

# The Use of Acceptance and Commitment Therapy to Prevent the Rehospitalization of Psychotic Patients: A Randomized Controlled Trial

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The present study examined the impact of a brief version of an acceptance-based treatment (acceptance and commitment therapy; ACT) that teaches patients to accept unavoidable private events; to identify and focus on actions directed toward valued goals; and to defuse from odd cognition, just noticing thoughts rather than treating them as either true or false. Eighty inpatient participants with positive psychotic symptoms were randomly assigned to treatment as usual (TAU) or to 4 sessions of ACT plus TAU. ACT participants showed significantly higher symptom reporting and lower symptom believability and a rate of rehospitalization half that of TAU participants over a 4-month follow-up period. The same basic pattern of results was seen with all participant subgroups except delusional participants who denied symptoms.

Nearly 4% of all schizophrenics who initially are medication responsive and continue to be medication compliant are rehospitalized each month, at a cost to society approaching one billion dollars a year (Weiden & Olfson, 1995). There are many reasons for rehospitalization (Doering et al., 1998), but part of this problem may be traced to the persistence of auditory hallucinations and delusions in the seriously mentally ill (SMI). Even with medication, these positive symptoms persist at least at low levels for many SMI patients (Breier, Schreiber, Dyer, & Pickar, 1991), and such symptoms are among the predictors of rehospitalization in this population (e.g., Sota, 2000). Thus, the SMI patients may require psychosocial interventions to help them cope with those symptoms that medication does not eliminate.

Psychosocial programs focused on hallucinations and delusions have generally emphasized methods designed to reduce the frequency, intensity, or believability of these symptoms. Treatment methods include verbal challenges to belief, planned reality testing, focusing and distracting, reductions in symptom expression, and improving perceived control, among other methods (Alford & Beck, 1994; Bentall, Haddock, Slade, & Peter, 1994; Chadwick & Lowe, 1990, 1994; Haddock, Slade, Bentall, Reid, & Faragher, 1998; Himadi & Kaiser, 1991; Kingdon, Turkington, & John, 1994; Sensky et al., 2000; Wykes, Parr, & Landau, 1999). The hope behind most of these methods is that direct challenges to the content of psychotic symptoms can reduce their occurrence or

believability and thus reduce the behavior that leads to poor functioning and rehospitalization.

It is possible, however, that these positive outcomes might be undermined if patients use suppression and avoidance as a method of regulating experiential content. Thought suppression is a coping strategy that tends to be applied to private experiences with high social disapproval or to those with content related to harming one's self or another (Freeston & Ladouceur, 1993; Purdon & Clark, 1994), and thus, psychotic symptoms are a natural target for this strategy. Unfortunately, thought suppression can actually increase the frequency of unwanted thoughts (Salkovskis & Campbell, 1994; Wegner, Schneider, Carter, & White, 1987) and reduce conscious control over simultaneously occurring overt behaviors (Bargh & Chartrand, 1999). This risk is not merely academic, as psychotic patients report using deliberate ignoring and distraction as methods of suppressing psychotic symptoms (Shergill, Murray, & McGuire, 1998).

The possible negative impact of avoidance and suppression on positive psychotic symptoms has been recognized by others. Morrison and colleagues (Morrison, 1994; Morrison, Haddock, & Tarrrier, 1995) have proposed that active suppression-based coping strategies exacerbate intrusive thoughts, psychological distress, autonomic arousal, and auditory hallucinations in the SMI. In accord with this model, Romme and Escher (1993) found that SMI patients who used distraction-based coping strategies frequently dealt poorly with auditory hallucinations.

Suppression and avoidance may also be a key to understanding why intrusive thoughts in the SMI are often attributed to outside agents (Hoffman & Satel, 1993). Wegner has recently shown that normal adults asked to suppress a thought are more likely later to attribute these thoughts to "subliminal messages" coming in over headphones (there were none) than were participants asked to think that thought deliberately (Morris & Wegner, 2000). The process of suppression and avoidance can lead to the "introspective alienation" (Graham & Stephens, 1994) common in the SMI.

Treatment that is focused on modifying the content of private events could also unintentionally increase cognitive entanglement

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and unhealthy self-focus in some psychotic patients. The SMI talk more about issues related to disordered thinking and tend to make more frequent references to their own cognitions as compared with normal controls (Rosenberg & Tucker, 1979). Auditory hallucinations are particularly likely to produce high levels of such self-focus (Morrison & Haddock, 1997).

