS-32, and SF-36, a tape recorder, blank tapes, and a time sheet to record hours and expenses. Interviewers were paid \$5.00 an hour, and reimbursed for travel expenses for the initial training, all interviewing, and attending supervision meetings. The interviewers generally required from 45 to 90 min to conduct CASIG and from 15 to 20 min to monitor completion of BASIS-32 and SF-36. Interviewees were paid \$10.00.

2.4.5.2. Inpatient The procedures were the same as those implemented in the community, with four exceptions. First, an on-site staff member performed the functions of the clubs' facilitators. Second, the interview began with a determination of the

Table 1
Reliability coefficients for the CASIG and SOCI^a

Test:	CASIG				SOC1	
	Alpha		Interrater	Stability	Alpha	
Type:	Community	Inpatient	Community	Community	Community	Inpatient
Number:	243	93	103	25	103	161
Health	0.636	0.795	0.416	0.831	0.496	0.862
Money	0.591	0.783	0.591	0.732	0.811	0.919
Food	0.876	0.813	0.642	0.487	0.901	0.922
Vocational	0.883	0.719	0.600	0.797	0.830	0.939
Transport	0.649	0.780	0.585	0.909	0.703	0.878
Friends	0.875	0.505	-0.015	0.445	0.392	0.808
Leisure	0.636	0.693	0.288	0.637	0.675	0.919
Hygiene	0.556	0.441	0.198	0.811	0.758	0.909
Possessions	0.800	0.626	0.05	0.743	0.853	0.918
Med Comply	0.565	0.802	0.078	0.827	0.852	0.898
Side effects	0.881	0.931	0.132	0.950	0.780	0.752
Quality life	0.855	0.872	NA	0.945	NA	NA
Quality treat.	0.916	0.928	NA	0.917	NA	NA
Symptoms	0.763	0.736	0.257	0.713	0.708	0.433
Behaviors	0.511	0.830	0.298	0.629	0.643	0.694

^a N/A = not assessed.

potential interviewee's ability to participate. Six simple questions were asked (e.g., "What is your name?"; "How old are you?"; "What is your birth date?"), and the interview commenced if the potential interviewee correctly answered four or more. Third, the payments given to both the interviewers and interviewees were deposited into their hospital trust accounts rather than given to them directly. Fourth, BASIS-32 and SF-36 were not administered.

3. Results

All analyses were conducted with selected programs from SPSS 8.0.

3.1. Reliability

3.1.1. CASIG

Three types of reliability were calculated with the data from the community interviewees; internal consistency (coefficient alpha), interrater, and stability. The stability data were obtained from a subset of 25 interviewees. Since the community interviews

required substantial time and effort to arrange and implement (e.g., getting to the interview site using public transportation; Lecomte et al., 1999), the interviewers were less than enthusiastic about repeating the process. Hence, the subset of 25 was selected and retested 4–6 weeks after their initial testing.

The data from the inpatient interviewees were used to calculate internal consistency reliability (coefficient alpha). Interrater reliability was not calculated since the CASIGs were administered months after the SOCIs, without regard for matching CASIG interviewees with residents for whom the staff had completed SOCIs.

3.1.1.1. Internal consistency The results are presented in Table 1, and indicate marginal to excellent coefficient alphas for all areas of CASIG for both community and inpatient interviewees. The values for the social and independent living skills scales (health, money, food, vocational, transport, friends, leisure, hygiene, possessions) match or exceed those for the ILSS from which the items were drawn. In contrast to scales such as the BASIS-32 and the Life Skills Profile (LSP; Rosen et al., 1989) that increase

their internal consistencies by grouping items based on their inter-item correlations, CASIG's scales are grouped by content. This 'content-coherence' strengthens each scale's clinical interpretability at the cost of its internal consistency.

