

Understanding Needs, Interactions, Treatment, and Expectations Among Individuals Affected by Bipolar Disorder or Schizophrenia: The UNITE Global Survey

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Objective: The overarching aim of the Understanding Patients' Needs, Interactions, Treatment, and Expectations (UNITE) Global Survey was to empirically evaluate the attitudes and general fund of knowledge that individuals with bipolar disorder or schizophrenia possess regarding somatic health issues. **Method:** The UNITE survey was an Internet-based initiative that recruited patients and caregivers from 11 countries (Australia, Brazil, France, Greece, Germany, Italy, Spain, South Korea, Sweden, the United States, and the United Kingdom). Opinion Research Corporation, Princeton, NJ, conducted the UNITE survey between June 10, 2006, and September 11, 2006, and analyzed the results. **Results:** A total of 5,074 respondents participated in the survey. From this total sample, 1,155 individuals with schizophrenia and 1,300 with bipolar disorder were self-identified. Psychiatrists were identified as the individuals primarily responsible for patients' medication prescription and surveillance of both psychological and physical health. The majority of respondents in both groups had been receiving medication for more than 5 years. Weight gain was the most commonly cited adverse event associated with medication use. Moreover, weight gain was identified as a contributing factor to general medical comorbidity (eg, diabetes mellitus) and as a detractor to quality of life. Most respondents identified weight gain and general physical health as areas of deficiency in their perceived knowledge and interactions with health care providers. Notwithstanding the ubiquity and implications of comorbid medical disorders and medication-related adverse events, most respondents did not receive opportunistic screening or surveillance for medical risk factors and disorders. Overall, respondents expressed general dissatisfaction when interacting with mental health care providers. **Conclusion:** Metabolic consequences of psychotropic medication are the most concerning aspect of medication treatment for patients, contributing to perceived morbidity, quality-of-life reduction, and reduced satisfaction with care. Despite the compelling database that underscores the hazards attributable to comorbid general medical conditions, most individuals with schizophrenia and bipolar disorder receive guideline-discordant care for somatic health conditions as well as for the principal psychiatric disorder. Barriers to somatic health care access for those with schizophrenia and bipolar disorder, as well as the impact of targeted interventions, warrant future research.

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During the past decade, the clinical, economic, treatment, and research implications of comorbid general medical conditions in individuals with bipolar disorder and schizophrenia have emerged as a priority research area.^{1–3} The impetus for this priority reconfiguration is forcefully provided by results from cost-of-illness as well as from mortality studies. Taken together, comorbid general medical conditions (eg, cardiovascular disease) pose a hazard to the clinical presentation, course, and outcome of both mood and psychotic disorders. The pertinacity of comorbid general medical conditions is further underscored by translational research studies suggesting that persistent mental illness may share common pathophysiologic substrates with comorbid general medical conditions.⁴

Epidemiologic and clinical studies indicate that most individuals with bipolar disorder or schizophrenia are affected by 1 or more components of the metabolic syndrome.^{5–8} For example, the cross-sectional prevalence of metabolic syndrome as defined by the US National

FOR CLINICAL USE

- ◆ Monitor for metabolic consequences of psychotropic medication, which appear to contribute to perceived morbidity, quality-of-life reduction, and reduced satisfaction with care among patients with schizophrenia and bipolar disorder.
- ◆ Provide guideline-concordant care for comorbid somatic health conditions as well as the principal psychiatric disorder.

Cholesterol Education Program Adult Treatment Panel (NCEP ATP-III) was reported to be 40% in a cohort of individuals with bipolar disorder seeking treatment at the Bipolar Disorder Center for Pennsylvanians.^{5,6} In a sample of 60 Belgian patients with bipolar disorder,⁷ investigators reported a prevalence of ATP-III–defined metabolic syndrome of 16.7%, adapted ATP-III–defined metabolic syndrome of 18.3%, and International Diabetes Federation (IDF)–defined metabolic syndrome of 30.0%. Although the ATP-III–defined prevalence of metabolic syndrome in this European sample was lower than the prevalence reported in American studies, oral glucose tolerance testing identified diabetes mellitus in 6.7% of the patients, and 23.3% of the sample exhibited pre-diabetic abnormalities, further underscoring the extent of glucose homeostatic disturbances in the bipolar population.^{5,7}

Among subjects with schizophrenia enrolled in and meeting analysis criteria for the Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE; $n = 689$),⁸ baseline data indicated that the prevalence of metabolic syndrome, according to NCEP and American Heart Association (AHA) criteria, was 40.9% and 42.7%, respectively. Among women, the prevalence of metabolic syndrome was 51.6% and 54.2%, compared with 36.0% ($P = .0002$) and 36.6% ($P = .0003$) in men, respectively. Results from logistic regression modeling with age, race, and ethnicity as covariates indicated that men from CATIE were 138% more likely to have metabolic syndrome than the matched control sample from the Third National Health and Nutrition Examination Survey (NHANES), while women with schizophrenia were 251% more likely than the NHANES group to have metabolic syndrome.