There are psychosocial interventions that can change the believability and behavioral impact of problematic cognition without directly challenging them or targeting their content for change, however. In recent years, several interventions have emerged within the behavior therapy and cognitive therapy traditions that teach patients acceptance and mindfulness to defuse from (i.e., take less literally) internal sources of distress (e.g., Jacobson, Christensen, Prince, Cordova, & Eldridge, 2000; Linehan et al., 1999; Teasdale et al., 2000).

Acceptance and commitment therapy (ACT;<sup>1</sup> Hayes, Strosahl, & Wilson, 1999) is an example. ACT is based on the view that many maladaptive behaviors are produced by unhealthy attempts to avoid or suppress thoughts, feelings, or bodily sensations (Hayes, Wilson, Gifford, Follette & Strosahl, 1996). Among other components, patients are taught (a) to identify and abandon internally oriented control strategies, (b) to accept the presence of difficult thoughts or feelings, (c) to learn to “just notice” the occurrence of these private experiences, without struggling with them, arguing with them, or taking them to be literally true, and (d) to focus on overt behaviors that produce valued outcomes.

Early evidence indicates that ACT is a broadly useful clinical approach (Strosahl, Hayes, Bergan, & Romano, 1998) that has two particularly desirable attributes in this context. First, controlled research has shown that this approach reduces the negative behavioral impact of undesirable thoughts and feelings. For example, applying ACT to worksite anxiety and stress increases both the acceptance of these emotions and the positive work behaviors suppressed by them (Bond & Bunce, 2000). Similarly, an ACT-based acceptance rationale increases pain tolerance even if pain itself is not reduced (Hayes, Bissett, et al., 1999). Second, ACT seems to reduce the believability of negative private events more quickly than direct cognitive disputation in some clinical populations (e.g., Zettle & Hayes, 1987; see Hayes, Strosahl, & Wilson, 1999, for a review).

If these findings are applicable to the SMI, an acceptance-based intervention might have a significant effect on the believability and negative behavioral impact of the positive symptoms of serious mental illness, but without the dangers of increased cognitive entanglement and the paradoxical effects of thought suppression. A recent single-case study has shown that ACT can be useful in coping with auditory hallucinations (García & Pérez, 2001), which further suggests that this approach may be applicable to the SMI patient.

Our strategy in the present study was to expose patients experiencing positive psychotic symptoms in an acute care inpatient facility to a very brief form of ACT and to see whether it reduced the believability of these symptoms and their negative behavioral impact as assessed by rates of rehospitalization. If so, testing more lengthy or complex acceptance-based interventions with this population, alone or as part of more comprehensive packages, may be warranted.

Although ACT might be helpful in coping with either hallucinations or delusions, the rationale for treating these two symptoms with acceptance and defusion procedures differs. Delusions often seem to serve as explanations for personal failures that place blame outside of the individual (Bentall & Kinderman, 1999). Conversely, hallucinations may themselves become a focus of control in psychotic patients (Persaud & Marks, 1995). Said more simply, although hallucinations may commonly be a target of avoidance, delusions may be a form of avoidance. If delusions are themselves verbal avoidance strategies, it is not so much the delusional process that needs to be accepted, but rather the feelings of failure, depression, anxiety, and so on that the delusions help regulate. Thus, a post hoc comparison in the present study was the interaction between acceptance and the particular positive symptoms being experienced.

## Method

### Participants

Eighty inpatients at a state psychiatric hospital (Nevada Mental Health Institute; NMHI) who were experiencing auditory hallucinations or delusions at the time of their admission and who would be receiving outpatient treatment at NMHI following their discharge from the inpatient unit agreed to participate. Potential participants were excluded if (a) given a diagnosis of substance-induced psychosis, (b) their symptoms occurred as part of a dementia, delirium, or medical condition, or (c) they had a diagnosis of mental retardation on Axis II of the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; American Psychiatric Association, 1994). Participant demographic characteristics as charted following the hospital intake procedure are shown in Table 1. Although the inclusion criteria were focused on symptoms, not on diagnoses per se (see Persons, 1986), diagnoses were well balanced between the treatment conditions.

Potential participants were approached as soon as their condition was stable enough to allow them to understand the nature of the study. Approximately one of five patients approached agreed to participate. Although detailed analyses of the characteristics of refusers were not possible because of ethical concerns, it was possible to compare participants with typical SMI patients at NMHI. The two patient groups differed in two ways: Participants were less likely to have a secondary substance abuse diagnosis (17% of the volunteering group vs. 70% typically) and were more likely to have had previous admissions to NMHI (90% of the volunteering group, ranging from 1–58 previous hospitalizations, vs. 35% typically).