Importantly, CASIG's coefficient alphas were essentially the same for both inpatient and community interviewees. The procedure of first administering the six simple questions appeared to eliminate inpatient interviewees who were too conceptually disorganized to participate. With this 'screening' procedure, CASIG can be administered with essentially equal accuracy across a wide range of clients.

3.1.1.2. Stability The results for CASIG's stability were good to excellent, although the values for two of the nine social and independent living skills scales, food preparation and friends, were lower than the others. The results for these two reflected shifts in several residences' 'rules' for food preparation, as well as fluctuations in the frequency of contacts with friends: e.g., daily to weekly or monthly, weekly to daily or monthly, etc.

3.1.1.3. Interrater The results for the interrater reliability coefficients were generally affected by the scales' skewness. For the scales that were not skewed (health management, money management, food preparation, vocational, transportation, and leisure), the interrater coefficients were acceptable and, except for leisure, matched or exceeded those for the ILSS. They also exceeded the comparable interrater coefficients reported by Achenbach et al. (1987) in their meta-analysis of observers' and children's agreement about the behaviors of conduct-disordered children. Achenbach et al. reported that the average correlation between similar types of raters (e.g., two teachers or both parents) ranged from 0.54 to 0.64, compared with the average correlations between different types of informants (e.g., a teacher and a parent) that ranged from 0.24 to 0.42, and the average correlations between children and informants that ranged from 0.20 to 0.27. The CASIG–SOC1 coefficients, (interviewees' responses correlated with staff's responses) are comparable methodologically to the children-informant correlations, and all them exceeded the latter's 0.20 to 0.27 range.

For the skewed scales (symptoms, community behaviors, side effects, medication compliance, friends, care of personal possessions, and personal hygiene), the correlations were lower. To further analyze the agreement between interviewees and staff, each interviewee's total score on a scale was compared with the staff's total, and the percentages of exact agreements and one-point disagreements were calculated. The results for the personal hygiene, care of personal possessions, and medication compliance scales indicated substantial agreement between interviewees and staff. For the personal hygiene scale, 75% of the interviewees' totals exactly matched those of the staff, and 88% exactly matched or were within one point of agreement. For the care of personal possessions scale, 75% of the interviewees' totals exactly matched those of the staff, and 80% exactly matched or were within one point of agreement. For the medication compliance scale, 66% of the interviewees' totals exactly matched those of the staff, and 83% exactly matched or were within one point of agreement.

For the symptoms, side effects, community behaviors, and friends scales, agreements between interviewees and staff were not as high. The symptoms and side effects scales assess interviewees' subjective reactions and feelings, and staff may not be privy to these private, personal and symptomatic responses. Indeed, the interviewees and staff agreed almost precisely on the presence of depression and anxiety, symptoms that are likely to be personally experienced by the staff as well as the interviewees. Similarly, the friends and community behaviors scales involve behaviors (e.g., 'talking to a friend'; 'having a verbal disagreement') that are usually brief and may escape notice by staff unless they become prolonged or intense.

The imperfect agreement does not seem to represent a systematic bias by interviewees to portray themselves as 'healthier' than they appear to others. There were no significant differences between the mean ratings of interviewees and staff on any scale except the symptoms and side effects scales. The interviewees reported themselves as having significantly more of both than the staff (paired *t* test: symptoms $t = 5.29$, $df = 101$; side effects $t = 5.48$, $df = 101$; both $P < 0.0001$).

Furthermore, there are no 'guarantees' that staff

ratings are particularly accurate. Indeed, there are several examples of staff's inaccuracies in predicting individual's needs for services and support. McFarland et al. (1998) found that clinicians' estimates of the services needed to fulfill individuals' rehabilitation needs were two-thirds less than the actual amount of services required and delivered. Perreault et al. (1996) reported that clinicians underestimated the type and amount of social support that individuals required for successful outcomes from their services. Comtois et al. (1998) found that individuals and their clinicians have essentially no agreement about the presence of clinical and social problems, the importance of living skills deficits, and the difficulty of dealing with them. Comtois et al. question whether consensus is needed for successful outcomes, but they note that clinicians should "listen to [individuals'] points of view more carefully, especially in the areas of work, studies, and independent living" (p. 159).