In contrast to the burgeoning literature documenting the burden of illness related to somatic health issues in populations of individuals with mood and psychotic disorders, relatively few studies have primarily evaluated the implications of comorbid general medical conditions from the perspective of the primary stakeholder: the patient. More specifically, relatively little is known regarding the general fund of knowledge that individuals with bipolar disorder or schizophrenia possess regarding somatic health issues, including the bidirectional relationship between physical health and mental disorders. Moreover, the effect of psychotropic agents on disparate health measures, as well as patients' attitudes about the knowledge transfer interac-

tions with health care providers concerning general medical conditions, have not been thoroughly investigated.

The encompassing aim of the Understanding Patients' Needs, Interactions, Treatment, and Expectations (UNITE) Global Survey was to empirically evaluate these foregoing variables in individuals with bipolar disorder and schizophrenia. The UNITE survey solicited information from both patients and caregivers. This article will focus on patient-level data; results from caregivers will be presented in a separate article.

METHOD

The UNITE survey recruited patients and caregivers from 11 countries (Australia, Brazil, France, Greece, Germany, Italy, Spain, South Korea, Sweden, the United States, and the United Kingdom). In all selected countries, the types of medications approved and frequently prescribed for the treatment of bipolar disorder and schizophrenia were similar (eg, antipsychotics), and the prescribing physician was the primary mental health care provider.

The UNITE survey gathered information from 4 groups: (1) individuals with schizophrenia, (2) individuals with bipolar disorder, (3) caregivers of individuals with schizophrenia, and (4) caregivers of individuals with bipolar disorder. A sample size of 540 completed surveys per country was determined to be feasible to allow appropriate statistical power for evaluation of the dependent variables. Anticipated methodological challenges with such a survey included, but were not limited to, validity of self-reported diagnoses, cross-cultural and language differences, Internet access availability, and media announcements seeking potentially eligible subjects.

Instrument Description (survey)

The patient and caregiver surveys were similar in length and content. Participants were asked for the following information: sociodemographic characteristics; current psychiatric condition and treatment; age(s) at first diagnosis of bipolar disorder or schizophrenia and initiation of prescription medication treatment; current symptoms; psychopathological symptoms experienced and of most concern during the last 7 days; current medication regimen, compliance, reasons for noncompliance, side effects, and satisfaction with medication to treat the psychiatric condition;

and resources used to obtain information regarding the principal mental disorder, medication regimen, and side effects.

Participants were also asked for information relating to their interactions with health care providers and their own knowledge of their condition(s). Questions about treatment provision addressed the following topics: the health care professionals involved in treatment; the primary health care provider responsible for treating the identified psychiatric condition; frequency of visits to the prescribing physician; overall satisfaction with the received care; discussions with health care providers regarding potential long-term health consequences of the respondent's psychiatric condition and of medication side effects such as weight gain; frequency of physical examination, anthropometric measurements, and laboratory testing and discussion of results; and satisfaction with the monitoring of physical health. Questions about patient knowledge addressed current and past medical problems known to the patient, the diagnosis of a medical condition, current weight and height, weight gain during medication treatment, and consequences of weight gain.

A primary emphasis of the UNITE survey related to patients' discussions with mental health care providers regarding weight gain, specifically the potential short- and long-term effects of medication on weight gain; any specific recommendations to help manage possible weight gain; follow-up regarding recommendations and success in managing weight gain; concern about the potential consequences of weight gain on the patient's overall health; estimated acceptable amount of weight gain before stopping medication; potential effect of medication on diseases such as diabetes and cardiovascular disease; and possible impact of psychiatric medications on propensity for somatic health disorders. Patient knowledge about the differential adverse event burden associated with the available medications for a psychiatric condition and the differential impact of psychotropic medications on diabetes, weight gain, and metabolic profile was also evaluated.