The average frequency of hallucinations and delusions at baseline was rated 6.0, or “more than once a day,” on the rating scale used. On average, it had been 77 days since participants were last released from the hospital, with an average stay of 33 days. Because it is known that past rehospitalization predicts future rehospitalization (Olfson et al., 1999), the participant group can be thought of as a fairly chronic sample, particularly at risk for rehospitalization.

Those who agreed to participate were randomly assigned (40 per condition) to receive treatment as usual (TAU) or the ACT intervention plus TAU (ACT + TAU—which, to avoid confusion with the other condition, is simply labeled *ACT* throughout the rest of this article). Inpatient staff and outpatient staff, with the exception of case managers, were blind to the

<sup>1</sup>Unfortunately in this context, Acceptance and Commitment Therapy has the same acronym, ACT, as is often used to refer to Assertive Community Treatment. In the present study, ACT will refer solely to Acceptance and Commitment Therapy.

Table 1  
*Characteristics of Participants in the ACT and TAU Conditions*

Variable	Condition	
	ACT + TAU group ( <i>n</i> )	TAU group ( <i>n</i> )
Mean age (years)	39.2	39.5
Gender		
Male	27	24
Female	13	16
Ethnicity		
Caucasian non-Hispanic	32	28
Hispanic	4	5
African American	2	1
Southeast Asian	1	0
Native American	1	1
Hospital supplied diagnosis		
Schizophrenia	20	23
Schizoaffective disorder	10	9
Mood disorder with psychotic features	6	6
Delusional disorder	2	1
Psychosis NOS	2	1
Secondary diagnoses		
Substance related disorder	8	7
Borderline intellectual functioning	5	5
Personality disorder	7	5

*Note.* ACT = acceptance and commitment therapy; TAU = treatment as usual; NOS = not otherwise specified.

identity of participants. Outpatient case managers, who collected some of the follow-up measures, were necessarily aware of the identity of participants but were blind to their condition. To avoid biasing this initial, highly focused study, hospital staff received no specific training related to the study. Some clinical staff attended a 90-min colloquium on ACT 1 year prior to the study, however.

### Conditions

**TAU.** TAU on the NMHI inpatient unit consisted of medication, attendance at three or more psychoeducational groups (each meeting one or two times a week for an average of 40 min each session) and, for those hospitalized for more than a few days, individual psychotherapy sessions with a psychologist or psychology intern a minimum of once a week. After discharge, TAU included case management services and monthly meetings with a psychiatrist for medication management. Psychosocial rehabilitation classes, psychotherapy, and Assertive Community Treatment were also available, but not all patients participated in these outpatient services (in the present study 60% of the participants did so).

**ACT.** In addition to TAU, experimental participants received four 45–50-min individual ACT sessions conducted by a psychology intern (Patricia Bach), who had been trained to the point of competence by the developer of the treatment approach (Steven C. Hayes). The components of the brief ACT intervention used in this study were drawn from the larger ACT manual (Hayes, Strosahl, & Wilson, 1999), with specific metaphors and exercises that were modified to fit the population. Components of the four sessions and their source in the ACT manual are shown in the Appendix.

The first session took place within 72 hr of the patient's consenting to participate and consisted of an overview of the ACT approach. The focus was on the participant's past efforts to deal with the positive symptoms of

psychosis and the possibility of just noticing thoughts and perceptions rather than believing and acting on them. The following exercise provides an example of the focus of this session. The therapist pointed out that people are thinking much of the time and that all of us have thoughts that we do not act on, such as thinking about eating when no food is available at the moment or thinking of yelling at someone who is annoying us without doing so. The participant was asked to "take their mind for a walk" (Hayes, Strosahl, & Wilson, 1999, pp. 162–163). In this exercise, the therapist acts as the participant's mind while the participant goes for a walk. The therapist walks behind the participant verbalizing a running commentary on the things and events they encounter, describing, evaluating, instructing, analyzing, predicting events, and recommending actions. Participants are instructed to just notice what the mind says, without attempting to communicate with it, and to behave as they choose, regardless of what their mind says. This cognitive defusion exercise helps the client get in touch with the ubiquity of thoughts and the possibility that one need not take most thoughts literally or act with respect to them.

