A Brief Measure of Perceived Clinician Support by Patients With Bipolar Spectrum Disorders

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Abstract: The quality of the patient-provider relationship is regarded as an essential ingredient in the treatment of serious mental illnesses, and is associated with favorable outcomes including improved treatment adherence. However, monitoring the strength and influence of provider support in clinical settings is challenged by the absence of brief, psychometrically sound, and easily administered assessments. The purpose of this study was to test the factor structure and examine the clinical and psychosocial correlates of a brief measure of provider support. Participants were recruited from the continuous improvement for veterans in care—Mood Disorders study (N = 429). The hypothesized factor structure exhibited a good fit with the data. At baseline, provider support was associated with higher levels of service access and medication compliance and lower levels of alcohol use and suicidality. Regular monitoring of provider support may provide useful when tailoring psychosocial treatment strategies, especially in routine care settings.

Key Words: Provider support, therapeutic alliance, factor analysis, mood disorders-bipolar, veterans.

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A growing number of studies are establishing a direct link between the patient-provider relationship and a variety of outcomes among individuals with bipolar disorder, including primary care attendance, psychotherapy retention, and improved symptoms (Berk et al., 2004; Gaudiano and Miller, 2006; Sajatovic et al., 2005). Given these optimistic findings, the beneficial nature of effective clinical relationships has been aptly coined as an effective "mood stabilizer" (Havens and Ghaemi, 2005) and a critical goal in psychotherapy (Summers and Barber, 2003). Furthermore, in designing appropriate efforts to increase the strength of therapeutic relationships, certain patients may garner particular advantages from positive clinical interactions, such as ethnic minorities who endorse different sets of culturally-based values and treatment perceptions, and might benefit more from their clinical relationships than white patients (Fleck et al., 2005; Tonigan, 2003). Recent studies have echoed these observations, noting that efforts to translate the concept of better provider support into the clinical setting requires a greater understanding of cultural values and treatment preferences, along with practical tools to measure such patient perceptions (Vasquez, 2007).

Recent research has linked patient perceptions of provider support with medication adherence among individuals with bipolar disorder (Zeber et al., 2007). Poor adherence is a common problem among patients with this disorder (Lingam and Scott, 2002), resulting in numerous adverse clinical and behavioral outcomes (Post et al., 2003; Salloum et al., 2005; Scott and Pope, 2002). Such findings underscore the importance of monitoring and recognizing the quality of patient-provider relationship in the treatment of bipolar disorder. In particular, the patient-provider relationship is a key factor in achieving a variety of intermediary outcomes (e.g., medication or psychosocial treatment adherence), fundamental to achieving a variety of long-term clinical outcomes.

This line of research also suggests that mental health providers should consider the quality of this relationship as a vital process measure necessary to achieving desired clinical outcomes. To minimize the burden of collecting and interpreting data, especially in routine care practice, instruments that measure the quality of the provider-patient relationship should be brief, easy to administer, and psychometrically sound. Although there are a variety of therapeutic alliance scales described in the psychotherapy literature, (Martin, 2000) most are lengthy and hence impractical for routine care settings, or were not designed specifically for individuals with serious mental illnesses, especially bipolar disorder. A recent review of the literature revealed that only a small number of psychometrically sound tools are available for the assessment of bipolar disorder related to screening, diagnosis, and long-term monitoring (Baldassano, 2005). There is also a general absence of measures that focus specifically on the patient perceptions of provider support for individuals with bipolar disorder.