Development and Pretesting

Prior to fielding, the survey was pretested via 90-minute, in-depth interviews in Philadelphia, Pennsylvania, with 8 patients and 7 caregivers. The entire survey questionnaire was first reviewed by the respondents independent of the moderator, who was present during self-administration of the questionnaire. Subsequently, the moderator discussed specific aspects of the questionnaire and explored reasons underlying any confusion in response to question wording, noted respondent recommendations for instrument improvement, and discussed the overall relevance of the survey to their daily lives. These pretest interviews were conducted to discern the extent to which the UNITE survey structure was commensurate with the educational level of the patient respondent base

and to identify appropriate question sequencing and language sophistication to meet study objectives.

In addition to pretesting, a multiphase testing of the usability and technical functionality of the electronic questionnaire took place. First, the questionnaire was tested by a Web programmer. Then, all aspects of usability and technical functionality were tested by at least 2 other Web programmers/analysts who were not involved in the development of the questionnaire. The questionnaire was then tested and approved by the principle investigator.

Survey Participants' Enrollment and Data Collection

The survey was voluntary but open only to invited respondents. The participants were recruited from a panel of patients and caregivers not selected a priori on the basis of having either bipolar disorder or schizophrenia. Rather, respondents to the UNITE survey were a subgroup of a larger sample of individuals who previously participated in other multidisciplinary surveys. The process to become a panel member was as follows:

1. Information in the form of newsletters, pamphlets, and brochures describing the aims and objectives of the panel was provided to support groups, advocacy groups, outpatient hospitals, nonprofit organizations, and health care providers, including psychiatrists, psychotherapists, neurologists, and general practitioners, among others.
2. Patients with bipolar disorder or schizophrenia and caregivers of patients with either condition were contacted by the panel organizer to be considered for inclusion in the panel. Potential participants were required to complete a questionnaire detailing their medical and psychiatric history and current medical profile. In addition, eligible subjects were required to possess a valid email address, ensuring their regular access to the Internet. Controls were implemented to identify respondents who were deemed inappropriate for participation, eg, those who identified themselves as having more diseases/disorders than naturally occur in the population. Patients with schizophrenia or bipolar disorder included in the panel typically receive 1 to 2 invitations a year to participate in research related to their disease state. Panel recruitment was undertaken by Global Market Insite, Mercer Island, Washington.
3. Patients and caregivers in the panel received an e-mail invitation to participate in the UNITE survey, including a Web link to allow access to the UNITE survey. The survey Web page served as a portal for participants to provide further information relating to the following questions: (a) Have they received the diagnosis of schizophrenia or bipolar disorder by a physician? (b) Are they currently

taking medication to treat the symptoms of the disorder? (c) Are the caregivers able to confirm that they have a family member or a friend suffering from schizophrenia or bipolar disorder, and, if so, do they provide at least 2 hours per week of care for the affected person?

Those who satisfied these additional criteria could then proceed with the online completion of the survey. Due to the length of the survey (74 and 79 questions for the patients and caregivers, respectively), participants had the option to stop, save any interim answers, and proceed with online completion at any other time convenient to the respondents.

The participants were informed about the length of time needed to complete the survey, which data were stored and for how long, who was the originator, and what was the overarching aim of the survey. Respondents were offered an honorarium for completing the survey (mean value US \$39).

Each respondent participating in the survey was assigned a unique ID number, which was tracked by the survey database to maintain a record of all respondents who had completed the survey. Neither cookies nor IP addresses were used. Elapsed survey time was captured, but no respondents were excluded on the basis of time needed to complete the survey. No institutional review board approval was obtained for this survey.

Timeline

The UNITE online survey was conducted between June 10, 2006, and September 11, 2006. The survey was conducted by Opinion Research Corporation, Princeton, New Jersey, which also analyzed the data that were obtained.

Methods for Verifying Sample Validity

Methodological issues related to Internet-based surveys affect inferences and interpretations of the obtained data.⁹ The overarching concern relates to whether the respondents to an Internet-based survey are representative of the population. For example, only a subset of the general population is Internet literate or has access to the Internet. Moreover, psychiatric diagnoses were not verified by a structured clinical interview. Web respondents often represent self-selected samples who volunteer to participate in Web surveys. To assess how well the Internet respondents represented the population, additional methodological approaches were used in US patients to confirm sample validity.

Administration of entire questionnaire as a standard paper format survey. As a means to explore the validity of the Internet methodology, a standard paper format survey methodology was also employed. Panelists who did not participate in the online survey but who met the entrance criteria were recruited to respond to the survey through

traditional methods. Fifty patients with schizophrenia and an equal number of subjects with bipolar disorder in the United States responded via a standard paper format survey approach. After naturally occurring sample differences were controlled for, a comparison between standard paper format survey responses and Internet responses provided a validity test of the Internet methodology.