The second session was held within 72 hr of the first session. The focus was on accepting one's symptoms even though one may not like them. An example from this session was the polygraph metaphor (Hayes, Strosahl, & Wilson, 1999, pp. 123–124), which is used to point out the futility of trying to control one's thoughts, feelings, and bodily sensations. Participants are asked to suppose that they are hooked up to a polygraph machine that could detect any anxiety. They are then asked to imagine that they will be harmed if they become anxious, but that the machine would know if they were anxious, and to consider whether they could avoid anxiety under these conditions. The participant experiences the paradox that trying to control discomfort often creates more discomfort. Accepting negatively evaluated thoughts, feelings, or bodily sensations may or may not reduce them or the distress they cause, but trying to avoid or control them will very likely increase their frequency, intensity, and distress-producing capacity.

The third session was held within 3 to 5 days of the second. The third session focused on accomplishing valued goals and examining the context in which given responses to symptoms may be more or less workable. For example, many clients described living independently as a valued goal. In this case, the therapist might ask the participant to consider past strategies for coping with voices and how they might interfere with that goal. For example, using illicit drugs or yelling at the voices might temporarily alleviate the voices, but they will also interfere with maintaining independent housing. The participant was asked to consider coping strategies that would not interfere with their goals.

The fourth and final session was held within 72 hr of the client's discharge from the inpatient unit. In most cases, this session was just prior to discharge; however, in some cases, when the hospitalization was brief, this session was held in the first 72 hr after discharge. In the final session, the concepts described in the first three sessions were reviewed.

### Measures

Data on rehospitalization were collected during a 4-month follow-up period. NMHI is the only public mental hospital for nearly 200 miles, and participants who remained in the area would almost certainly be returned to NMHI if rehospitalization were required. Thirty-five participants in each condition remained in the area, and none of these dropped out of the study. No participant complained about the rationale or content of the intervention.

The days-to-hospitalization data were collected from hospital records. Baseline days to hospitalization were measured as the number of days from the time they were hospitalized during the hospital stay in which they participated in the study to the date of discharge from the previous hospitalization, up to 120 days (the length of the follow-up period). Follow-up hospitalization was measured from the day the participant was discharged from the hospital during the hospital stay in which they partic-

ipated in the experiment until the next day they were hospitalized during the 120 days following discharge. Such data were available for 30 TAU participants (86%) and 33 ACT participants (94%). The remaining participants took part in the study during their first hospitalization at NMHI and, thus, had no baseline hospitalization data that could be objectively verified.

Participants also completed measures assessing the frequency of their symptoms, the distress they experienced with regard to such symptoms, and the believability of symptoms. The measures were collected at baseline and at follow-up; questions were presented orally during an assessment meeting with the participant. Baseline measures were collected by one of the investigators (Patricia Bach) immediately after the participant signed the consent form agreeing to participate in the study. Follow-up measures were collected by the participant's case manager or by one of the investigators (Patricia Bach).

When participants experienced both delusions and hallucinations, they were asked which symptom was more distressing to them and completed measures regarding only the more distressing symptom. Participants assessed the frequency of their symptoms in the previous month using a 7-point scale with ratings of 1 = *no symptoms*, 2 = *less than once a week*, 3 = *about once a week*, 4 = *several times a week*, 5 = *daily*, 6 = *more than once a day*, and 7 = *almost constant*. Participants were asked, "On average, how often have you heard voices [or thought about X] in the past month? Never, less than once a week, about once a week," and so on. Delusional beliefs were not identified as such when the interviewer asked the participant about frequency, distress, and believability in relation to them. When asking about delusions, the interviewer phrased the question, "How often do you think about [delusional content]" (e.g., "gang members stalking you," "your dead brother talking to you").

Distress and believability were measured using a rating from 0–100. For the distress measure, participants were asked, "On a scale of zero to 100, how distressed are you when you hear voices [think about X]? Zero means not distressed at all, and 100 is the most distressed you've ever been." For the believability measure, participants were asked, "On a scale of zero to 100, to what degree do you believe that X is true [e.g., gang members are stalking you, the voices are telling you that you are a bad person]? Zero means you are certain it is not real or true, and 100 means you are absolutely certain that it is real or true." Because distress and believability measured reactions to positive symptoms, they were not taken if participants said they were experiencing no symptoms. These measures were taken after the participant signed the consent to participate and again four months after the patient was discharged from the hospital.

Medication compliance was measured by participant self-report. Participants were asked, "In the past month, have you (a) taken all medication as prescribed, (b) been partially compliant, that is, took some medication but did not take it as prescribed, or in the case of injectable medication, received the shot after it was due but before the next shot was due, or (c) not taken medication at all." In 40% of cases, follow-up medication compliance was independently verified through the laboratory, injection records, or report of a caregiver who distributed medication.