Recently, the Health Care Climate Questionnaire (HCCQ) was developed by Ludman et al. to fill this gap (Ludman et al., 2002). The HCCQ is a 10-item instrument, designed to measure an aspect of the patient-provider relationship called "provider support." Provider support refers to the extent to which health care providers acknowledge and support patients' self-management of chronic illness (Ludman et al., 2002). This measure was developed by combining 5 generic items of an existing measure assessing perception of providers' autonomy (supportive versus controlling style) in general health care treatment (Williams et al., 1996). Another 5 items related specifically to the self-management of bipolar disorder were theoretically derived and included. Thus, it is a measure specific to bipolar disorder but the language is general to make it potentially useful for a broad range of serious mental illnesses. Examples of items on the HCCQ include "I feel understood by my mental health team" and "I am encouraged to ask questions about my treatment." Each question has a 7-point Likert scale response option (from 0 = strongly disagree to 6 = strongly agree).

The concept of provider support can be considered related to the more general construct referred to as "therapeutic alliance." A seminal article by Bordin (1979) defined alliance as a partnership between the client and counselor based on their agreement on the goals and tasks of counseling (Kivlighan, 2007). However, since this seminal article, it has been described, defined, and measured in a

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variety of ways (Martin et al., 2000). As indicated by Martin et al., (2000) therapeutic alliance is commonly referred to as a single construct, but the literature shows that it consists of several independent dimensions. The HCCQ is unique because it focuses specifically on the bipolar patient's perception of feeling acknowledged and supported by the health care provider in illness self-management. It is related to therapeutic alliance, as this type of support is critical for developing the bond between the patient and provider.

To date, only 1 psychometric investigation of the HCCQ has been conducted (Ludman et al., 2002). This study included bipolar patients from 4 outpatient mental health clinics. An exploratory factor analysis indicated that the HCCQ was unidimenionsal. Unrotated factor loadings ranged from 0.75 to 0.85, and item to "deleted item total" correlations ranged from 0.73 to 0.83. The measure exhibited a high level of internal consistency (alpha = 0.94) (Ludman et al., 2002), and the measure was positively correlated with self-efficacy for managing bipolar disorder ($r = 0.34$) (Ludman et al., 2002), and negatively associated with ratings of mania ($r = -0.11$), and depression ($r = -0.09$). Overall, the preliminary findings suggest that the HCCQ has good face validity, criterion validity, and internal consistency. Clinical reports also indicate that the measure is easy to use and score, making it an excellent candidate for future psychometric investigations.

Overall, this measure shows considerable promise as a tool for advancing research on the patient-provider relationship in the treatment of bipolar disorders and serving as a process measure for care provided in clinical settings. However, at present, the only psychometric data available for the HCCQ are Cronbach's α (reliability) and exploratory factor analysis. What is missing is a specific test of the factor structure in the way it is currently used. Moreover, the HCCQ has been evaluated in only clinical trial settings. Brief assessments such as the HCCQ, if shown to be valid or reliable in a more naturalistic, generalizable cohort of patients, can be valuable tool for gauging the impact of interventions or psychosocial treatment strategies in a relatively short period of time without having to wait years for longer-term outcome data to be ascertained.

The purpose of this study has 2 objectives. The first goal is to extend the currently limited knowledge on the psychometrics of this measure by examining the properties using confirmatory factor analysis (CFA). This analytic methodology is superior to exploratory techniques that have been applied in the prior research. Specifically, CFA provides a test of significance for a hypothesized factor structure, while taking into account measurement error (Schumacker and Lomax, 2004). The second objective is to examine the concurrent and predictive associations between this measure and other service-related and clinical outcomes, notably adherence, access to care, and health-related quality of life. Doing so contributes greater knowledge to criterion-related validity, in addition to expanding our understanding of the patient-provider relationship in the treatment of bipolar disorder.

