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ASSOCIATION BETWEEN SUICIDE ATTEMPTS AND INSIGHT AMONG INDIVIDUALS WITH SERIOUS MENTAL ILLNESS

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ABSTRACT

Poor insight into one's own psychiatric disorder is quite common in serious mental illnesses and is associated with a number of indicators of poor outcome. In contrast, awareness of having a mental disorder, of its symptoms, of its consequences, and/or of the need for treatment is associated with a number of positive prognostic indicators. Insight is also linked, however, to depression and suicidal ideation in schizophrenia and schizoaffective disorder. While insight has been associated with a lifetime history of suicide attempts in a mixed sample of patients with schizophrenic and schizoaffective, no published study has examined these diagnostic groups separately, or assessed the relationship between insight and suicidality in depressed and bipolar patients. These were the aims of the current investigation. Participants with schizophrenia, bipolar disorder, major depression, and schizoaffective disorder were interviewed at baseline and at 6-month follow-up. Higher levels of depression were associated with insight for all diagnostic groups. Participants with greater insight were more likely to have made a lifetime suicide attempt, a greater number of attempts, and an attempt in the year prior to the baseline interview and over the 6-month follow-up. Retrospective and prospective measures of suicidality (i.e., suicidal ideation and behaviors) were significantly related to insight. These findings suggest that having intact or good insight may be an indicator for negative mood and suicidal ideation among individuals with serious mental illness. Treatment implications are discussed.

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CHAPTER 1

Introduction

Poor insight into the fact that one has a psychiatric disorder is quite common in serious mental illnesses, such as schizophrenia and bipolar disorder, and is associated with a number of indicators of poor outcome (Amador, Strauss, Yale, & Gorman, 1991). In contrast, awareness of having a mental disorder, of its symptoms, of its consequences, and/or of the need for treatment is associated with a number of positive prognostic and outcome indicators (McEvoy et al., 1989). Accordingly, attempting to increase insight appears to be a logical treatment goal. Recent findings, however, suggest that insight is also linked to negative factors. Specifically, insight is associated with depression and suicidal ideation in schizophrenia and schizoaffective disorders (Schwartz, 2000). A recent study with a mixed sample of patients with schizophrenia and schizoaffective disorder found positive relationships between insight, suicidal ideation, and previous suicide attempts (Kim, Jayathilake, & Meltzer, 2003). No published study has examined these diagnostic groups separately, however, or examined the effects of insight on suicidality in depressed and bipolar patients. The purpose of the current study is to investigate the relationship between insight and suicide attempts in various serious mental illness (SMI) diagnoses.

Definitions and Measurement of "Insight"

From the earliest descriptions of schizophrenia, lack of awareness of the gravity of the disorder has been identified as a typical feature (Amador & Gorman, 1998). Historically, "insight" (or the lack thereof), has been described in vague psychodynamic terms without being measured systematically. Investigators currently studying insight

concur that it is a multidimensional variable (e.g., Amador et al., 1993; David, 1990; McEvoy, Appelbaum, Apperson, Geller, & Freter, 1989), although there is some disagreement regarding the dimensions that should be included in the construct. Definitions of insight variously include patients' general ability to recognize that they have a mental disorder, their capacity to recognize symptoms and label these experiences as abnormal, their acknowledgement of the need for treatment and recognition of the benefits derived from medication, and their awareness of their specific diagnosis and its consequences (Sanz, Constable, Lopez-Ibor, Kemp, & David, 1998).

The first standardized method of assessing insight in psychotic disorders was the Insight and Treatment Attitudes Questionnaire (ITAQ; McEvoy, Appelbaum, Apperson, Geller, & Freter, 1989). The ITAQ was designed for use with inpatient samples and defines insight as composed of the following dimensions: awareness that one has "mental, nerves, or worry problems"; recognition of the need to be hospitalized; belief that one will need continued treatment upon discharge; and attitudes towards medication (e.g., perceived effectiveness and necessity of medication).

Alternatively, Amador and Strauss (1993) conceptualize *lack* of insight as comprised of two dimensions, "unawareness" and "incorrect attribution". Unawareness is a failure to acknowledge the presence of a specific deficit or sign of one's mental disorder when confronted with it by an examiner, while incorrect attribution is the patient's expressed belief that the specific deficits, signs, or consequences of his or her mental disorder are unrelated to mental dysfunction (Amador & Strauss, 1993). The Scale to Assess Unawareness of Mental Disorder (SUMD; Amador & Strauss, 1993) measures current and retrospective awareness of having a mental disorder, awareness of

the effects of medication, awareness of the consequences of the mental disorder, and awareness of and attributions for the specific signs and symptoms of the patient's disorder (Amador & Gorman, 1998).

The Schedule for the Assessment of Insight (SAI; David, 1990) utilizes a similar definition. The SAI measures awareness of mental disorder, the capacity to label psychotic experiences as abnormal, and treatment compliance. A revised version of this scale (SAI- Expanded version; Kemp & David, 1997) also includes items on awareness of change and difficulties resulting from the patient's mental condition.

Insight has also been quantified by utilizing insight-related items from broader measures of psychopathology. The Positive and Negative Syndrome Scale for Schizophrenia (PANSS; Kay, Fiszbein, & Opler, 1987) includes one item that assesses lack of judgment and insight. Aspects of insight that are to be considered by the clinical rater include awareness of symptoms, consequences of the disorder, and the need for treatment (Lysaker & Bell, 1995).

Other single-item measures have been extracted from the Hamilton Depression Scale (Hamilton, 1960) and the Present State Examination (Wing, Cooper, & Sartorius, 1974). An item from the Hamilton Depression Scale that refers to level of insight has been modified for use in rating psychotic patients' level of awareness. This item is rated on a 3-point scale from 0 (*acknowledges being ill*) to 2 (*denies being ill*; Fennig et al., 1996). Similarly, an item on the Present State Examination uses responses to the following probe to assess insight, "Do you think there is anything the matter with you?" Further probes include, "What do you think it is?" and "Could it be a nervous condition?" Responses are rated on a scale from perfect insight (defined as the patient's ability to

appreciate the issues involved in her or his condition) to complete denial of a "nervous condition" (David, Buchanan, Reed, & Almeida, 1992; David et al., 1995). The Mental State Examination insight item follows a similar procedure, with clinicians rating on a 5-point scale whether patients realize that they are ill and that the problem is in their own mind (Amador, Strauss, Yale, & Gorman, 1993; Amador, et al., 1993).

All of the measures of insight described above involve clinician ratings of insight based on open responses to semi-structured interview questions. Studies comparing various measures of insight have found high correlations among these instruments. In a sample of individuals with various psychotic illnesses, the ITAQ, SAI, SAI-E, and the insight item of the PANSS were found to be highly correlated with one another, with correlations among total scale scores ranging from .82-.97 (Sanz et al., 1998). The SAI has also been found to be highly correlated with the insight item from Present State Examination (David et al., 1995). The ITAQ is moderately correlated with the "current awareness of mental disorder" subscale of the SUMD, both when measured during a phase of acute psychosis and when measured after remission of the episode (Cuesta, Peralta, & Zarzuela, 2000). The SUMD "awareness of mental disorder" subscale is also highly correlated with insight items from the Hamilton Depression Scale and the Mental State Examination (Amador et al., 1993).

These strong associations among most measures of insight suggest that although different aspects of awareness of mental disorder, symptoms, and the need for treatment are intended to be represented by these scales, these definitions of insight are closely related and may measure the same construct (Cuesta et al., 2000). For this reason, the

term "insight" will be used as a generic term throughout this paper, although at times more specific aspects of insight will be referred to when appropriate.

Rate of Lack of Insight

Markedly impaired insight is a prevalent feature in psychotic disorders. Indeed, relative to other signs and symptoms, it has been found to be the most common feature of schizophrenia (Amador et al., 1991). Degree of impaired insight in SMI varies by diagnosis. Manic and schizophrenic patients are especially deficient in insight, while schizoaffective patients tend to have somewhat greater insight, and depressed patients evidence the best insight of these diagnostic groups (Amador et al., 1994; Cuesta et al., 2000; Michalakeas et al., 1994). Depressed individuals with psychotic features show diminished insight compared to depressed patients without such features (Amador et al., 1994; Peralta & Cuesta, 1998); both of these groups demonstrate better insight than manic patients (Amador et al., 1994; Ghaemi, Stoll, & Pope, 1995; Michalakeas et al., 1994).

An example of the relative rates of belief in having a mental disorder can be found in a large, multisite study of insight in a mixed sample of inpatients and outpatients (Amador et al., 1994). In this study, complete denial of having a mental disorder was evident in 32.7% of individuals with schizophrenic disorders, 22.5% of those with bipolar disorder, 18.4% of those with schizoaffective disorder, 16.7% of those with psychotic major depression, and 7.1% of those with non-psychotic major depression.

Stability of Insight

Some question has been raised as to whether lack of insight is an unchanging or fluctuating feature of psychotic disorders. Evidence that it may be enduring is suggested

by findings that insight does not change significantly when measured from hospital intake to discharge (Cuesta et al., 2000; Ghaemi et al., 1995; McEvoy et al., 1981; McEvoy, Apperson et al., 1989). Further, while it has been suggested that repeated hospitalizations would seem to provide learning opportunities that would result in improved insight, in most studies no association has been found between the number of previous hospitalizations and insight (McEvoy, Appelbaum et al., 1989; McEvoy, Apperson et al., 1989; McEvoy, Freter et al., 1989; McEvoy, Schooler, Friedman, Steingard, & Allen, 1993).

While these findings have been taken to suggest that insight may be an unchanging feature (e.g., McEvoy et al., 1993; Schwartz, Cohen, & Grubaugh, 1997), significant and lasting improvements in insight have resulted when it has been directly targeted with psychosocial interventions (Kemp, David, & Hayward, 1996; Kemp, Kirov, Everitt, Hayward, & David, 1998; Kemp & Lambert, 1995; Lysaker & Bell, 1995). It would appear that while standard inpatient treatment often serves to resolve acute episodes of mania or psychosis, it does not significantly improve insight; however, lasting changes in insight can result when this variable is targeted for treatment, suggesting that it is not an unmodifiable feature.

How Impaired Insight has Been Explained

Impaired insight is generally operationalized as a discrepancy between mental health professionals' and patients' opinions or judgments as to whether the patient has a mental disorder (Amador et al., 1991; David, 1990; McEvoy et al., 1993). The dominant etiological models for impaired insight are deficit models. Deficit models are based on the premise that individuals with psychotic disorders are unable to recognize their

disorder due to some form of cognitive deficit (Startup, 1996) or due to interference from other symptoms, such as delusional thinking or paranoia. In contrast, motivational models suggest that psychotic individuals may be aware of their disorder in some manner, but are motivated to deny their disorder in order to preserve their self-esteem (Startup, 1996).

The Role of Positive and Negative Symptoms

It has been suggested that poor insight in psychosis is essentially caused by the symptomatology of the mental disorder, which interferes with patients' ability to recognize their disorders (e.g., Kim, Sakamoto, Kamo, Sakamura, & Miyaoka, 1997). Both positive and negative symptoms have been put forth as explanatory factors for impaired insight.

Findings regarding the relationship between level of positive symptoms and insight are equivocal. A number of studies have revealed a modest (Amador et al., 1994; Cassidy, McEvoy, Yang, & Wilson, 2001; Kim et al., 1997; Weiler, Fleisher, & McArthur-Campbell, 2000) or moderate relationship (Dickerson, Boronow, Ringel, & Parente, 1997; Kemp & Lambert, 1995; McCabe, Quayle, Beirne, & Duane, 2002; Michalakeas et al., 1994; Schwartz, 1998; Takai, Uematsu, Ueki, Sone, & Kaiya, 1992; Young et al., 1998; Weiler et al., 2000) between level of positive symptoms and impaired insight in schizophrenia, schizoaffective, and manic episodes of bipolar disorders. Other studies, however, have not found a relationship between insight and level of positive symptoms in psychotic disorders (David et al., 1992; Heinrichs, Cohen, & Carpenter, 1985; Lysaker & Bell; 1995; McEvoy, Apperson et al., 1989; McEvoy et al., 1993, 1996; Michalakeas et al., 1994; Smith, Hull, & Santos, 1998).

In the majority of studies that have investigated change in insight over the course of hospitalization, lack of insight has not been shown to be ameliorated with improvements in positive symptoms or after the resolution of a manic episode (Amador et al., 1993; Carroll et al., 1999; Cuesta et al., 2000; David, Buchanan, Reed, & Almeida, 1992; Ghaemi, Stoll, & Pope, 1995; McEvoy et al., 1981, 1989b). One study reported that insight was enhanced as positive symptoms improved (Weiler, Fleisher, & McArthur-Cambell, 2000); however, this single study provides weak evidence because of methodological problems (e.g., the authors themselves rated insight and symptoms for pre- and post-measures).

It has also been suggested that impaired insight is attributable to negative symptoms, or may itself be a negative symptom (Collins, Remington, Coulter, & Birket, 1997). Evidence for this hypothesis is weak. Collins et al. (1997) found a moderate positive relationship between impaired insight and negative symptoms; however, when a multivariate model was utilized with negative symptoms, positive symptoms, and neurocognitive deficits as independent variables, only positive symptoms accounted for a significant portion of variance in insight. A moderate correlation between current negative symptoms and impaired insight into *past* episodes of illness has been found (Kemp & Lambert, 1995); however, there was no relationship between *current* insight and negative symptoms. These results are not readily explainable and may be anomalous, as numerous other studies have failed to reveal any relationship between these variables (Amador et al., 1994; Lysaker & Bell, 1994; Kim, Sakamoto, Kamo, Sakamura, & Miyaoka, 1997; McEvoy et al., 1993, 1996; Smith, Hull, & Santos, 1998).

Negative symptoms do not appear to be significantly related to impaired insight in psychotic disorders, and do not provide an explanation for the phenomenon. Similarly, while there is support for some degree of relationship between positive symptoms and impaired insight, positive symptoms also fail to provide an adequate account of impaired insight.

The Role of Neurocognitive Deficits

Impaired insight has also been postulated to be attributable to structural brain abnormalities, particularly in the frontal lobe (Amador et al., 1991; Lysaker & Bell, 1994; McEvoy et al., 1996; Takai, Uematsu, Ueki, Sone, & Kaiya, 1992; Young, Davila, & Scher, 1993). Some studies have reported a weak positive relationship between intelligence and insight (David, Buchanan, Reed, & Almeida, 1992; Lysaker & Bell, 1994; Lysaker, Bell, Milstein, Bryson, & Beam-Goulet, 1994; Startup, 1997). Others have found no relationship these variables (Carroll et al., 1999; David et al., 1995; Kim, Jayathilake, & Meltzer, 2003; Lysaker, Bryson, & Bell, 2002; McEvoy et al., 1993; Takai et al., 1992; Young et al., 1993). Only one study reported information regarding how those with and without insight compared to general population norms for intelligence. David et al. (1995) found that while intelligence was not linearly related to insight, patients with above-average intelligence had greater insight than those with average or below-average intelligence. It would thus appear that possessing above-average intelligence might provide an advantage in the recognition of a mental disorder; however, it is not clear whether lower than average intelligence plays a significant role in apparent lack of recognition of mental disorder or the need for treatment.

Frontal lobe dysfunction has been investigated primarily by comparing patients with insight to those without insight on neurocognitive measures of frontal lobe dysfunction; more recently, brain-scanning techniques have also been utilized. Frontal lobe atrophy and ventricle enlargement have been found to be associated with impaired insight in some (Laroi et al., 2000; Takai et al., 1992) but not all (David et al., 1995) investigations. Neurocognitive measures of frontal lobe dysfunction have likewise produced equivocal results, with some studies finding weak to moderate correlations with insight in schizophrenia and schizoaffective disorder (Laroi et al., 2000; Lysaker & Bell, 1995; Lysaker, Bryson, & Bell, 2002; Young et al., 1993) and others detecting no relationship (Collins et al., 1997; Cuesta & Peralta, 1994, 1995; Dickerson et al., 1997; Kemp & David, 1996; McCabe et al., 2002; McEvoy et al., 1993, 1996). In two studies of patient with bipolar disorder, no relationship was found between neurocognitive functioning and insight (Ghaemi et al., 1996; Young et al., 1993).

Other investigators have suggested that if individuals lacking insight do in fact suffer from cognitive deficits affecting their ability to recognize their behavior as pathological, they should also have difficulty in recognizing similar abnormal behavior in others. The evidence suggests, however, that there is no relationship between lack of insight into one's own condition and the ability to correctly recognize and label symptoms of mental illness in others (Startup, 1997). Insight into having a mental disorder has also been found to be unrelated to SMI participants' ability to recognize their own interpersonal problems (Startup, 1998).

As noted by Kemp and David (1996), "the absence of a striking relationship with cognitive impairment argues against a simple hypothesis of lack of insight in acute

psychosis as a neuropsychological deficit, suggesting such a deficit might account for a minor portion of the variance" (p. 448). Collins et al. (1997) have noted that there has been a shift away from the psychology of insight and towards the neurological deficits believed to be responsible; however, the evidence thus far does not suggest that neurological deficits explain lack of insight. It would appear that other factors are responsible and alternative explanations should be explored further. Historically, the psychology of lack of insight has focused on insight from a psychodynamic viewpoint, which has not produced informative findings in this area. The psychology of insight is not limited to these aspects, however, and other viewpoints may shed more light on this phenomenon.