## Results

### Objective Outcome

The primary (and most objective) outcome measure was rehospitalization. Four participants in each condition moved out of the area, and 1 in each condition died. Of the remaining 35 participants in each condition, 7 of the ACT participants (20%) and 14 of the TAU participants (40%) were rehospitalized during the 4 months following release. Figure 1 shows the rehospitalization curves for the ACT and TAU participants. A survival analysis showed that ACT participants were hospitalized at a significantly lower rate than were TAU participants: Wilcoxon's statistic (1,  $N =$

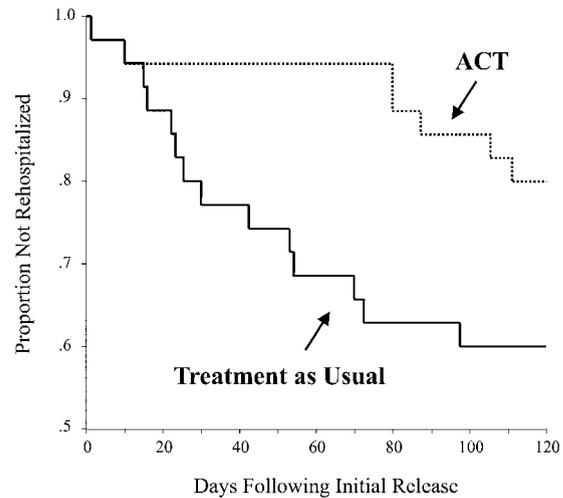


Figure 1. Daily percentages of participants in the acceptance and commitment therapy (ACT) and treatment-as-usual conditions remaining out of the hospital over the 4-month period following initial release.

70) = 4.26  $p < .05$ ; an alpha level of at least .05 was used for all statistical tests. ACT participants remained out of the hospital an average of 22 days longer than control participants during the 120-day follow-up period.

To assess whether this difference represented a change in the pattern previously shown by these specific participants, we analyzed baseline data. Objectively verified baseline days to hospitalization data were available for 63 of 70 participants (90%). The 7 participants who were hospitalized for the first time at NMHI were excluded from this analysis. These participants were a mix of patients who had never been hospitalized before and those who had been hospitalized elsewhere. Because it was not possible to know whether some of these patients had falsely denied previous hospitalization or to know if self-reports of previous hospitalization were accurate, it seemed more conservative to exclude them from the analysis rather than to construct days of hospitalization data entirely from self-report. Furthermore, as 5 of the participants were in the TAU condition and 2 were in ACT, failing to insert baseline zeros based on self-report alone serves to make a Type I error less likely.

Both groups represented relatively severe populations, with high initial rates of hospitalization. During baseline, participants stayed out of the hospital an average of 78.5 days in the ACT group and 75.3 in the TAU group, a nonsignificant difference,  $F(1, 61) = 0.07$ , *ns*. The superiority of the ACT group, thus, was not due to the accidental creation of a group through random assignment from those who were less likely to be hospitalized in the first place.

Follow-up days to hospitalization scores were also subjected to an analysis of covariance, using the baseline days to hospitalization scores as the covariate (once again, those without objective baseline data were excluded from this analysis). The difference between the two conditions in the number of days to hospitalization during follow-up was statistically significant,  $F(1, 60) = 4.74$ ,  $p = .03$ .

### Accounting for the Difference in Objective Outcome

Several possible processes were examined as potentially accounting for these outcome differences.

**Medication usage.** One possible explanation for the finding that ACT intervention participants remained out of the hospital longer is that ACT participants were more likely to take medications as prescribed as compared with control participants. This was not the case. At follow-ups, 69% and 31% of the ACT participants versus 77% and 23% of the TAU participants, respectively, reported that they were compliant or partially compliant with their medication regimen. The self-report data were compared statistically using a Wilcoxon's rank test comparing the change in medication compliance from pretreatment to follow-up. The difference between the two groups was nonsignificant. A similar negative result was found for the main subgroups of participants complaining of hallucinations or delusions. This finding suggests that the difference in hospitalization between ACT and TAU participants was not due to differences in medication compliance.

Collateral information on medication compliance (i.e., injection records, laboratory results, or reports from significant others administering the medication) was available for 28 of the 70 participants (40%). These data showed that 23 of 28 participants (82%) accurately described their medication compliance. Among those who gave inaccurate reports, 1 reported partial compliance when he was noncompliant and the others reported full compliance when collateral information suggested partial compliance. Thus, collateral information suggests that the majority of participants were truthful in describing their medication compliance.