METHODS

Study Population and Sample

Participants were recruited from the Continuous Improvement for Veterans in Care—Mood Disorders (CIVIC-MD) (Kilbourne et al., 2007). The CIVIC-MD is a naturalistic cohort study of 435 patients diagnosed with bipolar disorder recruited from a large urban VA mental health facility in the mid-Atlantic region. Details regarding the CIVIC-MD study are available elsewhere (Kilbourne et al., 2008). In brief, the aim of CIVIC-MD was to examine patient and provider factors associated with treatment quality and outcomes, along with important mediators of these outcomes. Eligible patients were currently receiving inpatient or outpatient treatment for bipolar disorder from July 2004 through July 2006. Inclusion criteria included a current diagnosis of bipolar disorder (I, II, NOS), cyclothymia, or schizoaffective disorder-bipolar subtype based upon chart review and provider confirmation. Patients self-completed a survey that included questions regarding demographics and other patient characteristics, symptomatology, substance use, behavioral factors, access issues, and treatment adherence. The study was reviewed and approved by the medical center Institutional Review Board. The effective sample size for the current study was $N = 429$.

Measurement Description

Internal States Scale

The Internal States Scale (ISS) is a 15-item measure using an 11-piont rating scale designed to elicit self-reports of mood states. This measure does not assume that all manic or hypomanic episodes are euphoric, but recognizes mixed states and depressive symptoms during manic and hypomanic episodes. Sample items include, "Today I feel impulsive," "Today my thoughts are going fast," and "Today I feel depressed." Prior research has revealed that the ISS is composed of 4 subscales: Activation (5 items), wellbeing (3 items), depression (2 items), and perceived conflict (5 items). Activation and wellbeing are used to discriminate mood states (euthymia vs. manic or hypomania vs. mixed vs. depression). Activation reflects manic symptoms, depression reflects depressive symptoms, and perceived conflict is a global score of psychopathology. Earlier studies have revealed that the ISS has good psychometric properties, including high interitem consistency, test-retest reliability, and validation against clinician rated symptom severity (Bauer et al., 1991; Bauer et al., 2000; Cooke et al., 1996).

Medication Compliance

Medication compliance was assessed using the validated Morisky scale (Morisky et al., 1986), a 4-item yes or no instrument frequently used for adherence research across a variety of chronic medical and psychiatric conditions, including affective disorders (George et al., 2000; Shalansky et al., 2004). The items included forgetting to take medications, carelessness at time, stop taking medications when feeling better, and stop taking medications when feeling worse. The 4 items were summed, with higher scores reflecting greater levels of compliance. Recent research has shown this scale to have good reliability ($\alpha = 0.83$), concurrent and predictive validity in outpatient settings (Morisky et al., 2008; Morisky et al., 1986).

Service Sccess

Access to VA psychiatric and medical services was assessed using 6 items, which was based on a prior service access study (see Cunningham, 1995). The items addressed dimensions of access and perceived difficulties obtaining care when needed. All questions were measured using a 5-point Likert-type scale (strongly agree to strongly disagree).

Health-Related Quality of Life

Health-related quality of life was measured using a single item from the 12-item Short-Form Health Survey (SF-12; Ware et al., 1995; Ware et al., 1996), which asked participants to rate their overall health on a 5-point Likert-type scale (excellent to poor).

Substance Use

Participants were asked to report past year use of substances. Alcohol use was measured on a 5-point ordinal scale (never use to more than 4 times a week). Other illicit drug use, including marijuana, cocaine, hallucinogens, opiates, or stimulants, was measured on a 4-point scale (have never tried to everyday). Participants were

also asked the extent to which drugs interfered with work at school, a job or at home. Responses were recorded on a 5-point scale (once or twice to more than 20 times).

Suicidality

Suicidal ideation was measured using a single item from the Patient Health Questionnaire-9; Kroenke et al., 2001; Spitzer et al., 1999). Patients were asked how often in the last 2 weeks they had "thoughts that you would be better off dead or of hurting yourself in some way," scored from "0" (not at all) to "3" (nearly every day). The Patient Health Questionnaire-9 has exhibited good reliability, convergent/discriminant validity, and responsiveness to change in recent research (Cameron et al., 2008).