Normality of Denial of Mental Disorder

Denial of the seriousness of health problems and refusal of necessary medication are evident in individuals with chronic medical problems not associated with mental disorders, for example among renal and diabetic patients (Garay-Sevilla, Malacara, Gutierrez-Roa, & González, 1999; Phipps & Turkington, 2001). This suggests that denial of illness or the need for treatment is not unique to SMI, and therefore may not be wholly attributable to the mental dysfunction associated with these disorders.

It has been suggested that denial of having a mental disorder may simply be a normal, albeit maladaptive, response to having a SMI (Amador & Strauss, 1993). This notion is supported by findings that inaccurate self-evaluation is not specific to psychotic disorders and has been observed in the general population, suggesting that certain aspects of inaccurate self-evaluations are normal.

Depressed individuals may be more accurate than nondepressed individuals in some aspects of self-evaluation, including judging social competency and evaluating contingencies between one's behavior and certain outcomes (Alloy & Abramson, 1979; Lewinsohn et al., 1980). Similarly, in a study comparing depressed patients, patients with schizophrenia, and normal controls, the latter two groups both used self-serving biases in appraisals of their own behavior and performance on experimental tasks, while depressed patients did not and were more accurate in their self-evaluations (Sackeim & Wegner, 1986). The cognitive distortions evident in individuals with schizophrenia and normal controls represent a normative, although positively biased, pattern of functioning (Sackeim & Wegner, 1986). As suggested by Amador et al. (1991), "the gross unawareness of illness observed in schizophrenia could be explained as a result of the disinhibition of normally adaptive cognitive biases rather than as a deficit per se" (p. 120).

Further evidence that a positive bias may be responsible in part for denial of mental disorder is suggested by the finding that individuals with schizophrenia who show lower insight are also higher in use of self-deceptive enhancement. Self-deceptive enhancement is the tendency to give reports that are believed by the individual to be honest (i.e., not deliberate misrepresentations of the truth) but that evidence a positive bias (Moore, Cassidy, Carr, & O'Callaghan, 1999). Individuals lacking in insight do not score higher, however, in ratings of impression management (i.e., deliberate positive self-presentation to others; Moore et al., 1999). This suggests that while their self-awareness does tend to be positively biased, those with impaired insight are not necessarily attempting to put forth a more positive image in order to affect the opinion of others.

Lally (1989) hypothesizes that patients deny their mental disorder not because they wish to present well to others, but rather to maintain an internal definition of themselves as competent. Lally describes several methods used to sustain self-competence that in turn serve to preserve self-esteem. These include: choosing a less stigmatized label for the disorder, attempting to reduce the stigma associated with the label (e.g., naming people of importance with the same condition), redefining one's behavior as not indicative of a mental disorder (e.g., explaining how one's behavior is different from that of a "crazy person"), emphasizing competent aspects of one's behavior (e.g., mentioning past accomplishments), and describing abnormal behavior as not a part of one's self or as alien. As Lally points out, "the chronicity of mental illness involves more than just the persistent and recurrent nature of the illness; it also includes the relatively permanent shifting of expectations and definitions of the self" (p. 254). These shifts in one's expectations and self-definitions do not generally lead to enhanced self-esteem, but rather to views of oneself as defective, incompetent, and unlikely to achieve previous expectations for the future.

Negative Factors Associated With a Lack of Insight

Many studies have found associations between insight and different aspects of poor prognosis, suggesting that patients' overall awareness of having a mental disorder and of the symptoms of their disorder may serve as a useful prognostic indicator. This connection between prognostic and outcome indicators and insight has been robust: Impaired insight, no matter how it has been measured, is associated with poor outcome (Amador et al., 1993).

Medication Compliance

Lack of insight in psychotic disorders is associated with medication non-compliance. Medication non-compliance is correlated with poorer clinical outcomes (Svedberg, Mesterton, & Cullberg, 2001), increased risk for hospitalization, emergency room visits, homelessness, and exacerbation of symptoms (Olfson et al., 2000). Specific insight factors associated with medication non-compliance include difficulty recognizing one's symptoms (Olfson et al., 2000) and lack of awareness of having a mental disorder (Bartko, Herczeg, & Zador, 1988). In comparison to drug-compliant patients, drug refusers (who are responsive to medication when it is taken) have been found to be less insightful regarding their disorder, more often hospitalized against their will, less cooperative in their attitudes towards doctors, and more symptomatic upon discharge (Van Putten, 1976). Inpatients with schizophrenia who acknowledge the need to be in the hospital, or to see a doctor or psychiatrist while in the hospital, are significantly more likely to be treatment-compliant as outpatients compared to patients who do not acknowledge any of these needs (Lin, Spiga, & Fortsch, 1979). Lin et al. (1979) found that 45% of those who acknowledged the need to be hospitalized (while hospitalized) or to see a mental health professional adhered to their regimen as outpatients, while among those who did not only 17% adhered to their regimen. Further, those who were both insightful and perceived the benefits of taking medication were most likely to be compliant. Compliance was highest for patients who understood that the medication was treating a mental disorder.

Other Prognostic and Outcome Variables

Diminished insight is also associated with a number of other poor prognostic indicators and outcome variables, including: poorer course in schizophrenia (Amador et al., 1991); a greater number of hospitalizations (Heinrichs et al., 1985; McEvoy et al., 1989; Van Putten et al., 1976), involuntary hospitalizations (David et al., 1992; Van Putten et al., 1976; Weiler et al., 2000) and relapses (Bartko, 1988); fewer social contacts and interpersonal relationships (Dickerson et al., 1997; Lysaker, Bell, Bryson, & Kaplan, 1998), and poorer psychosocial functioning (Dickerson et al., 1997; Schwartz et al., 1997). Diminished insight has also been associated with poorer work performance during job rehabilitation programs (Lysaker et al., 1994; Lysaker, Bryson, & Bell, 2002).

Insight, in turn, has been associated with a number of positive outcome variables in schizophrenia. McEvoy et al. (1989) found that individuals with schizophrenia who had greater recognition of their disorder and greater acknowledgement of the need for treatment were less likely to be readmitted to the hospital over a 2½ to 3½ year follow-up period. Heinrichs et al. (1985) determined that among patients who were relapsing, those with awareness that they were relapsing were significantly less likely to require rehospitalization. Among those with awareness, 92% restabilized as outpatients without requiring hospitalization versus 50% of those who lacked awareness.

Need to Increase Insight in Patients With Serious Mental Illness

There are a number of reasons to specifically target insight during treatment. Foremost among them is the hope that the development of insight will yield the benefits evident in the correlational research reviewed above. Another is the current trend toward

the use of psychosocial treatments that emphasize patients' management of their own symptoms in order to control their disorder and prevent relapse.

With a focus on management in the community following deinstitutionalization, an important goal in outpatient care is to prevent relapse and rehospitalization. While relapse prevention is primarily attempted through the prophylactic use of medication for both bipolar and schizophrenic disorders (Basco, 2001; Heinriches et al., 1985), medication noncompliance is quite common in psychotic disorders, with up to 80% of patients failing to adhere to their treatment regimen (Corrigan, Liberman, & Engel, 1990). Unfortunately, even when medication is taken consistently it does not prevent relapse in all cases (Basco, 2000; Heinriches et al., 1985; Keller, Lavori, 1993; Coryel, Endicott, & Mueller, 1993; Tohen, Waternaux, & Tsuang, 1990). It has been estimated that at least 40% of relapses in schizophrenia are due to medication noncompliance (Weiden & Olfson, 1995), suggesting that while medication noncompliance is an important factor in relapse, it is by no means the sole reason for decompensation. Additional psychotherapeutic strategies to supplement the use of prophylactic medication have aimed at further decreasing relapse rates.

In psychotic disorders, patterns of symptoms that characterize relapse are specific to each individual and typically are consistent from relapse to relapse (Birchwood et al., 1989). Symptom patterns that constitute relapse can often be recognized clearly by a progression of behavioral and cognitive changes, which provide warning before complete relapse (Birchwood et al., 1989; Heinriches et al., 1985; Kennedy, Schepp, & O'Connor, 2000). Techniques have been developed to identify early warning signs of relapse for a given individual, so that self-monitoring of symptoms can allow for intervention prior to

relapse (Heinriches et al., 1985; Perry et al., 1999). These techniques have been shown to be useful tools in the management of bipolar disorder and schizophrenia (Birchwood, Spencer, & McGovern, 2000; Lam et al., 2000); however, self-monitoring and patient reporting of symptom exacerbation to others are affected by level of insight (Heinriches et al., 1985).

In addition to relapse prevention, psychosocial interventions for psychotic disorders are aimed at increasing functioning, which can further reduce the emotional burden of these disorders (Kennedy et al., 2000). In the last decade, cognitive behavioral therapy (CBT) has been advocated for use in psychotic disorders, both for relapse prevention and the reduction of remaining symptoms. Even when medication compliant, a substantial portion of patients with psychotic disorders continue to experience symptoms such as hallucinations, delusions, negative symptoms, cognitive impairment, and impaired social and occupational functioning (Rector & Beck, 2001). While medication is frequently effective in substantially reducing symptoms, remaining impairments negatively affect the functioning and well-being of individuals with schizophrenia. CBT has been shown to produce large clinical effects on measures of negative and positive symptoms in schizophrenia (see Rector & Beck, 2001 for a review). It has also been utilized with success in significantly reducing symptomatology in bipolar disorder, schizophrenia, and schizoaffective disorder (e.g., Durham et al., 2003; Fava, Bartolucci, Rafanelli, & Mangelli, 2001; Garety, Kuipers, Fowler, Chamberlain, & Dunn, 1994; Hogarty et al., 1997; Patelis-Siotis et al., 2001; McChandless-Glimcher et al., 1986; Turkington, Kingdon, & Turner, 2002) and in improving insight compared to treatment-as-usual in schizophrenia (Turkington et al., 2002).

CBT for psychotic experiences (e.g., delusions and hallucinations) draws on the basic theory and techniques of CBT for other disorders (Rector & Beck, 2001). Treatment involves techniques such as normalizing the experiences of delusions and hallucinations as representing points on a continuum of functioning, considering alternatives to patients' beliefs regarding the origin and meaning of hallucinations or delusional beliefs, having patients practice ignoring hallucinations by bringing them on in session, and recognizing and coping with situations and emotional states that exacerbate symptoms (e.g., Chadwick et al., 1996; Fowler & Morely, 1989; Kingdon & Turkington, 1991, 1994; Tarrier, 1992). Much of this treatment relies on reality testing and the recognition of symptoms as such. Although complete insight at the beginning of treatment is not necessary, good outcome is partially predicted by possessing at least a modicum of insight from the beginning of treatment (Kingdon & Turkington, 1994); substantial insight into one's illness and recognition of symptoms is the final destination of treatment (Kingdon & Turkington, 1994).

Compliance therapy is another intervention aimed at improving psychotic patients' functioning by enhancing medication compliance, improving insight, and improving attitudes towards treatment (Kemp & David, 1996). Compliance therapy is a brief intervention (4-6 sessions) that combines motivational interviewing and CBT techniques (Kemp, Hayward, Applewhaite, Everitt, & David, 1996; Kemp & David, 1996). It has been demonstrated to lead to significant increases in insight, improved attitudes towards treatment, increased drug compliance, as well as significantly improved results on tests of neurocognitive functioning (Kemp & David, 1996; Kemp et al., 1996; Kemp, Kirov, Everitt, Hayward, & David, 1998).

Depression, Suicidality, and Insight

While insight appears to be an important treatment target in view of its association with prognosis and outcome in psychosis, evidence also suggests that it is associated with depression. The majority of studies that have investigated this relationship have found a positive relationship between depression and awareness of: mental disorder, symptoms, the social consequences of having a mental disorder, or the need for treatment (Amador et al., 1993; Dixon, King, & Steiger, 1998; Kemp & Lambert, 1995; Peralta & Cuesta, 1994; Pyne, Bean, & Sullivan, 2001; Schwartz & Peterson, 1999; Schwartz, 2001).

Correlations between various measurements of insight and the Beck Depression Inventory range between .45 and .58 (Moore et al., 1999; Sanz et al., 1998). In a study of patients with schizophrenia that contrasted those with a lifetime history of depression to those without, those who had been depressed at some point were significantly higher in insight (Gutierrez Rodriguez et al., 2000). Insight is also associated with engulfment in schizophrenia, which involves basing one's view of oneself on one's role as a mental patient and as damaged or deviant (Williams & Collins, 2002). Engulfment has been found to be positively associated with feelings of hopelessness, lowered self-esteem, and lower levels of self-efficacy (McCay & Seeman, 1998).

Some authors have asserted on the basis of these findings that depression increases insight; however, there is evidence that the relationship between these two variables may be in the opposite direction. Carroll et al. (1999) conducted a trial of a brief psychoeducational intervention aimed at increasing insight. Individuals with schizophrenia viewed a 15-minute educational video and were offered educational

booklets. At baseline, more severe positive symptoms and lower depression scores predicted worse insight. After the intervention, improvement in insight was associated with worsening of mood. This study approximates an experimental study of the cause and effect relationship between insight and depression. Insight was the manipulated variable that resulted in increased depression. This suggests that insight may lead to an increase in depression. Alternatively, a bi-directional relationship may exist between these variables.

In contrast to the findings of Carroll et al. (1999), a randomized controlled trial by Turkington et al. (2002) found that after approximately six sessions of CBT over a two to three month period, participants with schizophrenia showed significantly higher levels of insight and lower levels of depression. This finding calls into question the positive relationship between insight and depression. However, given the consistency of the relationship between these variables in other research, it is possible that the CBT approach addresses both lack of insight and feelings of depression that may be associated with increased insight.

Insight has also been found to be associated with suicidality in schizophrenia and schizoaffective disorders. Awareness of the need for treatment and recognition of the social consequences of having a mental disorder are positively associated with severity of current suicidality, operationalized as the degree of current suicidal ideation, intent to harm oneself, lethality of a stated plan (if applicable), and opportunity or means of completion (if applicable) (Schwartz, 2000; Schwartz & Peterson, 1999). Individuals with schizophrenia who have recurrent suicidal thoughts, ideation, plans, and/or behavior have also been found to be significantly more aware of their delusions, asociality, blunted

affect, and anhedonia (Amador et al., 1996). In a retrospective study of individuals with schizophrenia who completed suicide compared with similar patients who did not, insight was implicated as a factor associated with hopelessness over future prospects (Drake & Cotton, 1986). Based on comparative chart reviews, individuals who had committed suicide compared with those who did not showed high premorbid achievement, high self-expectations of achievement, and high awareness of pathology and its effect on their functioning (Drake, Gates, Cotton, & Whitaker, 1984). Individuals with schizophrenia who commit suicide have been found to show functional impairment, a realistic awareness of this impairment, a non-delusional assessment of the future, fear of further mental deterioration, and a sense of hopelessness about future prospects in "painful contrast" to previous pre-morbid expectations for achievement (Caldwell & Gottesman, 1990). Finally, in a mixed sample of patients with schizophrenia or schizoaffective disorder, insight was found to be higher in individuals with current suicidal ideation and in those with a lifetime hi\story of attempted suicide (Kim, Jayathilake, & Meltzer, 2003). The relationship between insight and suicidality in other diagnoses has not been investigated.

Suicide in Serious Mental Illness

While suicidality is frequently assessed in affective disorders, evaluation of suicidality is not often seen as a primary task for clinicians assessing patients with schizophrenia; depression may also be overlooked when combined with psychotic symptoms (Fenton, 2000). Suicidality and depression, however, are common in schizophrenia. The National Comorbidity Study reported that 59% of individuals with schizophrenia are clinically depressed at some time in their lives and 22% meet criteria

for bipolar disorder (Kessler et al., 1994). Similar figures for a lifetime history of comorbidity of depression in schizophrenia have been found in other samples as well, and it has been reported that approximately a third of patients with schizophrenia will suffer from more than one episode of depression (Gutierrez Rodriguez, et al., 2000).

Suicide rates in SMI patients are quite high compared to the general population. In a 25-year-follow-up study of patients from a long-term SMI residential treatment hospital, the percentage who committed suicide by diagnosis was 8% for schizophrenic, 13% for schizoaffective, 5% for bipolar, and 17% for unipolar depressed individuals (Dingman & McGlashan, 1986). Based on long-term follow-up studies and meta-analyses of suicide studies, the lifetime suicide rate in affective disorders has been estimated to be between 6-15% (Angst, Angst, & Stassen, 1999; Inskip et al., 1988) and in schizophrenia to be between 4-15% (Black, Warrack, & Winokur, 1985; Caldwell & Gottesman, 1990; Inskip, Harris, & Barraclough, 1998; Landmark, Cernowsky, & Mersky, 1987; Miles, 1977; Roy, Mazonson, & Pickar, 1984). While the estimated number of individuals with affective and schizophrenic disorders who commit suicide varies widely by study, these populations have been shown consistently to have a significantly higher risk compared to the general population (Allbeck, 1989; Angst et al., 1999; Caldwell & Gottesman, 1990; Harris & Barraclough, 1998; Simpson & Jamison, 1999, Tondo et al., 1999).