3.1.2. SOCI

The results for SOCI are presented in Table 1, and indicate marginal to excellent coefficient alphas for all areas for both community and inpatient informants. The values for the social and independent living skills scales for the inpatient informants are the same as those for the ILSS from which the items were drawn. The values for the community informants are lower than the ILSS, but still quite acceptable.

3.2. Validity

3.2.1. BASIS-32

Scores on the BASIS-32 items were combined into its five scales, and the scales' totals were correlated with totals from the CASIG scales, except QOT. As expected, the correlations between the CASIG symptom total and the Psychosis and Anxiety/Depression BASIS-32 totals were significant ($r = 0.478$ and $r = 0.470$, both $df = 241$, both $P < 0.0001$), as were the correlations between CASIG unacceptable community behaviors and BASIS-32 Impulsivity ($r = 0.253$, $df = 241$, $P < 0.001$), CASIG friends and BASIS-32 Relationships ($r = -0.304$, $df = 241$, $P < 0.001$), CASIG QOL and BASIS-32 Relationships ($r = -0.510$, $df = 241$, $P < 0.0001$), and

CASIG QOL and BASIS-32 Living Skills/Role Performance ($r = -0.504$, $df = 241$, $P < 0.00001$).

However, the relationships between the CASIG social and independent living skills scales and the BASIS-32 Living Skills/Role Performance scales were not significant. Inspection of the scores on the seven items that comprise the Living Skills/Role Performance scale suggested two possible causes. First, two of the seven items are only partially relevant to the CASIG scales. The factor analysis that grouped the seven BASIS-32 items included 'experiencing difficulty developing autonomy' and 'apathy and a lack of interest in things', items that appear to assess anhedonia rather than actual performance of daily living skills. Second, the distributions of responses on the remaining five BASIS-32 items, 'experiencing difficulty in managing day-to-day life ... household responsibilities ... work ... school ... leisure,' were all markedly skewed. From 67% to 70% of interviewees indicated that they had little or no difficulty with any one of the five, limiting the correlations of their total with the more normally shaped distributions of the CASIG social and independent living skills totals.

3.2.2. SF-36

Scores on the SF-36 items were combined into its eight scales, and correlated with the totals from each of the CASIG scales except QOT. As expected, CASIG symptom total was significantly correlated with all SF-36 scales except General Health Perceptions (range of $r = 0.253$ with the SF-36 Physical Role Limitations scale to $r = 0.467$ with the SF-36 Social Functioning scale; $df = 235$, all P values < 0.0001). Also as expected, the CASIG side effects total was significantly correlated with five SF-36 scales: Mental Health, Vitality, Bodily Pain, Emotional Role Limitations, and Social Functioning (range of $r = 0.212$ to $r = 0.256$, all $df = 235$, $P < 0.0001$).

3.2.3. CCAR

Scores on the CCAR were combined into its nine scales, and correlated with the totals from each of the SOCI scales. As expected, the correlations between the SOCI symptom total and the CCAR Thinking and Mood scales were significant ($r = 0.369$, $df = 103$, $P < 0.0001$ and $r = 0.533$, $df = 101$, $P < 0.0001$, respectively). The correlations between the SOCI friends total and the CCAR Relationships