Analytic Plan

Correlational Analysis

Bivariate associations were conducted to examine the association between provider support and other psychosocial and clinical measures, which are outlined below. These are predominately ordinal-level measures. Therefore, a nonparametric correlation—that is, the Spearmen rank order (i.e., nonparametric) correlation (ρ)—was used instead of the Pearson product moment correlation. All measures described were administered at baseline and are included in the correlational analysis. However, the HCCQ and other measures (i.e., service access, different types of drug use, and medical comorbidities) were not included in the follow-up survey. All correlations were interpreted as effect sizes using the general guidelines offered by Cohen (1962), where 0.20 is a small effect size, 0.50 is medium, and 0.80 is large.

Confirmatory Factor Analysis

The analytic strategy for examining the factor structure of the HCCQ was CFA, which was performed using LISREL version 8.80. CFA provides a test of significance to determine whether the sample data confirms the model (Schumacker and Lomax, 2004). This method helps to rule out the possibility that the results of exploratory factor analysis were due to chance. This is an important method for establishing the reliability and validity of this measure of provider support.

A preliminary analysis of the data revealed that the items of the HCCQ were skewed, with skewness values ranging from −0.3 to −0.9. Therefore, weighted least squares estimation was used, as opposed to maximum likelihood estimation which requires that data are normally distributed. The adequacy of the models were selected using commonly used measures of fit including the *chi square* (*chi square*) test, the normed fit index, root-mean-square error of approximation (RMSEA), comparative fit index, incremental fit index, and degrees of *chi square* to degrees of freedom ratio.

RESULTS

Sample Characteristics

Table 1 provides a summary of the study sample characteristics. The mean age of the study population was 49.4 years (SD = 10.6), with 14% women and 23% ethnic minorities (including 13% African-Americans), a profile well representative of all veterans diagnosed with bipolar disorder (Blow et al., 2005). Approximately 66% attended at least some college. Substance use problems were highly prevalent, with 28% reporting some past-year drug use and 21% reporting past-year hazardous drinking. About 30% of this sample had a recent manic episode, and 12% reported being homeless.

TABLE 1. Socio-Demographic, Psychosocial, and Clinical Characteristics of Study Sample at Baseline

Variable	*N* (%)
Gender	
Male	371 (86)
Female	62 (14)
Educational level	
<College	146 (34)
≥College	287 (66)
Race	
White	334 (77)
African American	58 (13)
Other	41 (9)
Age (in yr)	Range = 21–78
	Mean = 49.4
	SD = 10.6
Annual income	
<$10,000	133 (31)
$10,000–19,000	119 (28)
$20,000–29,000	74 (17)
$30,000–39,000	52 (12)
≥$40,000	44 (10)
Marital status	
No	301 (30)
Yes	131 (70)
Employed	
No	314 (27)
Yes	119 (73)
Homeless	
No	381 (88)
Yes	52 (12)
Past-year drug use	
No	311 (72)
Yes	122 (28)
Past-year hazardous drinking	
No	340 (79)
Yes	92 (21)
Bipolar diagnosis	
Type-I	311 (72)
Type-II	40 (9)
NOS	73 (17)
ISS–well-being	Range = 0–300
	Mean = 151.6
	SD = 78.5
ISS–activation	Range = 0–490
	Mean = 186.4
	SD = 130.0
ISS–Depression	Range = 0–200
	Mean = 61.7
	SD = 61.7
ISS–Personal conflict	Range = 0–500
	Mean = 132.9
	SD = 120.3

HCCQ Summary

Summary statistics for the HCCQ items is presented in Table 2. The individual item means ranged from 4.42 to 5.19. The overall mean score across all 10 items was 39.4 (SD = 15.0), which indicated that subjects had a slightly positive overall view of provider support and comfort within their mental health treatment environment. Interitem associations ranged from 0.63 to 0.87. Internal consistency of the HCCQ, as measured by Cronbach's α, was high (α = 0.95).