Suicide is difficult to predict for a number of reasons, including a low base rate for the act, the fact that individuals who successfully complete suicide are no longer available for direct study, and a high likelihood of distortion in retrospective data collected to study individuals who completed suicide (Pokorny, 1983). It has been

suggested that these difficulties make this area of study of little use, as attempts to predict suicide result in a high rate of false positives; however, high false-positives are certainly more favorable than high degrees of false-negatives given that these predictions are intended to prevent deaths among patients for whom clinicians are responsible. While the most likely result of a suicide attempt is lack of success, such acts are clearly a strong indication of patient suffering. Factors associated with both completed suicides *and* attempts should be areas of keen interest to clinicians, particularly in high-risk groups such as the seriously mentally ill.

The factor most strongly associated with completed suicide in schizophrenia is a history of suicide attempts (Allebeck, Valra, Kristjansson, & Wistedt, 1987). In a large outpatient sample of individuals with major depression, bipolar disorder, schizophrenia, psychotic disorder NOS, and substance abuse, lifetime history of suicidal ideation was between 48 and 64% for the various diagnostic groups (Asnis et al., 1993). Of those who reported suicidal ideation at some point, 42% had experienced ideation within the week prior to assessment and 39% reported persistent suicidal ideation (defined as ideation lasting at least 7 days). These findings suggest that a relatively large proportion of SMI patients are frequently suicidal. Suicide attempts were made by 35% of depressed, 31% of bipolar, 29% of schizophrenic, 14% of psychotic NOS, and 21% of alcohol/substance abuse outpatients. Of those reporting an attempt, 45% made more than one attempt. With reference to intentionality of suicide attempts, 72% of the patients reported that on their first attempt they had wanted to die and 68% had expected to die from their attempt.

Rationale and Hypotheses

Current psychotherapeutic interventions often aim to increase insight. Because of the link between depression, suicidal ideation, and insight in schizophrenia, it is important to explore these relationships further, not only with schizophrenic disorders but also with other serious mental illnesses. While insight has been associated with suicidality in schizophrenia and with previous suicide attempts in a mixed sample of schizophrenic and schizoaffective patients, no published study has examined these diagnostic groups separately, or examined the effects of insight on suicidality in depressed and bipolar patients. These will be the aims of the current study.

The following hypotheses are advanced:

1) Individuals with SMI who acknowledge their disorder will experience higher levels of depression than those who deny their disorder.
2) Individuals who acknowledge their mental disorder will be more likely to have made a lifetime suicide attempt and to have made recent suicide attempts.
3) Those who acknowledge their mental disorder will be more likely to have had recent suicidal ideation.
4) Greater insight will be associated with more suicidal ideation in the year prior to the baseline interview, as well in the three months prior to the baseline interview.
5) Individuals who acknowledge their mental disorder at baseline will be more likely to have made a suicide attempt during the six-month follow-up period.
6) Insight at baseline will be associated with recent suicidal ideation at 6-month follow-up.

CHAPTER 2

Method

Original Dataset and Procedure

The data in the current study come from a statewide research project conducted in Hawaii as part of a larger collaborative nationwide project, funded in part by the Substance Abuse and Mental Health Services Administration (SAMHSA). The purpose of the original study was to compare adults with SMI receiving fee-for-service with those receiving managed care.

Participants completed a 90-minute baseline structured interview assessing their: (a) mental health symptoms; (b) quality of life; (c) satisfaction with services; (d) substance use; (e) physical health; (f) suicidal thoughts and behaviors; (g) service use; (h) medication use; (i) perception of stigma; (j) ethnocultural identity; (k) paranoid ideation and dangerousness; (l) attributions regarding the etiology and best treatment of their mental disorder; and (m) use of advance directives. Demographic and clinical history sections were also included. Participants were asked to consent to having a family member contacted to participate in a family interview involving content similar to that of the patient interview.

Participants completed a 45-minute follow-up interview six months later. The interview included the same elements as the baseline assessment, with the exception of the omission of questions regarding demographic information, ethnocultural identity, and attributions regarding their mental disorder.

The original study sample was formed by attempting to contact a total of 2,563 adults (18 years or older) with an SMI (defined as ICD-9 codes of 295-298; these codes

correspond to DSM-IV diagnostic codes) for participation. This group was made up of 1) 563 individuals with SMI enrolled in a Medicaid managed care demonstration project from November 1, 1997 to August 1, 1998; and 2) 2,000 individuals randomly selected from a total of 2,600 individuals collecting Medicaid and enrolled in fee-for-service treatment who received a diagnosis of SMI between November 1, 1996 to October 31, 1997. Among the 2,563 selected, 1,076 (42.0%) were successfully contacted by telephone or letter. Of these, 563 (52.3%) completed the baseline interview; of those completing baseline, 475 (84.4%) completed the 6-month follow-up interview. Family interviews were conducted in 297 of the 563 cases (62%). Data were collected between fall of 1997 and spring of 1999. In exchange for their participation, SMI participants and family members were paid $10/hour in food and/or movie gift certificates, with a maximum of $30 for each interview.

Graduate students and doctoral-level professionals in the social sciences conducted the study interviews. One-week test-retest reliability data were collected from a subset of 32 study participants; results are included later in the Method section.

Participants

For the current investigation, participants from the fee-for-service and managed care groups were combined to form one sample. As previously noted, participants were all recipients of Medicaid, which has eligibility requirements for enrollment that include being financially impoverished (i.e., not having assets in excessive of a set limit and markedly low income), and belonging to an eligible group (i.e., certified disabled, blind, or over the age of 65). Study participants qualified for Medicaid as a function of

impoverishment and the disability caused by their mental illness. Participants' financial status is discussed in more detail below.

Participant diagnoses were obtained from Medicaid databases, which represent diagnoses assigned by their attending psychiatrist or psychologist. Current diagnoses (at the time patients are seen) are a required aspect of Medicaid reimbursement; therefore, all study diagnoses were current. The study coordinator examined a sample of each participant's 10 most recent available diagnoses. If a discrepancy existed among these diagnoses, the participant's case manager was contacted to evaluate the cause. Judgments as to diagnosis in cases of discrepancy were made on a case-by-case basis by the study coordinator, using information gathered from case managers, the frequency with which a specific diagnosis was given, and clinical judgment.

Participants with a DSM-IV diagnosis of schizophrenia, bipolar I disorder, major depressive disorder (including those with psychotic features), and schizoaffective disorder were retained in the current study sample, while those with other primary diagnoses were excluded due to small group sizes and/or poorly defined diagnostic categories (e.g., NOS diagnoses).

Of the 563 participants who completed the baseline interview, 58 individuals were excluded as they did not have a diagnosis of schizophrenia, bipolar I disorder, major depressive disorder, or schizoaffective disorder. Five individuals who did not respond to the interview question regarding whether or not they believed they had a mental disorder were excluded from analyses (3 in the major depression group, 1 in the schizophrenia group, and 1 in the bipolar group). Of the remaining 500 participants, 205 had diagnoses

of schizophrenia, 127 of major depressive disorder, 76 bipolar I disorder, and 92 of schizoaffective disorder.

Measures

Demographics, Clinical History, and Service Use (see Appendix B)

Information on variables such as gender, date of birth, marital status, and highest education level completed was collected in the demographic subsection of the baseline interview.

The clinical history subsection was included on both the baseline and 6-month follow-up interviews. Questions cover aspects of clinical history relating to emotional or psychiatric problems such the onset of psychiatric problems, number of hospitalizations, hospitalizations in the past year, and substance abuse history. Responses to these sections of the interviews were used for descriptive purposes. One question ("Do you currently have an emotional or psychiatric problem?", to which participants respond either yes or no) was used to classify participants as acknowledging or as denying their mental disorder.

The service use subsection covers aspects of recent (i.e., in the 3 months prior to interview) use of services to treat or assess a psychiatric or emotional problem. Questions cover aspects of service use, such as prescription of medication, hospitalization, emergency room visits, use of crisis services, individual or group therapy, and assessment for services.

Suicide Questions (see Appendix B)

The baseline interview includes ten questions regarding suicidal ideation and attempts. Several of questions were developed by the Centers for Disease Control (CDC;

Youth Risk Behavior Survey, 1998). These questions inquire as to whether during the past 12-months participants had 1) seriously considered attempting suicide, 2) made a plan about how they would attempt suicide, and 3) if they had made an attempt, whether this had resulted in injury, poisoning, or overdose that required medical intervention. A question concerning the number of attempts made in past 12 months is also included.

In the current study, the four questions concerning suicidal ideation or behavior in the past 12-months were summed, with suicide attempts dichotomized as having occurred or not, to form a variable that will be referred to as 12-month suicidality. One-week test-retest reliability of 12-month suicidality was .63, based on reliability data collected during the original study.

Two open-response questions, developed for the study, ask how many times the individual has attempted suicide in his or her life and within the past 12 months. The latter question is essentially a repetition of the CDC question previously described regarding how many suicide attempts had been made in the past 12 months. The responses to both questions concerning number of attempts in the past 12 months were compared, revealing a correlation of .94 in the current sample. One-week test-retest reliability for each of these items was also examined. The test-retest for number of attempts was .95 and 1.0 for the second. One-week test-retest reliability for whether or not the participant had ever attempted suicide was 1.0, and .97 for the number of suicide attempts ever made.

Three questions regarding the three months prior to the interview were developed for the original study: whether or not the participants had thought of harming themselves or committing suicide, whether they had talked about or threatened to harm themselves or

commit suicide, and whether they had attempted suicide. These questions were summed for the current study, and will be referred to as 3-month suicidality. One-week test-retest reliability for the sum of 3-month suicidality questions was .58.

The 6-month follow-up interview included a question regarding number of suicide attempts in the previous 6 months and the 3-month suicidality questions detailed above.

Attributions (see Appendix B)

The Consumer Attribution Interview Schedule (CAIS) was developed for the original study to investigate participants' attributions regarding the nature, cause, and best form of treatment for their mental disorder (Nathan et al., 2001). The interview consists of six sections. The first section asks the following (with responses recorded verbatim): "What kind of mental health problems have you had in the past three months? Mental health problems means those problems having to do with things like the way you feel, think, problems with your family and friends, and also problems with yourself." In the next section, participants are asked whether they strongly agree (*1*), agree (*2*), disagree (*3*), or strongly disagree (*4*) with statements regarding having problems with their thinking, feelings, senses (e.g., vision and hearing), relationships with others, family relationships, and/or religious or spiritual concerns. Items are scaled such that lower levels of endorsement correspond to higher scores and higher endorsement to lower scores.

The second section assesses participants' causal attributions for their mental disorder. Participants are first asked an open-ended question regarding their opinion of the cause for their mental health problems. Participants are then asked to endorse, on a

four-point scale from "strongly agree" to "strongly disagree", whether their problems are caused by a number of factors, such as heredity or past experiences.

The third section assesses participants' opinions about the best treatment for their mental health problems. Participants are again first asked an open-ended question and then asked to rate on a four-point scale from "strongly agree" to "strongly disagree" the best treatment for their mental health problems.

These three sections are then repeated with participants asked how their doctor would respond to the closed and open-ended questions regarding the nature, cause, and treatment of participant's condition; for example, "What kind of mental health problems does your doctor think you have?"

Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983; see Appendix B)

The BSI is a 53-item self-report inventory designed to measure the psychological symptom patterns of psychiatric and non-psychiatric respondents. Each item on the BSI is rated on a five-point scale of distress, ranging from 0 (*not at all*) to 4 (*extremely*), over the past seven days. The BSI is scored in terms of nine symptom dimensions and three global indices. The symptom dimensions are Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. Four items are not subsumed under any of the primary symptom dimensions, but contribute to global scores.

The depression subscale of the BSI will be used to compare groups in the current study. Internal consistency (coefficient alpha) for the Depression subscale has been found to be .85 with psychiatric outpatients (Derogatis, 1993). One-week test-retest reliability for the Depression subscale was .81 in the current study.

A study comparing the Brief Psychiatric Rating Scale (BPRS) with the BSI found that while most of the subscales of the BSI did not correlate significantly with the equivalent subscales of the BPRS, the depression subscales were significantly correlated at .69 (Morlan & Tan, 1998). In an inpatient sample of individuals with schizophrenia, bipolar disorder, and major depressive disorder, correlations between the Beck Depression Inventory-II and the Depression subscale of the BSI were between .79 and .89 at admission and between .65 and .88 at discharge (Gonzalez & Averill, 2004).

Measures of Insight

As previously noted, one question from the clinical interview ("Do you currently have an emotional or psychiatric problem?") was used to classify participants as acknowledging or denying their mental disorder. CAIS items regarding participants' beliefs about having problems with their thinking, feelings, and/or senses (e.g., vision and hearing) were explored as alternative or adjunctive measures of insight.

Intercorrelations between the following items were examined for the sample as a whole and by diagnostic group: (a) current acknowledgment of mental disorder; (b) past acknowledgement; (c) each of the individual items on thinking, feeling, and senses; (d) sum of thinking and feeling items; (e) sum of thinking, feeling, and senses items; (f) the most endorsed item of either thinking or feeling items; and (g) most endorsed of thinking, feeling, and senses items (see Tables 1-5). It should be noted that the CAIS is scaled so that higher scores correspond to lower levels of endorsement of having problems in a given area, while the acknowledgement variable is scaled in the opposite direction. The sum of the thinking and feeling items showed the highest correlation with current acknowledgement of mental disorder ($r = -.33$), although this relationship was small.

This suggests that while there is some relationship between these variables, they are primarily measuring different aspects of insight regarding mental health concerns.

Coefficient alpha for the acknowledgement item and the sum of belief about problem with thoughts/feelings was .76. This alpha coefficient was reduced when the question regarding participants' belief regarding having problems with their senses (e.g., hearing or vision) was included. It is possible that some individuals in the sample did not interpret this item to represent whether she or he has auditory or visual hallucinations, as intended, but rather whether she or he has difficulties with visual or auditory acuity. One-week test-retest for the sum of belief about problem thoughts/feelings was .71. In regards to one-week test-retest for the acknowledgement of mental disorder item, 30 of the 32 participants rated their acknowledgement or denial the same.

The sum of items regarding participants' belief about problems with thoughts/feelings was used as an alternative and an adjunctive measure to the acknowledgement of disorder question from the clinical interview during multivariate regression analyses of lifetime suicide attempts and suicidality. This score was also utilized to compare those who attempted suicide to those who did not in the 12 months prior to baseline interview and over the course of the six months follow-up.

Analyses

Data analyses comparing those who deny versus acknowledge were conducted using a 2×2 contingency table analyses for dichotomous (yes or no) suicidality questions for each diagnostic category (see below). Each suicidality question was examined in these analyses. The Pearson chi-square (χ^2) stastical test was used to test the hypothesis that row and column variables were independent. The chi-square test was not used when

the expected frequency of a given cell was less than 5, as this violates one of the test's assumptions. In these circumstances the Fisher's Exact Test (FET) was used to test the hypothesis of independence among variables.

Those who attempted suicide in the 12 months prior to the baseline interview, as well as those who attempted during the follow-up period, were compared to those who did not with reference to their belief about problem thoughts/feelings. This was done using a 2 (suicide attempt) × 4 (diagnosis) analyses of variance (ANOVAs). Main effects for having made a suicide attempt, diagnostic group (schizophrenia, major depression, bipolar, and schizoaffective disorders), and a possible interaction between these variables were tested.

For contingency table analyses, bipolar and major depressive disorder groups were combined, as each of these groups had small sample sizes and are diagnostically related. In order to assess whether bipolar and major depression groups differed for either of the variables under investigation during contingency table analyses, loglinear analyses were conducted. The hypothesis under investigation in these analyses was that diagnosis (bipolar versus major depression) was independent of both acknowledgement and suicidality variables. This was assessed for each suicidality question. A significant relationship was found between diagnostic group and either insight or lifetime suicide attempt ($\chi^2(3) = 8.25, p = .042$). For this variable bipolar and major depression groups were considered separately, as well as combined. For all other suicidality questions mood disorder groups were combined.

While the schizoaffective disorder group also had a limited sample size, it was not deemed appropriate to combine this sample with either the mood disorder or

schizophrenia groups. Based on DSM-IV criteria, individuals diagnosed as schizoaffective disorder manifest both significant psychotic symptoms, as well as significant mood disorder symptoms. The expected effect size for contingency table analyses of association for suicide questions in the current study was between a "small" and a "medium" effect, as defined by Cohen (1988). The power for the schizoaffective group was quite limited, based on an expected small/medium effect size. For the schizoaffective group, given a significant relationship between the two variables being compared, there was only an approximately 50% chance of yielding statistically significant results.

Multiple regression analyses were conducted to examine the relationship between insight measures and lifetime number of suicide attempts, 12-month suicidality, 3-month suicidality, and follow-up 3-month suicidality. Tests were then conducted to probe for possible moderating effects associated with diagnosis (schizophrenia, bipolar, major depression, schizoaffective) for both acknowledgment of mental disorder and belief about problems with thoughts/feelings. In these analyses, the slope of the regression line for a given diagnostic group was compared to the slope of the line for the combined remaining diagnoses. For example, for the relationship between 12-month suicidality and acknowledgement of mental disorder for the schizophrenia group was compared to that of the remaining combined sample (bipolar, major depression, schizoaffective). When significant differences were found for a given diagnostic group then a test of the simple slope of the variables in question was conducted for this group.