One-to-one telephone survey. The UNITE survey also included a random digital dial (RDD) method in the United States to assess Internet data reliability. Demographic characteristics and functional status of patients with schizophrenia or bipolar disorder were obtained. Over the course of 10 weeks, an RDD approach yielded 115 respondents who received a diagnosis of schizophrenia and 301 who were diagnosed with bipolar disorder. Participants were required to meet the same criteria as those participating in the Internet survey with the additional stipulation that they must not have completed an Internet survey pertaining to schizophrenia or bipolar disorder in the past 6 months. The respondents answered the questions pertaining to the demographic characteristics, and 5 questions of the survey were selected to assess functionality. The quality of the RDD sample was verified by comparing the prevalence estimates of each disorder with the national data available from the National Institute of Mental Health.¹⁰

The independent samples *t* tests were implemented to compare differences between samples on means of combined scores.

RESULTS

A total of 5,074 respondents participated in the survey. Of these, 1,155 were individuals with schizophrenia and 1,300 with bipolar disorder. Demographic information and information about treatments received by respondents with schizophrenia and bipolar disorder are presented in Table 1.

For both subgroups of respondents, a psychiatrist was the health care provider most frequently identified as the principle treatment provider and person most likely to prescribe medication. Among respondents with schizophrenia, the percentage taking medication within the past 2 years was 18%, 2 to 5 years was 27%, 5 to 10 years was 24%, and more than 10 years was 32%. Reported frequency of respondents with bipolar disorder taking medication within the past 2 years was 25%, 2 to 5 years was 26%, 5 to 10 years was 23%, and more than 10 years was 25%.

The 5 most commonly cited adverse events with medication treatment among respondents with schizophrenia and bipolar disorder were identical, with similar prevalence (in descending order): weight gain (36%, 38%), somnolence or insomnia (32%, 29%), concentration difficulties (21%, 24%), memory loss (18%, 20%), and disordered thoughts (16%, 16%), respectively. Forty-two percent of respondents with schizophrenia and 39% of respondents

Table 1. Demographic and Treatment Information of UNITE Survey Participants

Characteristic	Patients With Schizophrenia (N = 1,155)	Patients With Bipolar Disorder (N = 1,300)
Age, mean, y	36	37
Gender, %		
Male	61	38
Female	39	62
Time since diagnosis, %		
Within the past 2 years	22	29
2 to 5 years ago	32	31
5 to 10 years ago	22	21
More than 10 years ago	24	18
Employed, %		
Full-time	24	34
Part-time	13	13
Volunteer work, part-time or full-time work without income	5	4
Unemployed	30	27
Student	10	10
Retired	13	9
Marital status, %		
Single	56	45
Married	23	34
Divorced	9	12
Separated	5	5
Widowed	2	1
Respondent on medication, %		
Atypical antipsychotics	68	34
Conventional antipsychotics	30	14
Mood stabilizers (other than lithium)	20	45
Lithium	7	31
Antidepressants	41	60
Benzodiazepines	27	31
Other	6	9
Time on medication, mean, y	9	8

Abbreviation: UNITE = Understanding Patients' Needs, Interactions, Treatment, and Expectations.

with bipolar disorder reported that weight gain had generated additional health problems. In both groups, the 3 most cited diseases that were mentioned as being caused by or aggravated by weight gain with psychotropic medication were diabetes, hypercholesterolemia, and hypertension. The impact of weight gain on patients' quality of life is presented in Figure 1.

Aspects of care that respondents with schizophrenia or bipolar disorder would most like to see improved are presented in Figure 2. Weight gain, insufficient treatment of depression, and psychosocial or quality-of-life improvement were the top 3 areas of concern.

Within the schizophrenia subgroup, the percentages of respondents who had had a discussion with their health care provider about the impact of medication on weight gain, the long-term health consequences of weight gain, and the impact of psychiatric medication on general medical conditions were 59%, 46%, and 47%, respectively. The reported prevalence of such discussions in the bipolar subgroup was 56%, 42%, and 40%, respectively.

Figure 3 presents data on clinicians' activities related to monitoring metabolic factors and sharing results with the patients. For both groups of respondents, the majority re-

Figure 1. UNITE Survey Results: Psychological Consequences of Weight Gain Experienced by Persons With Schizophrenia or Bipolar Disorder

Abbreviation: UNITE = Understanding Patients' Needs, Interactions, Treatment, and Expectations.