TABLE 2. Provider Support Scale Items With Means, Standard Deviations, and Polychoric Correlations ($N = 429$)

Item	Mean (*SD*)	Skew	1	2	3	4	5	6	7	8	9	10
I feel that my mental health care provider team has provided me choices and options.	5.14 (1.76)	−0.77	1.0									
I feel understood by my mental health care provider team.	5.18 (1.75)	−0.79	0.83	1.0								
My mental health care provider team conveys confidence in my ability to make changes.	5.11 (1.68)	−0.73	0.77	0.82	1.0							
My mental health care provider team encourages me to ask questions.	5.19 (1.82)	−0.81	0.73	0.77	0.77	1.0						
My mental health care provider team tries to understand how I see things before suggesting a new way of doing things.	5.11 (1.78)	−0.74	0.76	0.84	0.79	0.83	1.0					
My mental health care provider team made me aware of what to expect from good bipolar disorder care.	4.70 (1.83)	−0.45	0.69	0.72	0.67	0.73	0.75	1.0				
My mental health care provider team has provided training in what I need to do to carry out good bipolar disorder care.	4.51 (1.88)	−0.36	0.62	0.67	0.63	0.68	0.73	0.87	1.0			
My mental health care provider team regularly reviews with me my progress in managing all aspects of my treatment plan.	4.72 (1.79)	−0.48	0.70	0.72	0.67	0.72	0.77	0.79	0.83	1.0		
My mental health care provider team has worked with me to develop a bipolar disorder care plan.	4.42 (1.92)	−0.30	0.62	0.67	0.64	0.66	0.70	0.80	0.89	0.82	1.0	
My mental health care provider team makes sure that we stay in regular contact.	5.33 (1.78)	−0.90	0.62	0.69	0.64	0.64	0.72	0.65	0.63	0.74	0.65	1.0

Covariances are located on the diagonal of the matrix.

Confirmatory Factor Analysis

The factor structure of the HCCQ was tested using CFA. The *chi square* value was significant (*chi square* [35] = 128.6, $p < 0.001$), and the *chi square* degrees of freedom value (3.6) was slightly above the generally accepted level, suggesting some misfit between the data and the hypothesized factor structure. However, all remaining goodness of fit indices provided evidence of an acceptable fit. More specifically, the normed fit index value was 0.99, reflecting a 99% improvement over the null model (Klein et al., 2003). The comparative fit index and incremental fit index values were also equal to 0.99. The RMSEA was also at a level of acceptable fit (RMSEA = 0.079).

Figure 1 is a path diagram showing the individual factor loadings and the reliability estimates of the overall model. All factor loadings were statistically significant, ranging from 0.87 to 0.98. Additional sensitivity analyses were conducted by excluding various items that exhibited lower factor loading relative to the other items. A superior fit to the single factor approach was not achieved. Taken together, these analyses suggest that the 10 items of the HCCQ are strong indicators of provider support as it has been used in prior studies (Ludman et al., 2002; Zeber et al., 2007).

Associations Between Provider Support and Demographic, Clinical, and Psychosocial Measures

Provider support was not associated with gender, race, marital status, or age. However, respondents with some college education had slightly higher provider support scores than those without college education (Kruskal-Wallis *chi square* [1] = 3.86, $p = 0.049$).

A series of correlations between provider support and other psychosocial and clinical measures at baseline and follow-up were examined, which are summarized in Table 3. Provider support was not associated with ISS-Wellbeing at baseline or follow-up. However, it had relatively small negative associations with ISS-Activation, ISS-depression and ISS-perceived conflict at baseline and follow-up. Medication adherence exhibited a significant association but a small effect size with therapeutic alliance at baseline ($\rho = 0.15$, $p = 0.011$), but not follow-up ($\rho = 0.02$, $p = 0.799$). Service access exhibited the strongest associations, ranging from $\rho = 0.22$ to 0.43 , and all were in the expected directions. These effect sizes were small, and 2 approached a medium effect: ease of seeing a specialist and services being accessible ($\rho = 0.42$ and 0.43, respectively). Lower levels of alcohol use were associated with higher levels of therapeutic alliance at baseline ($\rho = -0.16$), which was also observed at follow-up. None of the other substances were associated with therapeutic alliance. The number of medical comorbidities was also not associated with therapeutic alliance. Provider support had a moderately small association with suicidality at baseline ($\rho = -0.28$) and a weaker association at follow-up ($\rho = -0.17$).