Data Screening

Prior to analyses, variables were examined through various SPSS programs for missing values and assumptions of multivariate analysis. Several cases of single missing values for depression and CAIS variables were replaced by the mean for the individual's group on the given variable. In ten cases, missing depression scores were replaced by the mean for the individual's awareness and diagnostic group. Similarly, in nine cases missing scores on belief about problem thoughts or feelings items were replaced by the mean prior to calculating their sum.

One variable, number of lifetime suicide attempts, contained a number of outlying cases (see Appendix A for a detailed account of outliers). In order to deal with outlying cases two variables were formed. In the first, outlying cases were deleted. In the second, outlying cases were modified. For individuals considered properly part of the population from which the study intended to sample, the technique of changing outlying scores to less extreme scores, rather than deleting them, has the advantage of protecting against loss of generalizability of findings (Tabachnick & Fidell, 1996). Scores identified as outliers were changed to be less divergent, thereby lessening the impact of outliers in the analyses while maintaining the ranking of the individuals as the highest scoring in their respective groups (Tabachnick & Fidell, 1996). The variable with changed scores was used to check the results found using the variable with outliers deleted. This allowed an examination of the effect of deleting outlying scores on the results, while also allowing use of a variable that was less influenced by outliers and with improved normality in regards to the distribution of scores.

Several variables had quite positively skewed distributions; therefore, logarithmic transformations were applied. These variables included lifetime number of suicide attempts, 12-month suicidality, 3-month suicidality at baseline, and follow-up 3-month suicidality. When examined by group (awareness and diagnostic), suicidality variables remained highly skewed despite transformation. For most diagnostic and awareness groups these variables had poisson rather than normal distributions. When the distributions of variables were examined without grouping (by diagnosis or awareness) their distributions were approximately normal. For this reason, multiple regression analyses were employed for these variables rather than analysis of variance, which requires grouping of independent variables.

CHAPTER 3

Results

Attrition: 6-Month Dataset Comparisons with Baseline

Of the 500 individuals in the baseline sample, 6-month follow-up data revealed 15% attrition, leaving 423 individuals in the follow-up dataset (see Table 6 for the number of individuals by acknowledgment groups in each diagnostic group).

Contingency table analysis revealed no significant relationship between diagnostic group and attrition. A significant relationship was detected between acknowledgment group and attrition for the schizoaffective group (FET, $p = .037$), but not other diagnostic groups. In the schizoaffective disorder group, more individuals who denied having a mental disorder at baseline failed to complete the 6-month interview (31.6%) compared with individuals who acknowledged their disorder (11.0%). For all diagnostic groups, no significant relationship was found between the number of individuals who did not complete the 6-month interview and gender.

2 (attrition) × 4 (diagnosis) ANOVAs were conducted comparing depression, age, and ratings of beliefs about problems with thoughts/feelings between individuals who completed the 6-month interview and those who did not. No difference was detected between groups for depression ($F(1, 492) = .18, p = .669$), age ($F(1, 492) = 1.66, p = .198$), or belief about problems with thoughts/feelings ($F(1, 492) = .06, p = .810$). No interactions were revealed between attrition and diagnosis for any of these variables.

Demographics

The mean age of study participants was 42.4 years (SD = 10.9). A 2 (acknowledgment) × 4 (diagnosis) ANOVA was conducted to investigate possible

differences in age between acknowledgment groups and diagnostic groups. Acknowledgement groups did not differ significantly by age ($F(1, 492) = 1.35, p = .243$), while diagnostic groups were found to differ significantly ($F(3, 492) = 3.31, p = .020$). Subsequent pairwise contrasts of diagnostic groups revealed small but statistically significant ($p < .05$) group differences. Schizophrenia and schizoaffective groups were both significantly younger than major depression and bipolar groups. Mean age for participants by diagnosis was: 41.57 (SD = 9.91) for schizophrenia, 40.69 (SD = 9.15) for schizoaffective, 44.46 (SD = 12.05) for major depression, and 43.38 (SD = 12.95) for bipolar.

The proportions of men and women in the sample were approximately equal (50.4% and 49.6%). Contingency table analyses were conducted to investigate possible sex differences in acknowledgment of mental disorder groups. Diagnostic groups considered together revealed a significant relationship between acknowledgment group and gender ($\chi^2(1) = 6.20, p = .013$), with more women denying having a mental disorder than men (29.4% compared with 19.8%). Subsequent analyses examining diagnostic groups separately on these variables revealed a significant relationship between gender and denial of mental disorder only for the schizoaffective disorder group ($\chi^2(1) = 4.9, p = .027$; $r_\Phi = -.23$), with more women denying having a mental disorder (28.9%) than men (10%). For the other three diagnostic groups considered together, the proportion of individuals denying their mental disorder was 29.6% for women and 21.6% for men.

The majority of interviewees were single, divorced, or separated (88.2%) and had completed high school (85.4%; see Table 7 for a detailed breakdown of demographic variables). Approximately 20% of participants lived in some form of supervised housing

(e.g., nursing care, group homes), while the majority of participants (76.6%) were living in independent housing. Based on self-reported ethnicity the sample was approximately 37% European-American, 23% Hawaiian/part-Hawaiian, 22% Asian-American, and 13% mixed ethnicity (see Table 1 for a more specific breakdown).

The majority of participants had at least one past psychiatric hospitalization, with only 16.4% reporting that they had never been hospitalized for a psychiatric difficulty (see Table 8 for a detailed breakdown of lifetime and 12 month psychiatric hospitalizations). Acknowledgment groups were compared for differences in recent psychological or psychiatric service usage (see Table 9 for percentages by group and chi-square statistics). Based on contingency tables analyses, no relationships were found between acknowledgment groups and having in the past three months received individual counseling or therapy, having been prescribed medication for an emotional or psychiatric problem, or having been assessed or evaluated for an emotional or psychiatric problem for any of the diagnostic groups. For schizophrenia and mood disorder groups, acknowledgment was not related to whether participants had been hospitalized in a psychiatric facility in the 12 months prior to the baseline interview. For the schizoaffective group, there was a significant relationship between acknowledgment and having been hospitalized in the past 12 months, as well as between acknowledgment and having received a psychological or psychiatric evaluation in past three months.

The majority of participants were receiving either Social Security Income (SSI) and/or Social Security Disability Insurance (SSDI) at the time of the study, with only 19.4% of participants reporting that they were beneficiaries of neither. 52.6% of participants reported receiving SSI and 37.6% reported receiving SSDI. Approximately

77% of participants reported receiving state or county social welfare benefits (e.g., public aid, food stamps). Only 14% of the sample reported some form of paid employment. The participants' mean income from all sources in the month prior to the baseline interview was $669.21 (SD = $290.97).

Depression

In order to investigate the relationship between insight and depression, a standard multiple regression was conducted with Depression subscale scores of the BSI as the dependent variable and the belief about problem thoughts/feelings and acknowledgment as independent variables. Intercorrelations, means, and standard deviations of dependent and independent variables for this analysis, as well as for other regression analyses presented below, are summarized in Table 10. Insight variables accounted for a significant portion of the variance in depression ($F(2, 497) = 86.21, p < .001$). Together these variables accounted for 26% of the variance in depression ratings, with belief about problem thoughts/feeling ($t(497) = -10.51, p < .001$) and acknowledgment ($t(497) = 3.97, p < .001$) both accounting for significant portions of the variance (see Table 11).

Analyses probing for the possible moderating effect of diagnosis (schizophrenia, bipolar, major depression, schizoaffective disorder) on the relationships between either of the independent variables (acknowledgement or belief about problem thoughts/feelings) and depression were conducted. These analyses revealed one significant interaction between acknowledgement and schizophrenia diagnosis ($t(497) = -2.29, p = .022$). In the schizophrenia group an examination of the simple slope revealed a significant relationship between these variables ($t(497) = 3.06, p = .002$); however, this relationship was less than that found for the rest of the sample, accounting for the interaction.

Lifetime Suicidality

For the sample as a whole, lifetime history of attempting suicide was quite common, with 58.2% of the sample reporting at least one attempt. Contingency table analysis of lifetime attempted suicide and acknowledgement (see Table 12 for prevalence of lifetime suicide attempts) revealed a significant relationship between these variables for the schizophrenia group, but not the schizoaffective disorder group. Considering major depressive and bipolar disorders separately (see Table 13) revealed a significant relationship between these variables for the major depression group. For the bipolar disorder group this relationship neared significance. An examination of the phi coefficient (a measure of strength of association between dichotomous variables) between these variables for each group revealed the same strength of association for the bipolar disorder group ($r_\Phi = .22$) and the major depression group ($r_\Phi = .22$). This suggests that the failure to reach significance for the bipolar group was related to the small sample size for this group (n = 76) compared to that of the major depression group (n = 127). The association between these variables was then examined for the bipolar and major depression groups combined, indicating a significant relationship between these variables.

A standard multiple regression was conducted with lifetime suicide attempts as a dependent variable and belief about problem thoughts/feelings and acknowledgment as independent variables. These variables accounted for a significant portion of the variance of lifetime suicide attempts ($F(2, 474) = 16.13, p < .001$). Together these variables accounted for 7% of the variance in lifetime suicide attempts, with both belief about problem thoughts/feelings ($t(474) = -3.00, p = .003$) and acknowledgment ($t(474) = 3.57,$

$p < .001$) accounting for significant portions of the variance (see Table 14). The previous multiple regression repeated with the schizoaffective disorder group removed from the sample revealed that the two insight measures together accounted for 8% of the variance in lifetime suicide attempts; acknowledgment uniquely accounted for approximately 5% of the variance, and belief about problem thoughts/feelings uniquely accounted for approximately 1% of the variance in lifetime suicide attempts. The same pattern of significance was also found when outliers for the lifetime suicide attempts variable were changed rather than deleted (see Table 15).

Analyses probing for possible moderating effects of diagnosis on the relationships between either of the independent variables and lifetime suicide attempts revealed only one significant interaction between schizoaffective disorder and acknowledgement ($t(474) = -1.99, p = .046$). An examination of the simple slope of the relationship between lifetime suicide and acknowledgment indicated no significant relationship between these variables in the schizoaffective disorders group ($t(474) = .085, p = .945$), accounting for the interaction previously noted.

Odds Ratio and Relative Risk

Relative risk estimates the likelihood of an event among patients who have a given risk factor, compared to persons without this risk factor. An estimate of relative risk of having a suicide attempt is calculated by dividing the probability of a suicide attempt in the group with a given risk factor (in this instance acknowledgment of mental disorder) by the probability of a suicide attempt in the group without the risk factor. The odds ratio (OR) provides a ratio of the odds of a given occurrence (suicide attempts), by dividing odds of an occurrence in a group with a given risk factor by the odds of an

occurrence in the group without the given risk factor. The relative risk of having at least one lifetime suicide attempt in the schizophrenia group for those who acknowledge a current mental disorder was 1.79 compared to those who deny having a mental disorder (OR = 2.75). The relative risk for the major depression group was 1.43 (OR = 2.85), for the bipolar group 1.52 (OR = 3.42), and for the schizoaffective group 1.45 (OR = 2.42).

12-Month Suicide Attempts and Suicidality

During the 12 months prior to the baseline interview, 11.2% of participants reported a suicide attempt. For the mood disorders group, contingency table analyses (see Table 16) revealed significant relationships between acknowledgment and seriously considered suicide, making a plan for a suicide attempt, and attempting suicide; while in the schizophrenia group these relationships were not significant. Having made a suicide attempt in the past 12 months that resulted in an injury was significantly related to acknowledgment for the schizophrenia group, but not for the mood disorders group. In the schizoaffective disorder group, none of the 12-month suicidality items were significantly related to acknowledgment.

A 2 × 4 ANOVA revealed a small, but statistically significant, difference in belief about problem thoughts/feelings between individuals who attempted suicide in the year prior to the baseline interview compared to those who did not ($F(1, 491) = 23.17$, $p < .001$, $\eta^2 = .05$). No significant main effect was found for diagnostic group ($F(3, 491) = 1.21$, $p = .306$, $\eta^2 = .01$), nor was an interaction present between suicide attempt and diagnostic group ($F(3, 491) = 1.11$, $p = .346$, $\eta^2 = .01$). Individuals who attempted suicide in the year prior to the baseline interview had significantly greater belief that they have problems with their thoughts/feelings than those who did not.

A regression analysis revealed that insight variables were significantly related to 12-month suicidality ($F(2, 495) = 33.41, p < .001$), accounting for 12% of the variance. Both belief about problem thoughts/feelings ($t(495) = -6.31, p < .001$) and acknowledgment ($t(495) = 2.84, p = .005$) accounted for significant portions of the variance in 12-month suicidality (see Table 17).

Analyses probing for possible moderating effects of diagnosis on the relationships between either of the independent variables and 12-month suicidality were conducted. These analyses revealed significant interactions between acknowledgement and diagnosis for two diagnostic groups, schizophrenia ($t(495) = -2.26, p = .024$) and major depression ($t(495) = 2.16, p = .031$). In the major depression group there was a stronger relationship between acknowledgment and 12-month suicidality than in the rest of the sample. In the schizophrenia group, no significant relationship was found between these variables ($t(495) = 1.53, p = .127$). An interaction between belief about problem thoughts/feelings and schizophrenia diagnosis ($t(495) = -4.97, p < .001$) was found. For this group there was a significant ($t(495) = -2.14, p = .033$), although comparatively smaller, relationship between these variables. Repeating the regression with the schizophrenia group removed from the sample revealed that the two insight variables accounted for 16% of the variance in 12-month suicidality; acknowledgment uniquely accounted for approximately 1% of variance, and belief about problem thoughts/feelings accounting for approximately 10% of the variance.

Odds Ratio and Relative Risk

The relative risk of having at least one suicide attempt in the 12 months prior to the baseline interview in the schizophrenia group for those who acknowledge a current

mental disorder was 1.86 compared to those who deny having a mental disorder (OR = 1.94). While these estimates of risk could not be calculated for the bipolar group, as none in the denial group attempted suicide, the relative risk for the major depression group was 5.66 (OR = 6.96). For the mood disorders group (major depression and bipolar groups combined) the relative risk was 6.72 (OR = 7.95). For the schizoaffective group the relative risk was 1.30 (OR = 1.35).

3-Month Suicide Attempts and Suicidality

In the sample as a whole, 7.3% of participants reported a suicide attempt in the three months prior to the interview. Contingency table analyses revealed that for the mood disorders group there were significant relationships between acknowledgment and thoughts of committing suicide and having talked about or threatened suicide, while for the schizophrenia group neither of these relationships was significant (see Table 18). Having attempted suicide was significantly related to acknowledgment for the schizophrenia group but not for the mood disorders group. For the schizoaffective disorder group, no significant relationships were found for any of the 3-month suicidality items.

A standard multiple regression was conducted with 3-month suicidality as a dependent variable and insight measures as independent variables. These variables accounted for a significant portion of the variance in 3-month suicidality ($F(2, 497) = 34.42, p < .001$). Together these variables accounted for 12% of the variance in 3-month suicidality. Both belief about problem thoughts/feelings ($t(497) = -6.72, p < .001$) and acknowledgment ($t(497) = 2.38, p = .018$) accounted for significant portions of the variance in 3-month suicidality (see Table 19).

Analyses probing for the possible moderating effect of diagnosis on the relationships between either of the independent variables and 3-month suicidality revealed only one significant interaction between schizophrenia diagnosis and belief about problem thoughts/feelings ($t(497) = 2.91, p = .004$). An examination of the schizophrenia group's simple slope of the relationship between 3-month suicidality and belief about problem thoughts/feelings revealed a significant, although comparatively smaller, relationship between these variables for this group ($t(497) = -2.41, p = .016$).

Odds Ratio and Relative Risk

In the sample as a whole, the relative risk of at least one suicide attempt in the 3 months prior to the baseline interview for those who acknowledge their disorder was 5.59 compared to those who deny having a mental disorder (OR = 6.05). For this time period there were only two suicide attempts among those who denied their disorder, with both in the major depression group. The relative risk for the major depression group was 1.39 (OR = 1.44). These estimates of risk could not be calculated for other groups separately, as none in the denial groups attempted suicide. Of those who acknowledged their mental disorder, 7.1% in the schizophrenia group, 8.1% in the bipolar group, and 11.4% in the schizoaffective group made a suicide attempt during the 3 months prior to the baseline interview.

Stability of Insight From Baseline to 6-Month Follow-up

Comparing baseline acknowledgement or denial of mental disorder to 6-month ratings revealed that 76.1% of individuals did not change their response (see Table 20 for a detailed breakdown). Those who acknowledged their disorder initially tended to continue acknowledging; however, those who denied their disorder were more likely to

change their response. The CAIS was not included in the 6-month follow-up interview; therefore, stability of the belief about problem thoughts/feelings over the six month time period could not be examined.

Suicidality Over 6-Month Follow-up Time Period

During the 6 month follow-up period 6.9% of participants reported a suicide attempt. Analyses were conducted in order to assess prospectively the relationship between acknowledgment at baseline and suicidality 6 months later. For the sample as a whole, contingency table analysis revealed no significant relationship between having made a suicide attempt during the 6-month follow-up period and acknowledgment at baseline ($\chi^2(1) = 3.47, p = .063$). No significant relationship was found between these variables in any diagnostic group when considered separately (see Table 21). A 2 × 4 ANOVA revealed a small, but statistically significant, difference in belief about problem thoughts/feelings between individuals who attempted suicide during the six month follow-up period and those who did not ($F(1, 413) = 11.87, p = .001, \eta^2 = .03$). Individuals who attempted suicide during the six-month follow-up period had significantly greater belief about having problem thoughts/feelings than did individuals who did not. No significant main effect was found for diagnostic group ($F(3, 413) = .87$, $p = .454, \eta^2 = .01$), nor was an interaction revealed between suicide attempt and diagnostic group ($F(3, 413) = .95, p = .418, \eta^2 = .01$).