Table 2
t values for contrasted groups' validity^a

CASIG–SOCI scale	Contrast 1		Contrast 2		Contrast 3	
	<i>t</i>	Direction	<i>t</i>	Direction	<i>t</i>	Direction
Health ^b	2.49	comm > in	12.69	comm > in	ns	=
Money ^b	2.97	comm > in	12.34	comm > in	ns	=
Food ^b	4.37	in > comm	15.75	comm > in	ns	=
Vocational ^b	4.78	in > comm	15.31	comm > in	ns	=
Transport ^b	2.46	comm > in	22.34	comm > in	ns	=
Friends ^b	5.50	comm > in	ns	=	ns	=
Leisure ^b	3.99	in > comm	17.11	comm > in	ns	=
Hygiene ^b	ns	=	8.29	comm > in	ns	=
Possessions ^b	3.28	comm > in	9.61	comm > in	ns	=
Medication comply	4.47	comm > in	6.47	in > comm	ns	=
Side effects	4.21	in > comm	ns	=	5.48	client > staff
Quality life	ns	=	NA	NA	NA	NA
Quality treatment	2.48	comm > in	NA	NA	NA	NA
Symptoms	3.94	comm > in	ns	=	5.29	client > staff
Behaviors	3.74	in > comm	6.29	in > comm	ns	=

^a in = inpatient; comm = community; ns = non-significant; NA = not assessed.

^b Scales with different inpatient and community items.

scale was also significant ($r = 0.370$, $df = 103$, $P < 0.0001$), as were all SOCI social and independent living skills scales, except transportation and vocation, with the CCAR Self-Care/Basic-Needs scale (from $r = 0.257$ with the SOCI money management scale to $r = 0.553$ with the SOCI care of personal possessions scale, $df = 101$, all $P < 0.0001$).

3.2.4. Contrast groups

Three contrasts were calculated: (1) community interviewees' versus inpatient interviewees' perceptions of their own functioning, (2) community versus inpatient informants' perceptions of community interviewees' and inpatient residents' functioning, and (3) community informants' versus community interviewees' perceptions of the latter's functioning. It was anticipated that the first two contrasts would reflect the inpatient residents' more limited functioning and/or higher performance of unacceptable behaviors that justified the more structured and costly inpatient care. Contrast 3, however, was an investigation of systematic differences between raters; none was expected.

3.2.4.1. Contrast 1 The results are presented in Table 2, and, for contrast 1, indicate that community interviewees described themselves as functioning

better than inpatient interviewees, engaging in fewer unacceptable behaviors, having more favorable attitudes toward their medications, and experiencing fewer medication side effects. The community interviewees were more satisfied with the quality of their treatment, but not with the quality of their lives.

The community interviewees reported more symptoms than inpatient interviewees, perhaps reflecting the greater stress of community living. Indeed, the inpatient staff had invested considerable resources to make the environment pleasant and 'low key'. There were numerous opportunities to engage in leisure activities, assist with simple tasks in the administrative and maintenance units, purchase and prepare preferred foods, and control the pace of daily activities. Confirming the investment's payoffs, the inpatient interviewees described themselves as engaging in more leisure activities, work, and food preparation than community interviewees.

3.2.4.2. Contrast 2 The results are as expected for contrast 2. Except for friends, inpatient staff described residents as functioning at a lower level than community staff described the community interviewees, with more frequent performance of unacceptable behaviors. There were no differences

in staff reports of medication side effects, and inpatient staff reported their residents as more compliant with their medication regimens. The latter may reflect the inpatient staff's strong control over interviewees receiving their medications.

3.2.4.3. Contrast 3 The results for contrast 3 are also generally as expected. Except for symptoms and side effects, the community staff were not biased in their descriptions of the community interviewees. As indicated previously, the community interviewees described themselves as having more symptoms and side effects than those reported by community staff, perhaps reflecting the more subjective and private nature of interviewees' appraisal of their own symptoms and side effects.

4. Discussion

The results indicate that CASIG and SOCI have acceptable psychometric characteristics. The internal consistency reliabilities of their scales generally equaled those of similar instruments, such as the LSP (Rosen et al., 1989) and BASIS-32 (Eisen et al., 1994), despite the psychometric 'disadvantage' of creating the CASIG and SOCI scales based on the items' clinical utility and coherent content rather than the magnitude of their factor loadings. The scales' interrater reliabilities were also generally equal to or higher than those reported in similar investigations of the agreement among different viewers of the same event. As might be expected, interrater reliability was highest for scales that assessed performance of easily and frequently observed behaviors such as food preparation and money management, lower for scales such as leisure activities that included short-duration behaviors that could be performed in several locations at various times, and even lower for scales such as symptoms and side effects that assessed more personal, 'private' states and reactions. The scales' test-retest reliabilities were also acceptable based on an interval sufficient to adequately assess their stability.