DISCUSSION

Prior research has used exploratory methods to examine the psychometric properties of the HCCQ. This study extended our knowledge regarding measurement of provider support, specifically among providers and patients with bipolar disorder, by rigorously testing the factor structure of the HCCQ using CFA. Overall, the hypothesized factor structure exhibited a good fit with the data, supporting the manner in which it has been used in prior studies (Ludman et al., 2002; Zeber et al., 2007). Provider support scores were also significantly correlated with numerous baseline measures,

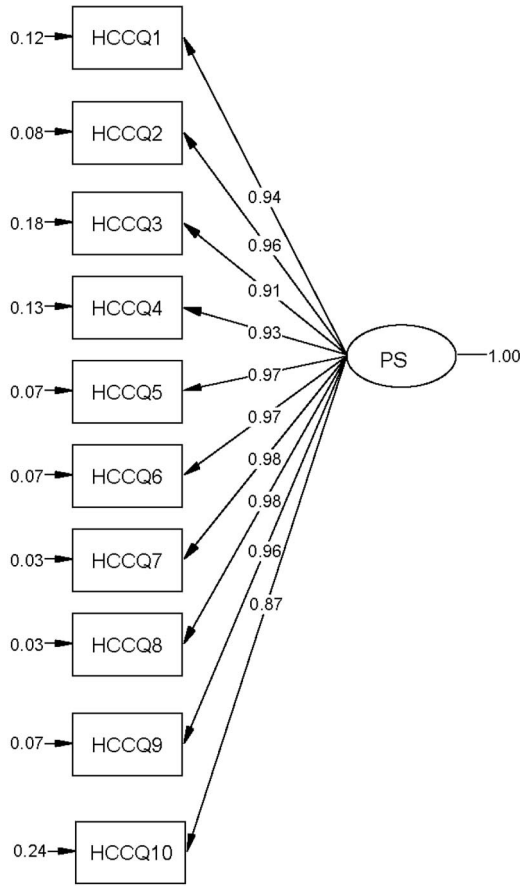

FIGURE 1. Factor loadings and reliability estimate of the HCCQ.

TABLE 3. Bivariate Associations Between Therapeutic Alliance at Baseline With Psychosocial Measures at Baseline and Follow-up

	Baseline		Follow-up	
Psychosocial Measure	***ρ***	***p***	***ρ***	***p***
Internal states scale				
Well-being	0.09	0.064	0.065	0.236
Activation	−0.21	<0.001	−0.18	<0.001
Depression	−0.16	<0.001	−0.20	<0.001
Perceived conflict	−0.19	<0.001	−0.13	0.018
Medication compliance	0.15	0.011	0.02	0.779
Service access				
Easily admitted to hospital	0.28	<0.001	—	—
Hard to get into emergency room	−0.30	<0.001	—	—
Too expensive	−0.22	<0.001	—	—
Easy to see a specialist	0.42	<0.001	—	—
Easy to get to facilities	0.28	<0.001	—	—
Available anywhere	0.43	<0.001	—	—
Health related quality of life	0.11	0.051	0.16	0.005
Substance use				
Alcohol use	−0.16	0.004	−0.16	0.005
Marijuana/hash	−0.03	0.566	—	—
Cocaine/crack	−0.04	0.434	—	—
Stimulants	−0.05	0.392	—	—
Opioids	−0.04	0.472	—	—
Other drugs	−0.02	0.682	—	—
Use of substances cause life interference	−0.14	0.010	—	—
No. medical comorbidities	0.04	0.530	—	—
Suicidality	−0.28	<0.001	−0.17	<0.003