**Symptom frequency.** Another possible explanation for the difference in hospitalization rates is that ACT participants experienced fewer psychiatric symptoms. For participants reporting the presence of symptoms, the frequency of reported symptoms was not significantly different between the ACT and TAU participants, whether at baseline,  $F(1, 69) = 2.12, ns$ , or at follow-up,  $F(2, 29) = 0.36, ns$ . ACT participants were twice as likely as TAU participants to report symptoms at all, however, with 21 ACT participants (60%) and 11 TAU participants (31%) reporting symptoms at follow-up, a significant difference,  $\chi^2(1, N = 70) = 5.76, p = .016$ . In each group, 18 participants complained primarily of delusions at baseline and 17 complained primarily of hallucinations. As is shown in Figure 2, both subgroups showed the same pattern of increased symptom reporting among the ACT participants. These data present an anomaly: More ACT participants reported symptoms, but significantly fewer were hospitalized.

One possible explanation is that higher levels of symptom reporting in the ACT condition was an indirect measure of acceptance, at least for those participants who still had active symptoms. If participants were more accepting of symptoms that occurred, they presumably would be more likely to acknowledge them rather than deny them. If so, symptom report may actually be prophylactic for ACT condition participants. Overall, this seems to be what occurred. In the ACT condition, 5 of 14 participants who denied symptoms (36%) were hospitalized, but only 2 of the 21 (9.5%) participants who acknowledged symptoms reentered the hospital. In the TAU group, this strong relationship between symptom reporting and low rehospitalization did not occur: 10 of the 24

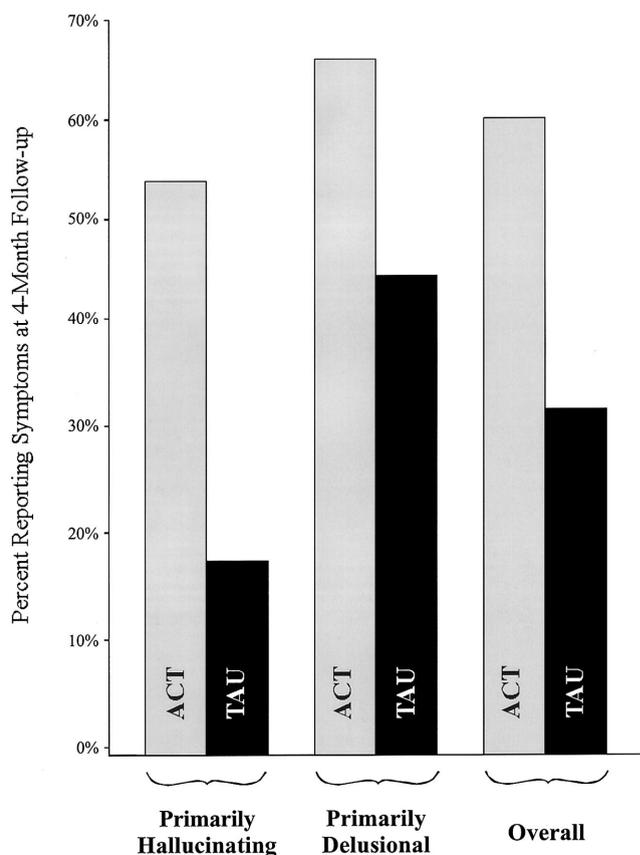


Figure 2. Symptom reporting at follow-up in the acceptance and commitment therapy (ACT) and treatment-as-usual (TAU) conditions, overall and for participant subgroups complaining of hallucinations or delusions.

participants (42%) who denied symptoms and 4 of the 11 (36%) participants who acknowledged symptoms were rehospitalized.

Examination of the impact of ACT for various subgroups of participants revealed a more complex story, however. The data are shown in Figure 3 and Table 2. The small numbers of participants in these sub-subgroups prevent meaningful statistical analysis of these subgroup differences, but the overall pattern seems clear. All of the subgroups showed a positive effect for ACT with the exception of symptom deniers complaining primarily of delusions.

**Symptom distress and believability.** Why would there be higher acceptance of symptoms in the ACT group? One possibility is that these symptoms became less distressful or less believable. In the present study, symptom distress and believability referred to reactions to symptoms that actually occurred. For example, a participant might be asked, "On a scale of zero to 100, to what degree do you believe that the voices telling you that you are a bad person are true?" If a participant denied hearing voices, the participant was not asked if the voices were believed. There was no significant difference in the distress associated with symptoms between the two groups. Distress decreased from a mean of 87.7 to 49.0 from baseline to follow-up among ACT intervention participants and from a mean of 80.4 to 49.1 among control participants,  $F(2, 29) = 1.84, ns$ .