Data analyses comparing those who deny versus acknowledge their disorder in each diagnostic group were conducted using a contingency table analysis for dichotomous 3-month suicidality questions (see Table 22). In the schizophrenia and mood disorders groups, significant relationships were revealed between

acknowledgement and both thoughts and threats of committing suicide. For the schizoaffective disorder group, the relationships between acknowledgement and either thoughts or threats of suicide were not found to be statistically significant. No significant relationships were revealed between acknowledgement and attempting suicide for any diagnostic group.

A standard multiple regression was conducted with follow-up 3-month suicidality as a dependent variable and insight measures as independent variables. These variables accounted for a significant portion of the variance in follow-up 3-month suicidality ($F(2, 417) = 25.78, p < .001$). Together these variables accounted for 11% of the variance, with both belief about problem thoughts/feelings ($t(417) = -4.89, p < .001$) and acknowledgment ($t(417) = 3.35, p = .001$) accounting for significant portions of the variance (see Table 22).

Analyses probing for the possible moderating effect of diagnosis on the relationships between either of the independent variables and follow-up 3-month suicidality were conducted. These analyses revealed significant interactions between belief about problem thoughts/feelings and schizophrenia ($t(417) = -2.52, p = .012$) and major depression ($t(417) = -2.28, p = .023$) diagnoses. An examination of the simple slopes of the relationships between variables for both groups revealed significant, and comparatively greater, relationships between these variables in the schizophrenia ($t(417) = -3.57, p < .001$) and major depression groups ($t(417) = -2.08, p = .001$).

Odds Ratio and Relative Risk

The relative risk of having at least one suicide during the follow-up period for those who acknowledged a current mental disorder was 2.83 compared to those who

denied having a mental disorder (OR = 3.01). These estimates of risk could not be calculated for the major depression and bipolar groups, as no participants in the denial group for either disorder attempted suicide. In the major depression group 11.8% of those who acknowledged their mental disorder at baseline made a suicide attempt. In the bipolar group 4.0% of those in the insight group made an attempt. The relative risk for the schizophrenia group was 1.90 (OR = 1.97), with 7.3% of individuals in the acknowledgement group attempting suicide compared to 3.8% of those in the denial group. In the schizoaffective group the relative risk was 1.40 (OR = 1.45) with 10.8% of individuals in the acknowledgement group attempting suicide compared to 7.7% of those in the denial group.

CHAPTER 4

Discussion

Depression and Insight

As hypothesized, greater levels of depression were associated with insight measures for all diagnostic groups. This relationship is consonant with that found in a number of studies utilizing various measures of depression and insight (Amador et al., 1993; Dixon et al., 1998; Kemp & Lambert, 1995; Peralta & Cuesta, 1994; Pyne et al., 2001; Schwartz & Peterson, 1999; Schwartz, 2001). As hypothesized, participants with higher ratings of belief about problems with their thoughts/feelings were more likely to have made a suicide attempt in the year prior to the baseline interview and over the 6-month follow-up.

Suicidality and Insight

In the current sample, suicide attempts and suicidal ideation were quite common, both among individuals that acknowledged their mental disorder and among those who denied it. The prevalence of suicide attempts and ideation in the current sample is consonant with that reported in a study of a similar population of adults with serious mental illness (Asnis et al., 1993). Prevalence of reported suicide attempts and suicidal ideation in this patient population is alarming, and was associated with insight. Overall, as hypothesized, those who acknowledged their mental disorder were more likely to have had suicide attempts and suicidal ideation; however, these results varied by diagnostic group.

In the schizophrenia and mood disorders groups, acknowledgment of mental disorder was associated with having made a lifetime suicide attempt; and both insight

measures were associated with a greater number of lifetime suicide attempts. These relationships were not found to be significant for the schizoaffective disorder group.

Contrary to hypothesis, suicidal behavior and ideation in the year prior to the baseline interview were not significantly related to acknowledgment of mental disorder in the schizophrenia or schizoaffective disorder groups; however, these variables were related in the mood disorders group. While statistically significant results in the schizophrenia group were not found between having made a suicide attempt in the past 12 months and acknowledgment of mental disorder, the relative risk of such an attempt was almost twice that of those who denied having a mental disorder. Those who did attempt suicide during this time period were also found to have higher ratings of belief about having problems with their thoughts/feelings. In the three months prior to the baseline interview there was a significant relationship between acknowledgment of mental disorder and having attempted suicide in the schizophrenia group, but not for other groups. In the schizophrenia group, however, there was no significant relationship between acknowledgement of mental disorder and reported thoughts of suicide, or having talked about or threatened to commit suicide in the three months prior to the baseline interview. This is a curious finding, given that one would expect that if having attempted suicide were related to acknowledgement, thoughts of committing suicide would be as well.

One possible explanation for this finding may be that in the current sample individuals with schizophrenia did not plan their attempts, but instead acted impulsively. An examination of individuals who reported having made a suicide attempt revealed that 2 out of the 10 individuals who did attempt suicide during this three month period did not

report having had thoughts of committing suicide. Another possible explanation is that self-reported thoughts over this three month time period may not have been highly accurate or reliable. This is particularly likely given low test-retest reliability found for the 3-month suicidality items in the current sample. Possible difficulties associated with measurement of past thoughts is also suggested by the finding that when these questions were combined, increasing their reliability, there was a significant relationship between acknowledgement of mental disorder and 3-month suicidality, as well as a significant relationship to participants' belief about problems with their thoughts/feelings for all diagnostic groups.

When the relationship between acknowledgement and suicidality was examined prospectively at six-month follow-up, significant relationships were found for the schizophrenia and mood disorders groups. In these groups, more individuals who acknowledged their mental disorder had thoughts about committing suicide, and talked about or threatened to commit suicide. These relationships were not significant for the schizoaffective group. No significant relationship was found between having attempted suicide in the three months prior to the follow-up interview and acknowledgement for any group. This is curious, as the schizophrenia group had shown a significant relationship between these variables during baseline. In the schizophrenia group the percentage reporting a suicide attempt in the three months prior to interview increased slightly at follow-up, from 4.9% at baseline to 6.3% at follow-up. Therefore a decrease in this already rare behavior does not explain the lack of significance at follow-up. Additionally, participants changing from acknowledgers to deniers (or visa versa) over the follow-up did not affect the results found, as none of the individuals who changed

their acknowledgement ratings had a suicide attempt during the time period in question. It appears that the relationship between acknowledgement and suicide attempts relating to a three month time period was not robust. This is not surprising given the rarity of suicide attempts, even in the current sample, over such a short time period.

When follow-up three-month suicidality questions were examined together, a significant relationship was found between suicidality and both measures of insight. Multivariate analyses of retrospective ratings of suicidality with insight measures at baseline revealed significant relationships between these variables. Prospective evaluation of the relationship between insight measures and suicidality at follow-up also revealed a significant relationship between these variables for all diagnostic groups.

Schizoaffective Disorders Group

In the schizoaffective disorder group contingency table analyses had limited power. Not surprisingly, these analyses failed to reached significance. Limited conclusions can be drawn from these findings given the limited power for this sample. Multivariate analyses of study variables, however, provided a more powerful measure of study hypotheses. Contrary to hypothesis, as previously noted, multivariate analyses revealed no significant relationship between lifetime number of suicide attempts and acknowledgment of mental disorder in this diagnostic group. A significant positive relationship was revealed, however, between belief about problems with thoughts/feelings and lifetime number of suicide attempts. Significant relationships were also found between insight measures and 12-month, 3-month, and follow-up 3-month suicidality. Overall for the schizoaffective group, acknowledgement of mental disorder

appears to have been a less robust predictor of suicidality in comparison with the belief about problem thoughts/feelings item used to measure insight.

Limitations

One possible limitation of the current study is the sample, which is comprised of a specific population of individuals with schizophrenia, bipolar disorder, major depressive disorder, and schizoaffective disorder. All participants were impoverished and disabled by their disorders. The findings of the study are, therefore, generalizable only to similar samples. These socioeconomic and disability levels, however, are common among these patient populations, particularly for those who suffer from "chronic and persistent mental illness".

Another limitation of the current study is that participants' diagnoses were made by mental health providers in the community, rather than through structured clinical interview. Few studies have compared the reliability of diagnoses made by clinicians to that established through structured clinical interview in serious mental illness. In a study comparing diagnosis of newly enrolled adult psychiatric patients using the Structured Clinical Interview for DSM-IV (SCID) to that of psychiatric evaluations as usual, clinician-made diagnoses compared with SCID diagnoses had kappas of .60 for schizophrenia, .52 for bipolar disorder, and .56 for major depression (Kashner et al., 2003). Clinician diagnoses were based on first clinical interview rather than diagnoses established during ongoing care, as many of the diagnoses in the current sample would represent. Diagnoses based on ongoing provider care would likely be more valid than those established during a single interview. The diagnoses in the current sample, however, may not be as reliable or valid as would have been SCID established diagnoses.

The sample, therefore, likely had some mixing of diagnostic categories, for example an individual with bipolar disorder misidentified as having major depressive disorder.

Finally, the current study was based on a secondary analysis of existing data. While this provided the advantage of a large sample of patients, with follow-up data, it also required reliance on simple measures of insight rather than more frequently used and validated measures. In addition, some diagnostic samples were limited in size in the current study. Given the rarity of the events under investigation over a short period of time, particularly for suicide attempts, an even larger sample would have been desirable.

Implications

In summary, while results varied by diagnostic group, overall more individuals who acknowledged their mental disorder had made a suicide attempt at some time in their lives and had made a greater number of lifetime suicide attempts. Greater belief about having problems with thoughts/feelings was associated with having made a recent suicide attempt. In addition to retrospectives measures of suicidality being found related to insight, prospective measures of suicidality also revealed significant relationships to insight.

Of the two measures of insight, participants' belief about having problems with their thoughts/feelings was more closely associated with suicidality than the acknowledgement of mental disorder item. The latter variable was found to be associated with suicidality in many instances; however, this dichotomous single-item measure does not appear to provide an adequate measure of insight for the purposes of identifying those with past or future suicidality.

One previous study reported an association between insight and suicide attempts. In a mixed sample of schizophrenia and schizoaffective disorder, individuals with a prior history of suicide attempts possessed greater insight (Kim et al., 2003). The current study extends these results by exploring schizophrenia and schizoaffective disorder separately, as well the relationship between lifetime and recent suicide attempts in bipolar disorder and major depression. In addition, the current study measured both retrospective suicidal ideation and attempts in relation to current insight, as well as having prospective measurement of suicidality in relation to previously measured insight.

The current investigation, while consonant with previous finding and providing an extension of prior work in this area of study, does not address the issue of cause or directionality of the relationships found. While previous research has found elevated depression among individuals with higher levels of insight, no systematic studies have been completed which investigate the reasons for this association, or the directionality of the relationship between insight and depression. It has been suggested that having intact insight results in depression (Caldwell & Gottesman, 1990; Wahl, 1999). Given the often debilitating nature of serious mental illnesses, having intact insight may lead to depression or hopelessness about the future. Wahl (1999) found that 28% of patients interviewed complained of being treated as less competent by mental health professionals, and felt that they had been discouraged from setting high goals for themselves. Wahl interviewed individuals with serious mental illnesses, recording personal accounts that help to exemplify these types of interactions with mental health professional:

> 'Frequently psychologists and doctors [seem to believe that] all schizophrenics... aren't capable and cannot achieve a higher education.' Another noted: 'I've had case managers hint not to push for the highest accomplishment I can do.... Sometimes it would be nice if they would push for something more than just sitting in chairs all day.' Still another interviewee described how the doctor who first diagnosed her bipolar disorder told her that 'people with your problem will have a very low level type of life' (Wahl, 1999, p. 473).

Emotional reactions reported by patients in response to this and other types of stereotypes and stigma associated with their mental disorder included anger, hurt, sadness or depression, and discouragement (Wahl, 1999). While from a stress-diathesis perspective encouraging patients to limit possible stress-inducing activities may serve to decrease the probability of symptom exacerbation or the onset of an acute episode, it may also inadvertently lead patients to think that they should not expect much from themselves or from life. Such thoughts may foster hopelessness or helplessness in some, resulting in the relationship observed in the current investigation. Further research is needed to elucidate what role future expectations and stigma play in the relationship between depression and insight.

Further research is also needed to clarify the role of cognitive bias in those who deny their mental illness. For individuals with insight, it would be desirable to examine the apparent suspension of adaptive biases that preserve self-esteem, as the absence of protective bias may be associated with the depression observed in this group. Such research may also aid in understanding whether normative esteem-protecting cognitive bias plays a significant role in those who do not acknowledge aspects of their mental health condition.

With reference to insight, ignorance is not bliss, despite its relationship to depression and suicidality. This is because of the number, and seriousness, of negative outcome variables associated with denial of having a serious mental illness (e.g., involuntary hospitalization, relapse, homelessness). There are, in turn, many important clinical benefits associated with insight (e.g., reduced need for hospitalization, improved course of illness), despite the positive relationship found between having insight and suicide attempts. Currently there are a number of treatments aimed at increasing patients' knowledge and acknowledgment of their disorder. The aims of these treatments are to decrease symptoms and relapse, and avoid a need for hospitalization to address acute episodes of illness. Before firm conclusions can be drawn regarding directionality, further research is needed to investigate the relationship between insight and depression; however, this relationship is cause for concern, and perhaps caution as well in regard to increasing patients' insight regarding their disorder. Carroll et al. (1999) found that patients with schizophrenia who viewed a 15-minute educational video had improved insight and worsening of mood; in contrast, a recent study using cognitive behavioral therapy found that this form of treatment increased insight and decreased depression (Turkington et al., 2002). The findings of the latter study suggest that certain forms of treatment may be beneficial in improving insight, while resulting in a decrease in depression, rather than an increase. This provides hope that insight can be increased without inadvertently leading to negative effects.

Mental health professionals often utilize insight as an indicator of prognosis, because of its association with treatment compliance. The findings of the current study suggest that having intact or good insight may be an indicator for negative mood and

suicidal ideation among the seriously mentally ill. While there is a greater likelihood that depression and suicidality are regularly assessed in mood disorder populations, in schizophrenia this is less likely because of the apparent masking of depression by negative and positive symptoms. This population is, however, at substantial risk and experience considerable emotional suffering. Common practice in psychiatry and other mental health professions should be modified to acknowledge and address this problem. Although the directionality of the relationship between insight and depression has yet to be established, current treatment should be aimed at the *prevention* of depression among the seriously mentally ill. Further work in this area using qualitative, as well as longitudinal quantitative methods, may serve to elucidate causes for depression in this population and provide a stronger basis for social and clinical interventions.

APPENDIX A: OUTLIERS

For lifetime number of suicide attempts, a number of cases were identified as univariate outliers in their respective diagnostic and acknowledgment groups. Outliers were defined as cases with standard scores in excess of 3.29 ($p < .001$) in their respective group (Tabachnick & Fidell, 1996). Deleting outlying cases revealed more outlying cases when the variable was reexamined; when these cases were deleted, further outliers were revealed. This has been described in statistical texts as outliers "hiding" behind other outliers, as when an extreme outlier is deleted the data become more consistent and other cases are then revealed as being extreme in the new distribution (Tabachnick & Fidell, 1996). As suggested by Tabachnick and Fidel (1996), in such circumstances an alternative means of identifying outliers may be employed to solve this problem. Outliers were identified as cases with scores that were disconnected from the rest of the group distribution and with highly divergent standard scores (in excess of 3.29 standard deviations). This examination revealed 17 outliers in the total sample for lifetime number of suicide attempts, only two of whom were in the denial group. In the schizophrenia group 5 cases were identified as outliers; all were in the acknowledgement group. For this group, cases with 15 or more suicide attempts were considered outliers. In the major depression group, 7 cases were identified as outliers, with one case belonging to the denial group. Of the cases with acknowledgment in the major depression group those with 12 or more suicide attempts were considered outliers. In the denial group one individual had a score of 10, compared with the rest of the sample of individuals in the major depression denial group, whose scores ranged between 0 and 4. There were two outliers in the bipolar group, both of whom were in the acknowledgment group. Cases

with scores of 12 or more were outliers in the bipolar group. There were 2 outlying cases in the acknowledgment schizoaffective group, and one in the denial group. In the acknowledgment group, cases with scores of 15 or higher were identified as outliers. In the denial group there was one individual with a score of 74, compared with the rest of the sample, which had scores ranging between 0 and 12.

APPENDIX B: SURVEY QUESTIONS

Demographics, Service Use, and Clinical History

DEMOGRAPHICS

M1,N1 1. *Sex [observed]*:

Male 1
Female 2
Refused/Unable to Determine 9

First I'd like to ask you some background questions.