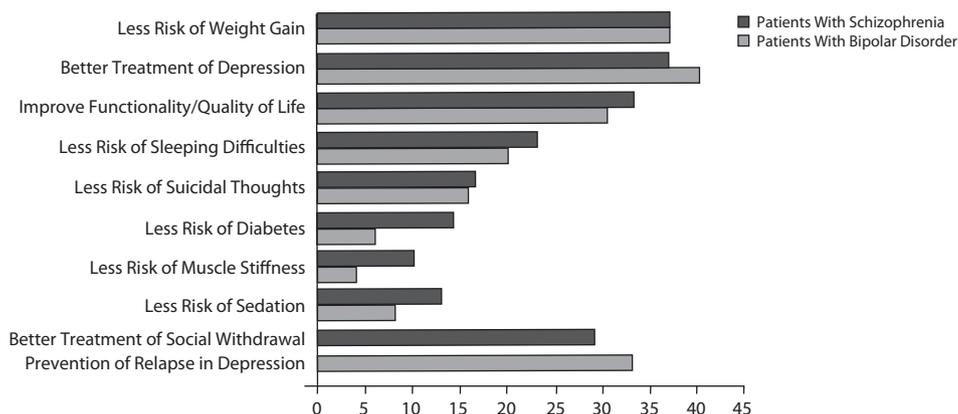
ported that anthropometrics, general physical exam, and laboratory evaluations were not included in their interactions with the principle health care provider.

Figure 4 shows patient overall satisfaction with care received for respondents who gained and those who did not gain weight. Regardless of whether or not patients experienced weight gain while taking psychotropic medication, approximately half of all respondents with either condition described dissatisfaction or deficiency in the care that they received from their health care providers.

DISCUSSION

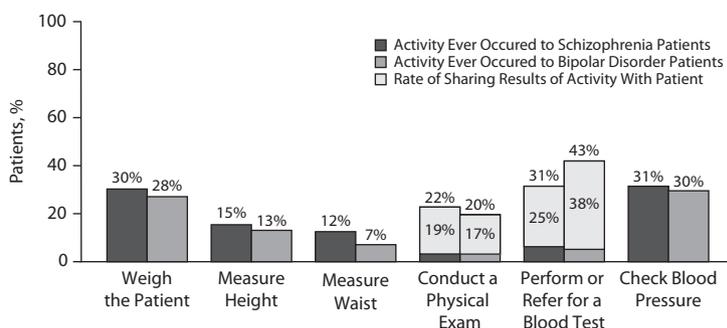
Several overarching themes emanate from the results of the UNITE survey. First, the mental health care provider was identified by respondents with schizophrenia and bipolar disorder as the individual who provides (or fails to provide) information related to the principle psychiatric disorder and its treatment as well as comorbid general medical conditions. Second, metabolic consequences of psychotropic medication were described as the most problematic adverse events associated with short- and long-term administration. Moreover, weight gain that is attributable to psychotropic medication was identified by respondents as playing a critical role in the onset and/or aggravation of comorbid general medical conditions (eg, diabetes mellitus) and as a quality-of-life detractor. Third, the majority of respondents did not receive opportunistic screening for risk factors related to metabolic disorders or other comorbid general medical conditions, nor did they receive routine physical exams, monitoring of vital signs, or laboratory surveillance for possible comorbid general medical conditions. Finally, the level of satisfaction with care received by individuals with schizophrenia and bipolar disorder was suboptimal.

Figure 2. UNITE Survey Results: Aspects of Care That Patients Want Improved



Abbreviation: UNITE = Understanding Patients' Needs, Interactions, Treatment, and Expectations.

Figure 3. UNITE Survey Results: Actions Taken by Prescribers to Monitor Metabolic Changes and Share Results With Patients



Abbreviation: UNITE = Understanding Patients' Needs, Interactions, Treatment, and Expectations.