including medication adherence 6 different dimensions of service access, health-related quality of life, alcohol use, and suicidality. With the exception of medication adherence, the measures used at 1-year follow-up (i.e., health related quality of life, alcohol use, and suicidality) were also exhibited significant associations. Service access exhibited the strongest associations with provider support, and the effect sizes with the other psychosocial and clinical variables were fairly small, but all were in the expected direction. This type of correlational pattern in the social and behavioral sciences is typical and reflects the difficulty of developing intervention strategies that have large effects. Provider support was not associated with the use of other substances assessed (i.e., marijuana/hash, cocaine/crack, stimulants, opioids, and other drugs), which may be attributed to the low base rate of use.

Strengths of this study include using a confirmatory approach to examining the structure of the HCCQ among a large sample of individuals with bipolar disorder. It is also important to note the limitation of the sample being derived from a single medical center within the Department of Veterans Affairs, the sample is fairly homogenous, representing primarily white middle-aged males of lower socio-economic status. Yet we note that this cohort is remarkably similar to the entire population of nearly 72,000 veterans with bipolar disorder treated in the VA during 2004 (Blow et al., 2005). Thus, while our patient sample may represent those with the greatest service needs, it is important to be cautious in generalizing these findings across all patient populations with mental disorders.

The results of this study should also be considered in context of its limitations. The HCCQ was not administered at follow-up, so it was not possible to directly test the stability of the measure over time. However, many of the correlations with the HCCQ at baseline and follow-up remained stable, suggesting that it is a fairly stable measure. While provider support has many similarities with the concept of therapeutic alliance, this study did not include any standardized measure of therapeutic alliance to help understand the extent to which these constructs overlap. Addressing this issue will be an important next step to establishing the validity of this measure and the broader theoretical literature on therapeutic alliance, provider support, and related constructs.

Overall, this study adds to the existing evidence that the HCCQ instrument is a reliable and valid measure of provider support, which can be useful for both research and clinical purposes. This is particularly important given an increasing emphasis of targeting the patient's comfort in their own mental health care environment, including their perceptions of adopting an empowered active role in their own treatment plan and improving subsequent outcomes (Kim et al., 2008; Mead and Bower, 2000). Given the administrative demands that clinicians often face, it is important that they are equipped with brief measures that are easy to administer and interpret to increase the likelihood they will use process data to guide treatment.

The HCCQ also exhibited numerous associations with key psychosocial and clinical variables. For example, at baseline, provider support was significantly associated with higher levels of medication compliance and lower levels of alcohol use. This sug-

gests that provider support may contribute to client motivation and engagement. At the same time, the causal associations are unclear. For example, clients who use less alcohol may have greater capacity to benefit from the treatment process, which may lead to greater levels of perceived support. Similarly, service access was also associated with provider support, which suggests that the HCCQ could be a measure that is influenced by both the clinical process and the broader program or organizational environment. This is consistent with current research initiatives examining the role of organizational factors on client satisfaction, engagement, and perceptions of care (Broome et al., 2007; Lehman et al., 2002). The directions of causality may be uncovered through causal modeling techniques (e.g., structural equation modeling) and longitudinal study designs.

Future research on the HCCQ could benefit from examining the factor structure using samples with greater levels of diversity, and examining a wider range of associations with clinical and psychosocial measures over time. This would allow the opportunity to examine the factor structure across various socio-demographic groups and reveal the stability of associations. Although this measure was designed specifically for individuals with bipolar disorder, this measure can be potentially useful with other serious mental illnesses. Future research should also focus on the application of the HCCQ as a process measure in evaluation and clinical research, to monitor improvements in provider support over time.

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