M2MO,N2 2. **What is your date of birth?** ..... |_|_| |_|_| |_|_|_|_|
M2DA,N2 *88/88/8888 = Don't know*
M2YR,N4 *99/99/9999 = Refused*

M3,N1 3. **What language do you speak most of the time?**

English 1
Spanish 2
M3S,C20 *Other*_____ 3
Don't know 8
Refused 9

M4,N1 4. **What is your religious affiliation?**

None 0
Protestant 1
Catholic 2
Jewish 3
Islamic 4
Buddhist 5
M4S, C20 Other_____ 6
Don't know 8
Refused 9

DEMOGRAPHICS

M5,N1 5. **What is your marital status?**

Now Married 1
Living as Married 2
Widowed 3
Divorced 4
Separated 5
Never Married 6
Don't know 8
Refused 9

M6,N1 6. **Do you have living children?**

No ..... 0 *[Skip to Question 10]*
Yes 1
Don't know 8
Refused 9

M7,N2 7. **How many of your children are under 18?** ..... |__|__| *[If 0, skip to Question 9]*
Skipped=77
Don't know=88
Refused=99

M8,N2 8. **How many of those under 18 live with you?** ..... |__|__|
Skipped=77
Don't know=88
Refused=99

M9,N2 9. **How many of those 18 and over live with you?** ..... |__|__|
Skipped=77
Don't know=88
Refused=99

DEMOGRAPHICS

M10.N2 10. **What is the highest grade or level of school that you have completed?**

No Formal Schooling 00
Pre-Kindergarten / Day Care program 31
Kindergarten 32
1st grade 1
2nd grade 2
3rd grade 3
4th grade 4
5th grade 5
6th grade 6
7th grade 7
8th grade 8
9th grade 9
10th grade 10
11th grade 11
12th grade. High School Graduate. HS Diploma or the equivalent (e.g., GED) 12
Vocational, technical, trade, or business school beyond the high school level 13
Some college, but no degree 14
Associate degree in college - occupational/vocational program 15
Associate degree in college - academic program ... 16
Bachelor's degree (e.g., BA, AB, or BS) 17
Master's degree (e.g., MA, MS, MEd, MSW, MBA) . 18
Professional school degree (e.g., MD, DDS, DVM, LLB, or JD) 19
Doctorate degree (e.g., Ph.D. or EdD) 20
M10s.C20 *Other*_____ 21
Don't know 88
Refused 99

DEMOGRAPHICS

M11.N2 11. **How would you describe your race?**

	American Indian	1	*[Go to Question 13]*
	Asian or Pacific Islander	2	
	Black or African American	3	*[Go to Question 13]*
	Eskimo or Alaskan Native	4	*[Go to Question 13]*
	White or Caucasian	5	*[Go to Question 13]*
	No primary affiliation/mixed race		
M11S.C20	*[specify]*_____	6	
M11R.C20	Another race _____	7	
	Don't know	88	*[Go to Question 13]*
	Refused	99	*[Go to Question 13]*

[Hand Respondent Card A]

12. **Are you...**

[Check all that apply]

		No	Yes
M12a.N1	a. **Asian Indian**	0	1
M12b.N1	b. **Chinese**	0	1
M12c.N1	c. **Filipino**	0	1
M12d.N1	d. **Chamorro**	0	1
M12e.N1	e. **Hawaiian**	0	1
M12f.N1	f. **Japanese**	0	1
M12g.N1	g. **Korean**	0	1
M12h.N1	h. **Samoan**	0	1
M12i.N1	I. **Vietnamese**	0	1
M12j.N1 M12s.C20	j. **Or something else?** *[specify]* _____	0	1
M12k.N1	k. *Skipped*	0	1
M12l.N1	l. *Don't know*	0	1
M12m.N1	m. *Refused*	0	1

DEMOGRAPHICS

M13.N1 13. **Are you of Spanish or Hispanic origin?**

No	0	*[Go to Question 15]*
Yes	1	
Don't know	8	*[Go to Question 15]*
Refused	9	*[Go to Question 15]*

M14.N1 14. **Are you...**

Cuban	1	*[Go to Question 16]*
Dominican	2	*[Go to Question 16]*
Mexican, Mexican-American, Chicano	3	*[Go to Question 16]*
M14S.C20 **Puerto Rican**	4	*[Go to Question 16]*
Other/Mixed Affiliation *[specify]*_____	5	*[Go to Question 16]*
Skipped	7	
Don't know	8	
Refused	9	

DEMOGRAPHICS

15. *[Hand respondent Card B.]* **What is your ancestry or ethnic origin?** *[Circle yes for all that apply.]*

			No	Yes
M15a,N1	a.	**German**	0	1
M15b,N1	b.	**Irish**	0	1
M15c,N1	c.	**English**	0	1
M15d,N1	d.	**Italian**	0	1
M15e,N1	e.	**French**	0	1
M15f,N1	f.	**Polish**	0	1
M15g,N1	g.	**Dutch**	0	1
M15h,N1	h.	**Scotch-Irish**	0	1
M15i,N1	i.	**Scottish**	0	1
M15j,N1	j.	**Swedish**	0	1
M15k,N1	k.	**Norwegian**	0	1
M15l,N1	l.	**Russian**	0	1
M15m,N1	m.	**French Canadian**	0	1
M15n,N1	n.	**African-American**	0	1
M15o,N1	o.	**American**	0	1
M15p,N1	p.	**American Indian**	0	1
M15q,N1	q.	**Asian American**	0	1
M15r,N1	r.	**Arab American**	0	1
M15s,N1 M15s1,C20	s.	**Another group** *[Specify]*		
		_____	0	1
M15t,N1	t.	*Don't know*	0	1
M15u,N1	u.	*Refused*	0	1
M15v,N1	v.	*Skipped*	0	1

[If the respondent answers "American" only to Question 15, ask Question Z1.]

FINANCES

A few questions about money.

31. **Here's a list.** *[Hand Respondent Card K.]* **In the past three months, have you had any financial support from the following sources?** *[Please code all that apply.]*

			No	Yes	*Don't know*	*Refused*
M31a,N1	a.	Paid employment (post-tax take home pay)	0	1	8	9
M31b,N1	b.	Social Welfare benefits - state or county (general welfare/public aid, food stamps), TANF (Temporary Aid to Needy Families), formerly AFDC (Aid to Families with Dependent Children)	0	1	8	9
M31c,N1	c.	Supplemental Security Income (SSI)	0	1	8	9
M31d,N1	d.	Social Security Disability Income (SSDI)	0	1	8	9
M31e,N1	e.	VA or other armed services disability benefits	0	1	8	9
M31f,N1	f.	VA or other armed services pension	0	1	8	9
M31g,N1	g.	Unemployment compensation	0	1	8	9
M31h,N1	h.	Social Security Retirement Benefits (SSA)	0	1	8	9
M31i,N1	i.	Retirement pension, benefits, investment, or savings income (only if receive regular payments)	0	1	8	9
M31j,N1	j.	Alimony and child support	0	1	8	9
M31k,N1	k.	Mate, family or friends	0	1	8	9
M31l,N1	l.	Illegal	0	1	8	9
M31m,N1	m.	Other_____				
M31s,C20			0	1	8	9

M32,N4 32. **How much money did you receive during the past month from all of these sources?** . . . . . .

$|_|_|_|_|

Don't know=8888
Refused=9999

FINANCES

M33,N4 33. **How much money did you receive during the past month from paid income (post-tax, take home pay)?** ..... $|_|_|_|_|
Don't know=8888
Refused=9999

M34,N4 34. **Approximately how much money did you have to spend on yourself in the past month, not counting money for room and meals?** ..... $|_|_|_|_|
Don't know=8888
Refused=9999

M35,N1 35. **In the past 3 months, have you spent any of your own money on prescriptions or visits with a medical professional?**

No 0
Yes 1
Don't know 8
Refused 9

L11. **During the past three months, did you generally have enough money each month to cover** [Read options a-f]?

	No	Yes	*Don't know*	*Refused*
a. **Food?**	0	1	8	9
b. **Clothing?**	0	1	8	9
c. **Housing?**	0	1	8	9
d. **Traveling around the city for things like shopping, medical appointments, or visiting friends and relatives?**	0	1	8	9
e. **Social activities like movies or eating in restaurants?**	0	1	8	9

SERVICE USE

		a. During the past three months... *[If yes, go to b. if no go to next question]*				b. How many different times did you go?	c. On average, for what amount of time?	d. Was this treatment a service paid for or provided by your health plan?			
		No	Yes	DK	Ref	*Skipped = 77 Don't know=88 Refused=99*	*[days:hours:minutes]*	No	Yes	DK	Ref
	Mental Health Services										
M223a.N1 M223b.N2 M223cD.N2 M223cH.N2 M223cM.N2 M223d.N1	223. **were you admitted to a hospital for at least one night because of an emotional or psychiatric problem?** *[e.g., HSH, Queen's, Castle, Kahi Mohala]*	0	1	8	9	___	___:___:___	0	1	7 8	9
M225a.N1 M225b.N2 M225cH.N2 M225cM.N2 M225d.N1	225. **have you been to the emergency room or received any other crisis support service for help with an emotional or psychiatric problem?** *[CRISP, Telephone Hot Line, Mobile Outreach, ER]*	0	1	8	9	___	___:___	0	1	7 8	9
M226a.N1 M226b.N2 M226cD.N2 M226cH.N2 M226cM.N2 M226d.N1	226. **did you attend a daytime program, a day treatment center or psychological program such as Queen's Day Treatment or Kahi Mohala? Don't count time when you were a patient in the hospital.**	0	1	8	9	___	___:___:___	0	1	7 8	9

SERVICE USE

		a. During the past three months... *[If yes, go to b. if no go to next question]*				b. How many different times did you go?	c. On average, for what amount of time?	d. Was this treatment a service paid for or provided by your health plan?			
		No	Yes	DK	Ref	*Skipped = 77 Don't know=88 Refused=99*	*[days:hours:minutes]*	No	Yes	DK	Ref
M227a.N1 M227b.N2 M227cH.N2 M227cM.N2 M227d.N1	227. were you interviewed by a mental health professional other than a psychiatrist about any emotional or psychiatric problems you may have had to determine your need for services? This service may have been referred to as an assessment or an evaluation.	0	1	8	9	___	___:___	0	1	7 8	9
M228a.N1 M228b.N2 M228cH.N2 M228cM.N2 M228d.N1	228. were you interviewed by a psychiatrist about any emotional or psychiatric problems you may have had to determine your need for services? This service may have been referred to as an assessment or an evaluation.	0	1	8	9	___	___:___	0	1	7 8	9
M229a.N1 M229b.N2 M229cH.N2 M229cM.N2 M229d.N1	229. did you receive any individual counseling or therapy for an emotional or psychiatric problem?	0	1	8	9	___	___:___	0	1	7 8	9
M230a.N1 M230b.N2 M230cH.N2 M230cM.N2 M230d.N1	230. did you receive any group counseling or therapy for an emotional or psychiatric problem?	0	1	8	9	___	___:___	0	1	7 8	9

SERVICE USE

		a. During the past three months... *[If yes, go to b. if no go to next question]*				b. How many different times did you go?	c. On average, for what amount of time?	d. Was this treatment a service paid for or provided by your health plan?			
		No	Yes	DK	Ref	* *Skipped = 77* *Don't know=88* *Refused=99*	*[days:hours:minutes]*	No	Yes	DK	Ref
M231a.N1 M231b.N2 M231cH.N2 M231cM.N2 M231d.N1	231. did you receive any family counseling or therapy for an emotional or psychiatric problem?	0	1	8	9	___	__:__	0	1	7 8	9
M232a.N1 M232b.N2 M232cH.N2 M232cM.N2 M232d.N1	232. did you meet with someone to check on your medications?	0	1	8	9	___	__:__	0	1	7 8	9
M233a.N1 3b.N2 M233cH.N2 M233cM.N2 M233d.N1	233. have you been prescribed any medications for help with an emotional or psychiatric problem?	0	1	8	9	___	__:__	0	1	7 8	9
M234a.N1 M234b.N2 M234cH.N2 M234cM.N2 M234d.N1	234. have you received help from your primary care physician or general medical doctor for an emotional or psychiatric problem?	0	1	8	9	___	__:__	0	1	7 8	9
M235a.N1 M235b.N2 M235cH.N2 M235cM.N2 M235d.N1	235. have you received any services to track your clozapine including any blood tests?	0	1	NA=7 8	9	___	__:__	0	1	7 8	9

CLINICAL HISTORY

Now, I'd like to ask you a few questions about your mental health.

M62.N1 62. **Have you had an emotional or psychiatric problem in the past?**

No 0
Yes 1
Don't know 8
Refused 9

M63.N1 63. **Do you currently have an emotional or psychiatric problem?**

No 0
Yes 1
Don't know 8
Refused 9

[If No to both Question 62 and Question 63, go to Question 65]

M64.N3 64. **At what age did your first emotional or psychiatric problem begin?** ..... ⌊_⌊_⌊_⌋

Skipped=777
Don't know=888
Refused=999

M65.N1 65. **Have you ever received treatment for an emotional or psychiatric problem?**

No 0
Yes 1
Don't know 8
Refused 9

M66.N1 66. **Are you currently receiving treatment for an emotional or psychiatric problem?**

No 0
Yes 1
Don't know 8
Refused 9

[If No to both Question 65 and Question 66, go to Question 68]

CLINICAL HISTORY

M67.N3 67. **At what age did you first receive treatment for emotional or psychiatric problems?** ..... ⌊_⌊_⌊_⌋

Skipped=777
Don't know=888
Refused=999

M68.N1 68. **Have you ever been treated at or admitted to a psychiatric hospital or the psychiatric ward of a hospital?**

No ..... 0 *[Go to question 72]*
Yes 1
Don't know 8
Refused 9

M69.N3 69. **At what age were you first treated at or admitted to a psychiatric hospital or the psychiatric ward of a hospital?** ..... ⌊_⌊_⌊_⌋

Skipped=777
Don't know=888
Refused=999

M70.N3 70. **How many times in your life have you been admitted to a psychiatric hospital or the psychiatric ward of a hospital?** ..... ⌊_⌊_⌊_⌋

Skipped=777
Don't know=888
Refused=999

M71.N1 71. **Considering all of the times that you have been in a psychiatric hospital or the psychiatric ward of a hospital in the past year, about how many total days have you spent in these hospitals?**

None 0
Less than 1 week 1
1 week to 1 month 2
> 1 month to 3 months 3
> 3 months 4
Skipped 7
Don't know 8
Refused 9

Consumer Attribution Interview Schedule

Now I have some questions about your mental health.

C1. **What kind of mental health problems have you had in the last three months? Mental health problems mean those problems having to do with things like the way you feel, think, problems with your family and friends, and also problems with yourself.**

_____

_____

_____

[8 = Don't know 9 = Refused]

[Hand respondent Card Q.] **From Strongly Agree to Strongly Disagree, please answer the following questions about yourself.**

I have problems with my:

C2. **Thinking**

1	2	3	4	8	9
Strongly Agree	Agree	Disagree	Strongly Disagree	DK	Ref

C3. **Feelings**

1	2	3	4	8	9

C4. **Senses (for example, vision and hearing)**

1	2	3	4	8	9

C5. **Relationships with others**

1	2	3	4	8	9

C6. **Family relationships**

1	2	3	4	8	9

C7. **Religious or spiritual concerns**

1	2	3	4	8	9

C8. **In your opinion, what is the cause of your mental health problems?**

_____

_____

_____

[8 = Don't know 9 = Refused]

[Show respondent Card Q again.] **From Strongly Agree to Strongly Disagree, answer the following questions.**

My problems are caused by:

C9. **Heredity (for example, being born that way)**

1	2	3	4	8	9
Strongly Agree	Agree	Disagree	Strongly Disagree	DK	Ref

C10. **My brain (for example, something wrong with the way the brain works)**

1 2 3 4 8 9

C11. **Experiences in the past and childhood**

1 2 3 4 8 9

C12. **Relationships with others**

1 2 3 4 8 9

C13. **Family**

1 2 3 4 8 9

C14. **Stress**

1 2 3 4 8 9

C15. **Working too hard**

1 2 3 4 8 9

C16. **Diet and exercise**

1 2 3 4 8 9

C17. **Voices**

1	2	3	4	8	9
Strongly Agree	Agree	Disagree	Strongly Disagree	DK	Ref

C18. **Lack of money**

1	2	3	4	8	9

C19. **Poor health**

1	2	3	4	8	9

C20. **Drugs and/or alcohol**

1	2	3	4	8	9

C21. **Low self confidence**

1	2	3	4	8	9

C22. **Religious or spiritual concerns**

1	2	3	4	8	9

C23. **Evil spirits, curses, black magic**

1	2	3	4	8	9

C24. **In your opinion, what is the best treatment for your mental health problems?**

_____

_____

_____

[8 = Don't know 9 = Refused]

[Show respondent Card Q again.] **From Strongly Agree to Strongly Disagree, answer the following questions.**

My mental health problems are best treated by:

C25. **Medicine**

1	2	3	4	8	9

C26. **Seeing a doctor**

1	2	3	4	8	9

C27. **Seeing a counselor**

1	2	3	4	8	9
Strongly Agree	Agree	Disagree	Strongly Disagree	DK	Ref

C28. **Financial support**

1	2	3	4	8	9

C29. **Diet and exercise**

1	2	3	4	8	9

C30. **Surgery**

1	2	3	4	8	9

C31. **Alternative medicine (like acupuncture and herbs)**

1	2	3	4	8	9

C32. **Finding a job**

1	2	3	4	8	9

C33. **Religious or spiritual healer (like a Priest, Minister, Rabbi, or Kahuna)**

1	2	3	4	8	9

C34. Prayer

1	2	3	4	8	9

Also from Strongly Agree to Strongly Disagree, answer the following question.