The validity coefficients provided evidence of CASIG and SOCI's convergent and discriminant validity. The CASIG symptom scale was significantly correlated with similar BASIS-32 and SF-36 scales,

and its side effects scale was significantly correlated with all of the physical symptom scales of the SF-36. As would be expected given the primary focus of the SF-36 on physical symptoms, no other CASIG scale was correlated with the SF-36 scales.

The BASIS-32 Impulsivity scale was significant correlated with the CASIG behavior scale, as was the BASIS-32 Relationships scale with the CASIG friends scale, both as expected. Unexpectedly, the CASIG social and independent living skills scales were not correlated with the BASIS-32 Role Functioning scale. As indicated previously, two of the Role Functioning items are irrelevant to the CASIG social and independent living skills scales, and the distributions of the remaining five items were markedly skewed, with the most interviewees indicating that they had little or no difficulty.

The results of the analysis of the differences in CASIG scores between the inpatient and community interviewees were also as expected. Community interviewees generally functioned better than inpatient interviewees, even though the community social and independent living skills items were more difficult than those administered in the inpatient environment. Not unexpectedly, given the low stress and 'enriched' inpatient setting, inpatient interviewees experienced fewer symptoms, participated more often in simple on-site work assignments, and more often prepared simple foods.

The community staff's SOCI scales were correlated with the CCAR scales in the expected pattern, and the inpatient staff's SOCIs indicated that their residents functioned at a significantly and substantially poorer level than that described by community staff about their interviewees. Community staff were not systematically biased in their descriptions of their interviewees, except for symptoms and side effects, and their bias was toward 'health'.

Given this generally positive evidence of CASIG and SOCI's psychometric adequacy, the results suggest that they may be used to gather functional outcomes data that are useful for clinical, program, and research purposes. That usefulness, however, hinges on thoroughly embedding them into the routine clinical procedures to plan and evaluate individualized treatment. Several of their characteristics may help clinicians incorporate them into their practices.

They assess outcomes considered important by

most stakeholders (National Institute of Mental Health, 1986, 1991; Smith et al., 1997b; American Psychiatric Association, 1992). They incorporate multiple perspectives, and their parallel items highlight specific agreements and disagreements among stakeholders that may help or hinder treatment. They are intended for entry into clinical charts, and they do not duplicate data already included there or for which other high quality measures are readily available (e.g., SF-36; SAS-II). They can be completed over several sessions of varying length, and repeated as often as clinically necessary. SOCI requires only minimal instructions to informants, and CASIG's structure allows it to be easily and accurately administered by a wide array of interviewers.

They assess current attitudes, symptoms, and functioning, using historical information principally for hints about the causes of the current results and their permanence. They assess actual functioning, not motivation and/or ability to perform that are typically assessed with unreliable subjective estimates. In the context of the entire chart, their results provide the information needed to develop "individualized service protocols that are responsive to variations in preferences [with] flexible and clinically relevant treatment goals" (Bachrach, 1993), and they operationalize "full involvement by individuals in planning their services" (Bachrach, 1993). Given the coherent content of each scale's items, each one's results are readily interpretable, and can be transmitted to all current and future service providers to enhance the continuity of care.

This clinical utility does have its price, however. CASIG's comprehensive and detailed information takes time to collect, and clinicians' time is scarce and expensive. To a degree, the costs can be reduced by hiring less expensive staff to administer CASIG's highly structured interview, as was the case in the research reported here. CASIG and SOCI can also reduce the total costs of mandated clinical assessments, since their results can replace the routine assessments now conducted by specialists (e.g., assessment of leisure and recreational skills). Detailed and costly assessments would be triggered only if threshold values were exceeded.