Other lines of evidence indicate that individuals with persistent mental illness are less likely to receive primary or preventative health care when compared to individuals without a mental disorder.¹¹ Individuals with schizophrenia or bipolar disorder often receive guideline-discordant care for a comorbid general medical condition despite the fact that the concurrent disorder has been previously diagnosed.³ Taken together, sufficient evidence has been presented warranting a reprioritization of therapeutic objectives when interacting with individuals with schizophrenia or bipolar disorder.¹

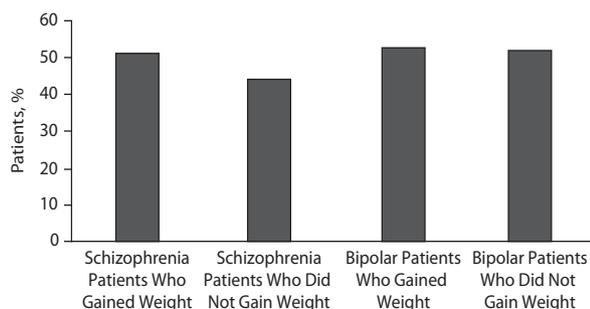
Strong pronouncements have been made for greater attention to aspects of somatic health and their appropriate prevention, surveillance, diagnosis, and treatment in persons with persistent mental illness.² Notwithstanding these efforts, a disquieting chasm exists between what occurs in "real world" practice and what is recommended. Identifying barriers to the effective application of guideline-concordant care and best practices for managing comorbid general medical conditions, as well as identifying the clinical, functional, quality-of-life, and economic implications of treating general medical con-

ditions in the persistently mentally ill, are vistas for future research.

Although it would appear axiomatic that weight gain would be an unwanted adverse event with psychotropic medication, contributing to diminished quality of life and medication acceptance, relatively few studies have primarily reported the impact of weight gain on these variables in populations of individuals with schizophrenia and bipolar disorder. Overweight, obesity, and abdominal obesity differentially affect individuals with schizophrenia and bipolar disorder. Excess weight, especially centripetal fat distribution, is a risk factor for coronary heart disease, the most common cause of premature mortality in patients with bipolar disorder or schizophrenia.¹²⁻¹⁴

Several regulatory bodies, professional organizations, and experts in the field have pressed the point that excess weight gain caused by psychotropic medication not only significantly compromises the therapeutic index of several psychotropic agents (eg, atypical antipsychotics) but also represents a critical factor in increasing the risk for metabolic abnormalities and associated morbidity.^{2,15} Practitioners and patients are often confronted with difficult

Figure 4. UNITE Survey Results: Patient Satisfaction With Care Concerning Weight Gain



Abbreviation: UNITE = Understanding Patients' Needs, Interactions, Treatment, and Expectations.

treatment decisions insofar as many agents approved by the US Food and Drug Administration for the treatment of schizophrenia and various phases of bipolar disorder are associated with clinically significant weight gain.

Some strengths of the UNITE survey's Internet-based methodology include the facts that (1) the expense of Web-based surveys is considerably less than that of traditional methods because using the Web obviates the need for directly interviewing patients, the cost of telephony, stationery, and mailing expenses as well as the need for manual data collection, entry, and storage¹⁶; (2) both bipolar and schizophrenia populations often engage in high-risk compulsive behaviors (eg, illicit drug use, criminal behaviors), which could introduce the possibility of social desirability bias during face-to-face interviews; and, (3) the use of Internet technology allowed for the evaluation of a very large sample size.

Limitations of Web-based surveys include, but are not limited to, (1) the questionable validity of nonrandom self-selection of individuals responding to Web-based surveys and subsequent generalizability of the results to other individuals with bipolar disorder and schizophrenia. For example, Web-based surveys may restrict participation such that individuals with less education or fewer financial resources have insufficient access to computer technology.¹⁶ (2) Scale complexity and duration may enrich the sample by favoring individuals capable of navigating the Web-based survey and its respective components. (3) Web based surveys also have no mechanism to confirm or refute the validity of the individual's self-assessment as having either bipolar disorder or schizophrenia.

CONCLUSION

The UNITE survey provides large-sample data from the patients' perspective regarding their knowledge and interactions with health care providers concerning comorbid general medical conditions and the impact of psychotropic

treatment. The metabolic consequences of psychotropic medication are of great concern because they contribute to perceived morbidity, quality-of-life reduction, and reduced satisfaction with care. Despite the compelling literature underscoring the hazards of comorbid general medical conditions, most individuals with schizophrenia and bipolar disorder receive guideline-discordant care for somatic health conditions (as well as the principle psychiatric disorder). Identifying barriers to access, as well as describing the impact of targeted interventions, are future research vistas.

Drug name: lithium (Eskalith, Lithobid, and others).

Disclosure of off-label usage: The author has determined that, to the best of his knowledge, no investigational information about pharmaceutical agents that is outside US Food and Drug Administration-approved labeling has been presented in this article.

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