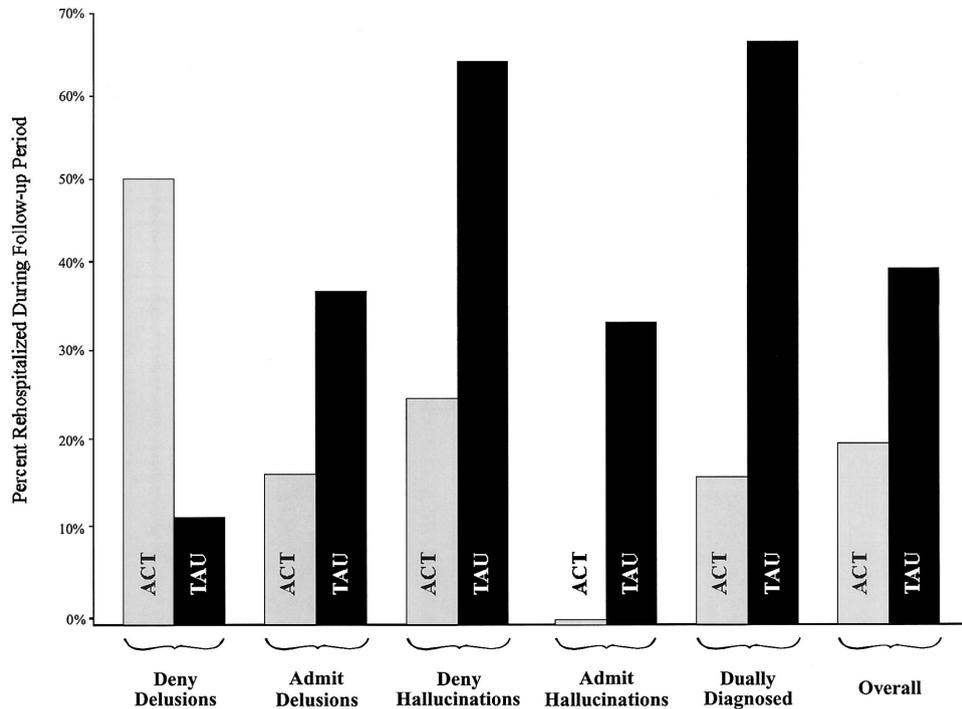


Figure 3. Percentages of participants in the acceptance and commitment therapy (ACT) and treatment-as-usual (TAU) conditions rehospitalized during the 4-month period following initial release, overall and for participant subgroups defined by primary positive psychotic symptom, symptom reporting, and co-occurring substance use disorder. Note that some of these percentages are based on very small numbers. Actual numbers can be found in Table 2 and, for the dually diagnosed, in the text.

Believability referred to the degree to which participants believed that the content of delusional beliefs or auditory hallucinations that actually occurred corresponded to reality. Believability decreased from a mean value of 78.7 at baseline to 40.7 at follow-up among ACT participants and from a mean value of 75.4 to 63.6 among TAU participants (see Figure 4). An analysis of covariance of follow-up believability ratings was conducted with the baseline ratings as a covariate. The difference in believability ratings between the two groups was statistically significant,  $F(1, 29) = 4.36, p < .05$ .

This pattern of between-groups results suggests that the reduced believability of psychotic symptoms played a role in the impact of ACT on rehospitalization. It would strengthen the account if believability scores within the ACT condition predicted positive outcomes, but that possibility cannot be assessed with these data. The analytic problem comes because believability, as defined in the present study, can only be measured when symptoms are admitted to, and the rehospitalization outcomes in the ACT condition for those participants were too uniformly positive to relate other measures to them. Only 2 participants who admitted symp-

Table 2  
Relationship Between Symptom Reporting and Hospitalization Overall and in Hallucinating and Delusional Subgroups of Participants

Variable	Participant Complaint					
	Combined		Hallucinations		Delusions	
	ACT	TAU	ACT	TAU	ACT	TAU
Deny symptoms—rehospitalized	5	10	2	9	3	1
Deny symptoms—not rehospitalized	9	14	6	5	3	9
Admit symptoms—rehospitalized	2	4	0	1	2	3
Admit symptoms—not rehospitalized	19	7	9	2	10	5
Total	35	35	17	17	18	18

Note. ACT = acceptance and commitment therapy; TAU = treatment as usual.