The costs of the administration are also offset by the information's multiple applications. In addition to planning and evaluating individual treatment,

CASIG measures two of the four to five indicators of service providers' efficacy and effectiveness. Providers are typically 'profiled' on four or five indicators of the quality of their care, such as utilization, access, integration, satisfaction, and functioning (Kaufmann and Manderscheid, 1997; Woocher, 1997). CASIG comprehensively measures satisfaction and functioning; while utilization, access, integration are system-wide indicators measured by system records such as client turnover rates, the frequency of interagency meetings, and the ease of enrollment procedures.

CASIG and SOCI's results can also be used as the empirical foundations for a provider's TQM/TQI procedures. The results document the treatment outcomes that exceed, meet, or fall short of their desired values, and their comprehensiveness may reveal the causes for the shortfalls. Services can then be modified, and the changes in CASIG and SOCI across subsequent administrations will document the modifications' success. As Waxman (1997) notes, these data-based alterations make clinicians "smarter about outcomes. [Clinicians] think carefully before making clinical assumptions about programming; and they are much more willing to examine our empirical data and read the literature to evaluate the results of other programs" (p. 74).

CASIG and SOCI's results are also useful for research on the course and outcome of SPMI. Outcome differences among the major mental disorders can be measured, homogeneous subgroups can be identified, the relationship between outcomes and hypothesized variables can be examined, and subgroups can be selected for additional measurement to test more precisely specified hypotheses.

It is important to note that CASIG and SOCI are not intended for short-term treatment planning that is typically focused on symptom reduction. Nor are they intended to measure 'polished' functioning. They are intended to measure functioning that is important for successfully adapting to living in community residences that house the majority of SPMI individuals. Hence, when administered to individuals who have adapted well to community living for quite some time, as in the present sample, skewed distributions are to be expected.

It also quite important to note that CASIG and SOCI assess functioning in terms of actual performance. This narrow focus on performance avoids

the unreliability typical of subjective estimates of motivation and ability, but it sheds no light on the causes of that performance. Unsatisfactory performance may be caused by multiple factors, and CASIG and SOCI results must be carefully reviewed in their specific context to generate the causal hypotheses that are the justifications for selecting individualized services, redesigning programmatic services, and interpreting research results.

Any attempt to embed CASIG and SOCI into a provider's routine clinical practices will certainly meet resistance given some clinicians' misgivings about the value of psychiatric rehabilitation, and a natural reluctance to adopt new procedures. The value of psychiatric rehabilitation has been demonstrated in several clinical trials (e.g., Liberman et al., 1998), and work is ongoing to ease adoption of CASIG and SOCI. One aspect of CASIG — peer administration — already eases its burden on staff, and provides opportunities for peer-interviewers to benefit from accomplishing structured work tasks (Lecomte et al., 1999).

However, summarizing CASIG and SOCI's results and entering them into an individual's clinical chart can be laborious. To reduce the labor, a computer-based program has been developed and beta tests have begun. Data can be entered after administering CASIG or completing SOCI, or the interviewer and interviewee can directly complete CASIG's items as they are displayed by the program. A copy is printed at the end of entry for storage in the individual's chart and for review by the clinician and the individual. Fields are provided to record the individual's comments that qualify the answers.

A comprehensive clinical summary is printed that compares CASIG and SOCI responses, and combines the results of various scales as they apply to each of the five major goal areas. The combinations focus the clinician and the individual on the CASIG and SOCI results that are important for achieving the individual's specific goals in each major area.

Work is also ongoing to determine the sensitivity of CASIG and SOCI to changes that result from treatment services. Anecdotally, CASIG and SOCI have demonstrated the expected changes in individuals, but data are being collected across individuals enrolled in several systematic programs to improve their functional skills.!

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