C35. **I can control my mental health problems.**

1	2	3	4	8	9

Now I have some questions about your doctor.

C36. **Is your mental health doctor a ...** (choose one)

Psychiatrist 1
Psychologist 2
Social Worker 3
Other_____ 4
Don't know 8
Refused 9

C37. **What kind of mental health problems does your doctor think you have?**

_____

_____

_____

[8 = Don't know 9 = Refused]

[Show respondent Card Q.] **From Strongly Agree to Strongly Disagree, answer the following questions.**

My doctor thinks that I have problems with my:

C38. **Thinking**

1	2	3	4	8	9
Strongly Agree	Agree	Disagree	Strongly Disagree	DK	Ref

C39. **Feelings**

1	2	3	4	8	9

C40. **Senses (for example, vision and hearing)**

1	2	3	4	8	9

C41. **Relationships with others**

1	2	3	4	8	9

C42. **Family relationships**

1	2	3	4	8	9

C43. **Religious or spiritual concerns**

1	2	3	4	8	9

C44. **What does your doctor think is the cause of your mental health problems?**

_____

_____

_____

[8 = Don't know 9 = Refused]

From Strongly Agree to Strongly Disagree, answer the following questions.
My doctor thinks that my problems are caused by:

C45. **Heredity (for example, being born that way)**

1	2	3	4	8	9
Strongly Agree	Agree	Disagree	Strongly Disagree	DK	Ref

C46. **My brain (for example, something wrong with the way the brain works)**

1	2	3	4	8	9

C47. **Experiences in the past and childhood**

1	2	3	4	8	9

C48. **Relationships with others**

1	2	3	4	8	9

C49. **Family**

1	2	3	4	8	9

C50. **Stress**

1	2	3	4	8	9

C51. **Working too hard**

1	2	3	4	8	9

C52. **Diet and exercise**

1	2	3	4	8	9

C53. **Voices**

1	2	3	4	8	9

C54. **Lack of money**

1	2	3	4	8	9

C55. **Poor health**

1	2	3	4	8	9

C56. **Drugs and/or alcohol**

1	2	3	4	8	9
Strongly Agree	Agree	Disagree	Strongly Disagree	DK	Ref

C57. **Low self confidence**

1	2	3	4	8	9

C58. **Religious or spiritual concerns**

1	2	3	4	8	9

C59. **Evil spirits, curses, black magic**

1	2	3	4	8	9

C60. **What does your doctor think is the best treatment for your mental health problems?**

_____

_____

_____

[8 = Don't know 9 = Refused]

From Strongly Agree to Strongly Disagree, answer the following questions.
My doctor thinks my mental health problems are best treated by:

C61. **Medicine**

1	2	3	4	8	9

C62. **Seeing a doctor**

1	2	3	4	8	9

C63. **Seeing a counselor**

1	2	3	4	8	9

C64. **Financial support**

1	2	3	4	8	9

C65. **Diet and exercise**

1	2	3	4	8	9

C66. Surgery

1	2	3	4	8	9
Strongly Agree	Agree	Disagree	Strongly Disagree	DK	Ref

C67. **Alternative medicine (like acupuncture and herbs)**

1	2	3	4	8	9

C68. **Finding a job**

1	2	3	4	8	9

C69. **Religious or spiritual healer (like a Priest, Minister, Rabbi, or Kahuna)**

1	2	3	4	8	9

C70. **Prayer**

1	2	3	4	8	9

Also from Strongly Agree to Strongly Disagree, answer the following question.

C71. **My doctor thinks I can control my mental health.**

1	2	3	4	8	9

MENTAL HEALTH SYMPTOMS

I am going to read a list of problems and complaints that people sometimes have. Here's a card to use. *[Hand respondent Card R.]* **Please tell me which response best describes how much that problem has bothered or distressed you during the past week, including today.** *[Circle only one number for each problem and do not skip any items.]*

		Not at all	A little bit	Moderately	Quite a bit	Extremely	*DK*	*Ref*
	How much were you distressed by . . .							
I97.N1	97. **Nervousness or shakiness inside**	1	2	3	4	5	8	9
I98.N1	98. **Faintness or dizziness**	1	2	3	4	5	8	9
I99.N1	99. **The idea that someone else can control your thoughts**	1	2	3	4	5	8	9
I100.N1	100. **Feeling others are to blame for most of your troubles**	1	2	3	4	5	8	9
I101.N1	101. **Trouble remembering things**	1	2	3	4	5	8	9
I102.N1	102. **Feeling easily annoyed or irritated**	1	2	3	4	5	8	9
I103.N1	103. **Pains in heart or chest**	1	2	3	4	5	8	9
I104.N1	104. **Feeling afraid in open spaces or on the streets**	1	2	3	4	5	8	9
I105.N1	105. **Thoughts of ending your life**	1	2	3	4	5	8	9
I106.N1	106. **Feeling that most people cannot be trusted**	1	2	3	4	5	8	9
I107.N1	107. **Poor appetite**	1	2	3	4	5	8	9
I108.N1	108. **Suddenly scared for no reason**	1	2	3	4	5	8	9
I109.N1	109. **Temper outbursts that you could not control**	1	2	3	4	5	8	9
I110.N1	110. **Feeling lonely even when you are with people**	1	2	3	4	5	8	9
M111.N1	111. **Feeling blocked in getting things done**	1	2	3	4	5	8	9
M112.N1	112. **Feeling lonely**	1	2	3	4	5	8	9
M113.N1	113. **Feeling blue**	1	2	3	4	5	8	9
M114.N1	114. **Feeling no interest in things**	1	2	3	4	5	8	9
M115.N1	115. **Feeling fearful**	1	2	3	4	5	8	9

MENTAL HEALTH SYMPTOMS

		Not at all	A little bit	Moderately	Quite a bit	Extremely	*DK*	*Ref*
	How much were you distressed by . . .							
M116.N1	116. **Your feelings being easily hurt**	1	2	3	4	5	8	9
M117.N1	117. **Feeling that other people are unfriendly or dislike you**	1	2	3	4	5	8	9
M118.N1	118. **Feeling inferior to others**	1	2	3	4	5	8	9
M119.N1	119. **Nausea or upset stomach**	1	2	3	4	5	8	9
M120.N1	120. **Feeling that you are watched or talked about by others**	1	2	3	4	5	8	9
M121.N1	121. **Trouble falling asleep**	1	2	3	4	5	8	9
M122.N1	122. **Having to check and double-check what you do**	1	2	3	4	5	8	9
M123.N1	123. **Difficulty making decisions**	1	2	3	4	5	8	9
M124.N1	124. **Feeling afraid to travel on buses, subways, or trains**	1	2	3	4	5	8	9
M125.N1	125. **Trouble getting your breath**	1	2	3	4	5	8	9
.N1	126. **Hot or cold spells**	1	2	3	4	5	8	9
M127.N1	127. **Having to avoid certain things, places, or activities because they frighten you**	1	2	3	4	5	8	9
M128.N1	128. **Your mind going blank**	1	2	3	4	5	8	9
M129.N1	129. **Numbness or tingling in parts of your body**	1	2	3	4	5	8	9
M130.N1	130. **The idea that you should be punished for your sins**	1	2	3	4	5	8	9
M131.N1	131. **Feeling hopeless about the future**	1	2	3	4	5	8	9
M132.N1	132. **Trouble concentrating**	1	2	3	4	5	8	9
M133.N1	133. **Feeling weak in parts of your body**	1	2	3	4	5	8	9
M134.N1	134. **Feeling tense or keyed up**	1	2	3	4	5	8	9
M135.N1	135. **Thoughts of death or dying**	1	2	3	4	5	8	9
5.N1	136. **Having urges to beat, injure, or harm someone**	1	2	3	4	5	8	9

		Not at all	A little bit	Moderately	Quite a bit	Extremely	DK	Ref
	How much were you distressed by . . .							
M137.NI	137. **Having urges to break or smash things**	1	2	3	4	5	8	9
M138.NI	138. **Feeling very self-conscious with others**	1	2	3	4	5	8	9
M139.NI	139. **Feeling uneasy in crowds, such as shopping or at a movie**	1	2	3	4	5	8	9
M140.NI	140. **Never feeling close to another person**	1	2	3	4	5	8	9
M141.NI	141. **Spells of terror or panic**	1	2	3	4	5	8	9
M142.NI	142. **Getting into frequent arguments**	1	2	3	4	5	8	9
M143.NI	143. **Feeling nervous when you are left alone**	1	2	3	4	5	8	9
M144.NI	144. **Others not giving you proper credit for your achievements**	1	2	3	4	5	8	9
M145.NI	145. **Feeling so restless you can't sit still**	1	2	3	4	5	8	9
M146.NI	146. **Feelings of worthlessness**	1	2	3	4	5	8	9
M147.NI	147. **Feeling that people will take advantage of you if you let them.**	1	2	3	4	5	8	9
M148.NI	148. **Feelings of guilt**	1	2	3	4	5	8	9
M149.NI	149. **The idea that something is wrong with your mind**	1	2	3	4	5	8	9

Suicide Questions

MENTAL HEALTH SYMPTOMS

Now I want to ask you questions about hurting yourself.

M150.N1 150. **Have you ever actually attempted suicide?**

No ..... 0 *[Go to question 153.]*

Yes 1

Don't know 8

Refused 9

M151.N2 151. **How many times in all?** ..... |__|__|

Skipped=77

Don't know=88

Refused=99

M152.N2 152. **How many of these were within the past 12 months, since** *[give date]*? ..... |__|__|

Skipped=77

Don't Know=88

Refused=99

M153.N1 153. **During the past three months, have you thought about harming yourself or committing suicide?**

No 0

Yes 1

Don't know 8

Refused 9

M154.N1 154. **During the past three months, have you talked about or threatened to harm yourself or to commit suicide?**

No 0

Yes 1

Don't know 8

Refused 9

M155.N1 155. **During the past three months, have you attempted to harm yourself or to commit suicide?**

No 0
Yes 1
Don't know 8
Refused 9

STATE SUICIDE QUESTIONS

S1. **During the past 12 months, did you ever seriously consider attempting suicide?**

No 0
Yes 1
Don't know 8
Refused 9

S2. **During the past 12 months, did you make a plan about how you would attempt suicide?**

No 0
Yes 1
Don't know 8
Refused 9

S3. **During the past 12 months, how many times did you actually attempt suicide?** *[If 0 times, skip to item 156.]* ..... |__|__|

Skipped=77
Don't know=88
Refused=99

S4. **If you attempted suicide during the past 12 months, did any attempt result in an injury, poisoning, or overdose that had to be treated by a doctor or nurse?**

No 0
Yes 1
Skipped 7
Don't know 8
Refused 9

6-Month Follow-up Suicide Questions

MENTAL HEALTH SYMPTOMS

Now I want to ask you questions about hurting yourself.

I150.N1 150. **Have you attempted suicide in the past 6 months?**

No ..... 0 *[Go to question 153]*
Yes 1
Don't know 8
Refused 9

I151.N2 151. **How many times in the past 6 months?** ..... |__|__|

Skipped=77
Don't know=88
Refused=99

I153.N2 153. **During the past three months, have you thought about harming yourself or committing suicide?**

No 0
Yes 1
Don't know 8
Refused 9

I154.N1 154. **During the past three months, have you talked about or threatened to harm yourself or to commit suicide?**

No 0
Yes 1
Don't know 8
Refused 9

q55.N1 155. **During the past three months, have you attempted to harm yourself or to commit suicide?**

No 0

Yes 1

Don't know 8

Refused 9

APPENDIX C: TABLES

Table 1

Intercorrelations Between CAIS Questions and Acknowledgement of Mental Disorder Questions for Entire Sample

Measure	1	2	3	4	5	6	7	8	9
1. Do you currently have emotional or psychiatric problems	--								
2. Have you had emotional or psychiatric problems in the past	0.45	--							
3. Problems with my thinking	-0.26	-0.15	--						
4. Problems with my feelings	-0.34	-0.17	0.65	--					
5. Problems with my senses	-0.15	**-0.11**	0.47	0.43	--				
6. Total of thinking and feeling	-0.33	-0.17	0.91	0.90	0.50	--			
7. Total of thinking, feeling, and senses	-0.31	-0.17	0.86	0.84	0.77	0.94	--		
8. Most endorsed of thinking or feeling	-0.31	-0.21	0.85	0.84	0.49	0.92	0.88	--	
9. Most endorsed of thinking, feeling or senses	-0.29	-0.22	0.77	0.80	0.61	0.85	0.88	0.91	--

Note. All coefficient significant at $p \leq .001$ with one exception, indicated by boldface, which was significant at $p < .05$. For CAIS items (3-9) higher scores indicated greater participant disagreement with a given question.

Table 2

Intercorrelations etween CAIS Questions and Acknowledgement of Mental Disorder Questions for the Schizophrenia Group

Measure	1	2	3	4	5	6	7	8	9
1. Do you currently have emotional or psychiatric problems	--								
2. Have you had emotional or psychiatric problems in the past	0.51	--							
3. Problems with my thinking	-0.24	-0.20	--						
4. Problems with my feelings	-0.26	**-0.17**	0.62	--					
5. Problems with my senses	**-0.16**	**-0.14**	0.39	0.44	--				
6. Total of thinking and feeling	-0.28	-0.21	0.90	0.90	0.46	--			
7. Total of thinking, feeling, and senses	-0.27	-0.21	0.83	0.85	0.75	0.93	--		
8. Most endorsed of thinking or feeling	-0.24	-0.24	0.84	0.83	0.40	0.92	0.85	--	
9. Most endorsed of thinking, feeling or senses	-0.20	-0.25	0.74	0.76	0.57	0.82	0.85	0.89	--

Note. All coefficient significant at $p \leq .001$, with exceptions indicated by boldface, which were significant at $p < .05$. For CAIS items (3-9) higher scores indicated greater participant disagreement with a given question.

Table 3

Intercorrelations Between CAIS Questions and Acknowledgement of Mental Disorder Questions for the Bipolar Group

Measure	1	2	3	4	5	6	7	8	9
1. Do you currently have emotional or psychiatric problems	--								
2. Have you had emotional or psychiatric problems in the past	**0.14**	--							
3. Problems with my thinking	-0.27*	**0.00**	--						
4. Problems with my feelings	-0.42	**-0.12**	0.69	--					
5. Problems with my senses	**-0.18**	**-0.14**	0.44	0.40	--				
6. Total of thinking and feeling	-0.36	**-0.06**	0.89	0.92	0.48	--			
7. Total of thinking, feeling, and senses	-0.35	**-0.10**	0.88	0.84	0.76	0.94	--		
8. Most endorsed of thinking or feeling	-0.33	**-0.06**	0.85	0.88	0.45	0.91	0.89	--	
9. Most endorsed of thinking, feeling or senses	-0.33	**-0.16**	0.79	0.84	0.60	0.86	0.91	0.93	--

Note. Boldface indicates coefficients are not significant. * $p \leq .02$. All other coefficients are significant at $p \leq .01$. For CAIS items (3-9) higher scores indicated greater participant disagreement with a given question.

Table 4

Intercorrelations Between CAIS Questions and Acknowledgement of Mental Disorder Questions for the Schizoaffective Group

Measure	1	2	3	4	5	6	7	8	9
1. Do you currently have emotional or psychiatric problems	--								
2. Have you had emotional or psychiatric problems in the past	0.47	--							
3. Problems with my thinking	-0.24*	**-0.11**	--						
4. Problems with my feelings	-0.39	**-0.13**	0.72	--					
5. Problems with my senses	**-0.20**	**-0.15**	0.60	0.45	--				
6. Total of thinking and feeling	-0.33	**-0.13**	0.93	0.92	0.56	--			
7. Total of thinking, feeling, and senses	-0.31	**-0.15**	0.91	0.84	0.80	0.95	--		
8. Most endorsed of thinking or feeling	-0.37	**-0.18**	0.89	0.85	0.65	0.94	0.94	--	
9. Most endorsed of thinking, feeling or senses	-0.33	**-0.19**	0.85	0.81	0.71	0.89	0.93	0.97	--

Note. Boldface indicates coefficients are not significant. * $p \leq .02$. All other coefficients are significant at $p \leq .01$. For CAIS items (3-9) higher scores indicated greater participant disagreement with a given question.

Table 5

Degree of Relationship Between CAIS Questions and Acknowledgement of Mental Disorder Questions for Major Depression Group

Measure	1	2	3	4	5	6	7	8	9
1. Do you currently have emotional or psychiatric problems[1]	--								
2. Have you had emotional or psychiatric problems in the past[1]	0.37	--							
3. Problems with my thinking	-0.35	**-0.17**	--						
4. Problems with my feelings	-0.41	-0.22*	0.56	--					
5. Problems with my senses	**-0.08**	**-0.04**	0.47	0.39	--				
6. Total of thinking and feeling	-0.43	-0.22	0.90	0.87	0.48	--			
7. Total of thinking, feeling, and senses	-0.33	**-0.16**	0.85	0.79	0.78	0.93	--		
8. Most endorsed of thinking or feeling	-0.41	-0.24	0.81	0.79	0.45	0.90	0.84	--	
9. Most endorsed of thinking, feeling or senses	-0.39	-0.23	0.70	0.81	0.54	0.84	0.84	0.86	--

Note. Boldface indicates coefficients are not significant. * $p \leq .02$. All other coefficients are significant at $p \leq .01$. For CAIS items (3-9) higher scores indicated greater participant disagreement with a given question.

[1]Dichotomous variable (0 = Denial, 1 = Acknowledgment).

Table 6

Observed Frequencies and Percentages for Acknowledgment Groups by Diagnosis

	Baseline		6-month follow-up	
Diagnosis	Deny	Acknowledge	Deny	Acknowledge
Schizophrenia	65 (31.7%)	140 (68.3%)	52 (29.5%)	124 (70.5%)
Major depressive disorder	26 (20.5%)	101 (79.5%)	24 (21.8%)	86 (78.2%)
Bipolar disorder	13 (17.1%)	63 (82.9%)	9 (15.3%)	50 (84.7%)
Schizoaffective disorder	19 (20.7%)	73 (79.3%)	13 (16.7%)	65 (83.3%)

Table 7

Participant Education Level, Marital Status, and Ethnicity

	n	%
Education		
≤ 9th grade	39	5.8
10-11th grade	44	8.8
12th grade	175	35.0
Post high school training or college not resulting in a degree	156	31.2
Associate's degree	35	7.0
Bachelor's degree	37	7.4
Advanced degree (PhD, MA, JD etc)	11	2.2
No response	3	2.6
Marital status		
Never married	270	54.0
Divorced/separated	171	34.2
Married/living as married	44	7.8
Widowed	14	2.8
No response	1	>.01
Ethnicity		
European-American	183	36.6
Hawaiian/Part-Hawaiian	116	23.2
Mixed Ethnicity [Asian/White (34), Other Mixed (35)]	69	13.8
Japanese	64	12.8
Filipino	37	7.4
Other Asian [Chinese (5), Korean (5)]	10	2.0
Latino	11	2.2
African-American	5	1.0
Samoan	4	0.8
Eskimo	1	0.2

Table 8

Number of Lifetime Psychiatric Hospitalizations and Days Spent in a Psychiatric Hospital or Ward in the Last 12 Months

	Diagnostic Group			
	Schizophrenia	Major Depression	Bipolar	Schizoaffective
	n (%)	n (%)	n (%)	n (%)
Lifetime hospitalizations				
0	25 (12.2)	35 (27.6)	12 (15.8)	9 (9.8)
1-5	116 (56.5)	63 (49.5)	29 (38.2)	34 (36.9)
6-10	29 (14.1)	18 (14.2)	17 (22.2)	23 (25.0)
11-20	16 (7.9)	6 (4.8)	11 (14.4)	16 (17.5)
>20	10 (5.0)	3 (2.4)	6 (7.8)	7 (7.7)
No response	9 (4.4)	2 (1.6)	1 (1.3)	3 (3.3)
Days hospitalized in 12 months				
None	142 (69.3)	91 (71.7)	46 (60.5)	51 (55.4)
<1 week	11 (5.4)	13 (10.2)	6 (7.9)	9 (9.8)
1 week to 1 month	28 (13.7)	16 (12.6)	17 (22.4)	18 (19.6)
>1 month to 3 months	10 (4.9)	3 (2.4)	4 (5.3)	7 (7.6)
>3 months	11 (5.4)	2 (1.6)	3 (3.9)	5 (5.4)
No response	3 (1.5)	2 (1.6)	--	2 (2.2)

Table 9

Prevalence (%) of Psychiatric Hospitalizations in the Past 12 Months and Services for Emotional or Psychiatric Problems Received in Past 3 Months by Item

		Hospitalized in last year				
Diagnostic group		Yes	No	n	r_Φ	χ^2 (1)
Schizophrenia	Acknowledgers	31.2%	68.6%	138	.05	.44
	Deniers	26.6%	73.4%	64		
Mood Disorders	Acknowledgers	32.1%	67.9%	162	.01	.03
	Deniers	30.8%	69.2%	64		
Schizoaffective	Acknowledgers	49.3%	50.7%	71	.23	4.87*
	Deniers	21.1%	78.9%	19		
		Prescribed medication				
Diagnostic group		Yes	No	n	r_Φ	χ^2 (1)
Schizophrenia	Acknowledgers	76.1%	23.9%	138	-.06	.67
	Deniers	81.3%	18.8%	64		
Mood Disorders	Acknowledgers	78.5%	21.5%	163	.06	.81
	Deniers	71.8%	28.2%	39		
Schizoaffective[1]	Acknowledgers	84.3%	15.7%	72	.17	--
	Deniers	68.4%	31.6%	19		
		Received individual therapy				
Diagnostic group		Yes	No	n	r_Φ	χ^2 (1)
Schizophrenia	Acknowledgers	47.1%	52.9%	136	-.12	2.64
	Deniers	59.4%	40.6%	64		
Mood Disorders	Acknowledgers	54.7%	45.3%	161	-.01	.04
	Deniers	56.4%	43.6%	39		
Schizoaffective	Acknowledgers	66.7%	33.3%	72	-.02	.02
	Deniers	68.4%	31.6%	19		
		Received an assessment				
Diagnostic group		Yes	No	n	r_Φ	χ^2 (1)
Schizophrenia	Acknowledgers	26.3%	73.7%	137	.00	.00
	Deniers	26.6%	73.4%	64		
Mood Disorders	Acknowledgers	35.2%	64.8%	162	.03	.18
	Deniers	31.6%	68.4%	38		
Schizoaffective	Acknowledgers	33.8%	66.2%	71	.21	3.95*
	Deniers	10.5%	89.5%	19		

Note. r_Φ = Phi coefficient. [1]Fisher's exact test, p = .184.
* $p < .05$.

Table 10

Correlations, Means, and Standard Deviations of Regression Variables

Variables	1	2	3	4	5	6	7	M	SD
1. Acknowledgment of mental disorder[1]	--							--	--
2. Problems with thoughts/feelings[2]	-.33	--						4.59	1.64
3. BSI Depression subscale	.31	-.49	--					1.26	1.00
4. Lifetime suicide attempts	.22	-.20	.26	--				1.79	2.45
5. 12-month suicidality	.22	-.33	.48	.44	--			.63	1.09
6. 3-month suicidality	.21	-.33	.56	.34	.62	--		.55	.90
7. Follow-up 3-month suicidality	.25	-.30	.43	.33	.28	.59	--	.51	.88

[1]Dichotomous variable (0 = Denial, 1 = Acknowledgment). [2]Lower scores correspond to participant having greater belief in having problems with thoughts and/or feelings.

Table 11

Regression Analysis Summary Relating Insight Measures to Depression

Variables	*B*	SEB	β	sr^2
Acknowledgment of mental disorder	.38***	.10	.16	.02
Problems with thoughts/feelings	-.26***	.03	-.43	.16

$R = .51$. $R^2 = .26$.

***$p < .001$.

Table 12

Lifetime Prevalence (%) of Having Had a Suicide Attempt

		Previous suicide attempt				
Diagnostic group		Yes	No	n	r_Φ	χ^2 (1)
Schizophrenia	Acknowledgers	55.0%	45.0%	140	.23	10.46**
	Deniers	30.8%	69.2%	65		
Mood Disorders	Acknowledgers	71.3%	28.7%	164	.21	8.97**
	Deniers	46.2%	53.8%	39		
Schizoaffective	Acknowledgers	68.5%	31.5%	73	.18	2.93
	Deniers	47.4%	52.6%	19		

**$p \leq .01$.

Table 13

Lifetime Prevalence (%) of Having Had a Suicide Attempt in Major Depression and Bipolar Groups

		Previous suicide attempt				
Diagnostic group		Yes	No	n	r_Φ	χ^2 (1)
Major Depression	Acknowledgers	78.2%	21.8%	101	.22	6.27**
	Deniers	53.8%	46.2%	26		
Bipolar Disorder	Acknowledgers	60.3%	39.7%	63	.22	3.81
	Deniers	30.8%	69.2%	13		

Note. r_Φ = Phi coefficient.

**$p \leq .01$.

Table 14

Regression Analysis Summary Relating Number of Lifetime Suicide Attempts (log transformation) to Insight Measures

Variables	*B*	SEB	β	sr^2
Acknowledgment of mental disorder	.05***	.01	.17	.03
Problems with thoughts/feelings	-.01**	.00	-.15	.02

$R = .26$. $R^2 = .07$.

***$p < .001$. **$p \leq .01$.

Table 15

Regression Analysis Summary Relating Number of Lifetime Suicide Attempts With Outliers' Scores Changed Rather Than Deleted (log transformation) to Insight Measures

Variables	*B*	SEB	β	sr^2
Acknowledgment of mental disorder	.06***	.02	.18	.03
Problems with thoughts/feelings	-.01*	.00	-.11	.01

$R = .24$. $R^2 = .06$. ($F(2, 493) = 12.57, p = .000$).

***$p < .001$. *$p < .05$.

Table 16

Prevalence (%) of Suicidality Over the Past Year by Item

Diagnostic group		Seriously consider attempting suicide: Yes	Seriously consider attempting suicide: No	n	r_Φ	$\chi^2(1)$
Schizophrenia	Acknowledgers	15.7%	84.3%	140	.13	3.66
	Deniers	6.2%	93.8%	65		
Mood Disorders	Acknowledgers	39.5%	60.5%	162	.27	14.32***
	Deniers	7.7%	92.3%	38		
Schizoaffective	Acknowledgers	33.3%	66.7%	72	.16	2.22
	Deniers	15.8%	84.2%	19		

Diagnostic group		Make a plan about how you would attempt suicide: Yes	Make a plan about how you would attempt suicide: No	n	r_Φ	χ^2 (1)
Schizophrenia	Acknowledgers	13.7%	86.3%	139	.06	.81
	Deniers	9.2%	90.8%	65		
Mood Disorders	Acknowledgers	37.9%	62.1%	161	.30	18.31***
	Deniers	2.6%	97.4%	39		
Schizoaffective[1]	Acknowledgers	24.7%	75.3%	73	.14	--
	Deniers	10.5%	89.5%	19		

Diagnostic group		Attempted suicide: Yes	Attempted suicide: No	n	r_Φ	χ^2 (1)
Schizophrenia[2]	Acknowledgers	8.6%	91.4%	140	.07	--
	Deniers	4.6%	95.4%	65		
Mood Disorders	Acknowledgers	17.7%	82.3%	164	.17	5.53*
	Deniers	2.6%	97.4%	38		
Schizoaffective[3]	Acknowledgers	13.7%	86.3%	73	.04	--
	Deniers	10.5%	89.5%	19		

Table 16 continues

Table 16 continued

Diagnostic group		Attempt resulting in injury requiring medical treatment: Yes	No	n	r_Φ	χ^2 (1)
Schizophrenia[4]	Acknowledgers	6.5%	93.5%	140	.15	--
	Deniers	0.0%	100%	65		
Mood Disorders[5]	Acknowledgers	8.0%	92.0%	161	.06	--
	Deniers	2.6%	97.4%	38		
Schizoaffective[6]	Acknowledgers	9.6%	90.4%	73	.06	--
	Deniers	5.3%	94.7%	19		

Note. r_Φ = Phi coefficient.

[1]Fisher's exact test (FET), $p = .227$. [2]FET, $p = .331$. [3]FET, $p = .715$. [4]FET, $p = .060$. [5]FET, $p = .229$. [6]FET, $p = 1.00$.

***$p < .001$. *$p < .05$.

Table 17

Regression Analysis Summary Relating 12-Month Suicidality (log transformation) to Insight Measures

Variables	*B*	SEB	β	sr^2
Acknowledgment of mental disorder	.02***	.01	.13	.01
Problems with thoughts/feelings	-.01***	.00	-.28	.07

$R = .35$. $R^2 = .12$.

***$p < .001$.

Table 18

Prevalence (%) of 3-Month Suicidality by Item

Diagnostic group		Thought about harming self or committing suicide: Yes	No	n	r_Φ	X^2 (1)
Schizophrenia	Acknowledgers	20.0%	80.0%	140	.09	1.81
	Deniers	12.3%	87.7%	65		
Mood Disorders	Acknowledgers	45.7%	54.3%	162	.28	15.88***
	Deniers	10.5%	89.5%	38		
Schizoaffective	Acknowledgers	38.6%	61.4%	70	.20	3.47
	Deniers	15.8%	84.2%	19		

Diagnostic group		Talked about or threatened suicide: Yes	No	n	r_Φ	
Schizophrenia	Acknowledgers	12.2%	87.8%	139	.07	.95
	Deniers	7.7%	92.3%	65		
Mood Disorders	Acknowledgers	28.4%	71.6%	162	.16	5.24*
	Deniers	10.5%	89.5%	38		
Schizoaffective[1]	Acknowledgers	21.4%	78.6%	70	.11	--
	Deniers	10.5%	89.5%	19		

Diagnostic group		Attempted to harm self or commit suicide: Yes	No	n	r_Φ	
Schizophrenia[2]	Acknowledgers	7.1%	92.9%	140	.15	--*
	Deniers	0%	100%	65		
Mood Disorders[3]	Acknowledgers	9.9%	90.1%	161	.06	--
	Deniers	5.3%	94.7%	38		
Schizoaffective[4]	Acknowledgers	11.4%	88.6%	70	.16	--
	Deniers	0.0%	100%	19		

Note. r_Φ = Phi coefficient.

[1]Fisher's exact test (FET), $p = .347$. [2]FET, $p = .032$. [3]FET, $p = .534$. [4]FET, $p = .194$.

*$p < .05$.

Table 19

Regression Analysis Summary Relating 3-Month Suicidality (log transformation) to Insight Measures

Variables	*B*	SEB	β	sr^2
Acknowledgment of mental disorder	.02**	.01	.11	.01
Problems with thoughts/feelings	-.01**	.00	-.30	.08

$R = .35$. $R^2 = .12$.

$^{**}p < .01$.

Table 20

Stability of Participants' Acknowledgement/Denial of Mental Disorder Ratings Between Baseline and 6-Month Follow-up

	Stable in acknowledgement	Persisted in denying
Combined sample	81.4%	57.4%
Diagnostic group		
Schizophrenia	78.9%	52.9%
Depression	87.9%	45.5%
Bipolar	80.9%	88.9%
Schizoaffective	78.1%	75.0%

Table 21

Prevalence (%) of Suicide Attempts During the 6 Months Between Baseline Interview and Follow-up

		Suicide attempt			
		Yes	No	n	r_Φ
Combined sample	Acknowledgers	8.7%	91.3%	323	.09
	Deniers	3.1%	96.9%	98	
Diagnostic group					
Schizophrenia[1]	Acknowledgers	7.3%	92.7%	123	.07
	Deniers	3.8%	96.2%	52	
Mood Disorders[2]	Acknowledgers	8.9%	91.1%	135	.14
	Deniers	0%	100%	33	
Schizoaffective[3]	Acknowledgers	10.8%	89.2%	65	.04
	Deniers	7.7%	92.3%	13	

Note. r_Φ = Phi coefficient.

[1]Fisher's exact test (FET), $p = .510$. [2]FET, $p = .126$. [3]FET, $p = 1.0$

Table 22

Prevalence (%) of Follow-up 3-Month Suicidality by Item

		Thought about harming self or committing suicide				
Diagnostic group		Yes	No	n	r_Φ	$\chi^2(1)$
Schizophrenia	Acknowledgers	24.6%	75.4%	122	.22	8.40**
	Deniers	5.8%	94.2%	52		
Mood Disorders	Acknowledgers	40.7%	59.3%	135	.26	11.75***
	Deniers	9.1%	90.9%	33		
Schizoaffective[1]	Acknowledgers	41.5%	58.5%	65	.20	--
	Deniers	15.4%	84.6%	13		
		Talked about or threatened suicide				
Diagnostic group		Yes	No	n	r_Φ	$\chi^2(1)$
Schizophrenia	Acknowledgers	13.1%	86.9%	122	.17	5.18*
	Deniers	1.9%	98.1%	52		
Mood Disorders	Acknowledgers	24.4%	75.6%	135	.21	7.53**
	Deniers	3.0%	97%	33		
Schizoaffective[2]	Acknowledgers	21.5%	78.5%	65	.13	--
	Deniers	7.7%	92.3%	13		
		Attempted to harm self or commit suicide				
Diagnostic group		Yes	No	n	r_Φ	$\chi^2(1)$
Schizophrenia[3]	Acknowledgers	8.2%	91.8%	122	.12	--
	Deniers	1.9%	98.1%	52		
Mood Disorders[4]	Acknowledgers	8.1%	91.9%	135	.08	--
	Deniers	3.0%	97.0%	33		
Schizoaffective[5]	Acknowledgers	9.2%	90.8%	65	.13	--
	Deniers	0.0%	100%	13		

Note. r_Φ = Phi coefficient.

[1]Fisher's exact test (FET), $p = .116$. [2]FET, $p = .443$. [3]FET, $p = .177$. [4]FET, $p = .464$. [5]FET, $p = .582$.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 23

Regression Analysis Summary Relating Follow-up 3-Month Suicidality (log transformation) to Insight Measures

Variables	*B*	SEB	β	sr^2
Acknowledgment of mental disorder	.02***	.01	.16	.02
Problems with thoughts/feelings	-.01***	.00	-.24	.05

$R = .33$. $R^2 = .11$.

***$p < .001$.

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