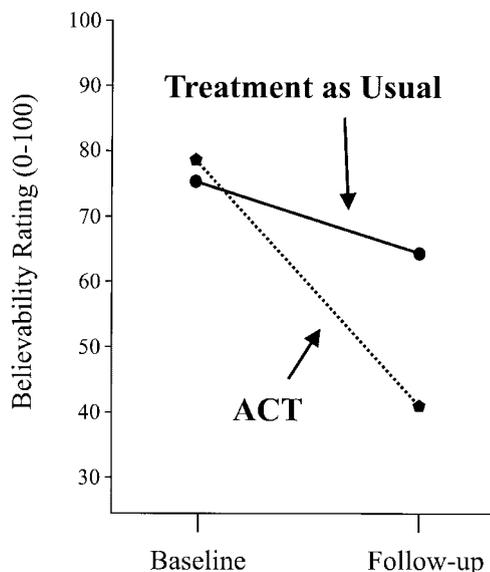


Figure 4. Self-rated believability of hallucinations and delusions for participants in the acceptance and commitment therapy (ACT) and treatment-as-usual conditions during baseline and follow-up.

toms in the ACT condition were rehospitalized during the study, whereas 19 were not. These 2 rehospitalized ACT participants had average baseline and follow-up believability scores of 100, which fits the hypothesized mediating role for believability, but the sample size is too small for analysis.

#### Impact on the Dually Diagnosed

Finally, because the dually diagnosed have particularly high rates of rehospitalization (Dickey & Azeni, 1996) it is worth mentioning the outcomes for participants who were also diagnosed with a substance abuse disorder. There were 12 dually diagnosed participants, 6 in each condition. In the ACT condition 3 of 6 admitted symptoms and 1 of 6 was rehospitalized; in the TAU condition, 1 of 6 admitted symptoms and 4 of 6 were rehospitalized. Although the sample size is too small for statistical analysis, the pattern found was the same as the overall results and most other subgroups of participants (see Figure 3).

#### Discussion

The present study found that four sessions of an individual acceptance intervention reduced the rate of hospitalization over a 4-month period by 50% in a relatively chronic group of hospitalized patients experiencing positive symptoms of psychosis. Participants in the ACT condition were considerably more likely to report symptoms than were TAU participants, and they were three times more likely to stay out of the hospital if they did. ACT participants who reported symptoms reported similar symptom frequency and distress associated with symptoms but lower believability of symptoms as compared with TAU participants. Examination of the changes shown within subgroups of participants (e.g., the dually diagnosed, participants complaining of hallucina-

tions who reported symptoms, and so on) showed similar patterns except for the symptom deniers complaining of delusions.

Although acceptance and mindfulness are receiving increased attention among empirical clinicians (e.g., Jacobson et al., 2000; Linehan, 1993; Teasdale et al., 2000), researchers are only beginning to analyze the outcomes produced and processes involved. Given the level of knowledge, it seems less important at this stage to show that comprehensive acceptance packages are more effective than other packages in large efficacy studies than it is to determine whether the process and outcome results of acceptance procedures comport with the theory underlying them.

The theory underlying ACT is fairly well-elaborated, yet can be simply stated: "ACT therapists try to help clients make room for . . . life's difficulties and to move in the direction of their chosen values. The barriers to doing this are experiential avoidance and cognitive fusion, which prevent a behavioral commitment to living a valued life" (Hayes, Strosahl, & Wilson, 1999, p. 81). ACT thus seeks to increase clients' willingness to be exposed to unpleasant private events if necessary to complete valued activities. The goal is to change participants' relationships to their symptoms rather than to change symptom frequency, as such, by helping them become less entangled with their symptoms and more focused on effective behavior. If the theory is correct, ACT should produce decreased symptom believability, increased symptom acceptance, and positive behavioral changes.

The overall pattern of results fit these predictions. ACT reduced rehospitalization, but these positive benefits could not be accounted for by medication compliance, reductions in distress, or reductions in symptom frequency. Rather the effect seemed to be due to greater acceptance of symptoms and a decreased tendency to treat symptom content as real. At follow-up, twice as many ACT as TAU participants admitted to symptom occurrence, and participants in the ACT condition showed a significantly greater reduction in symptom believability than did TAU participants.

This pattern of results has been seen previously in the acceptance literature (e.g., Teasdale, 1997; Zettle & Hayes, 1987). When thoughts are not treated as fearsome, or are treated as literally true or false, their content can be observed more objectively, and believability seems to plummet without direct change efforts being made. This shift in perspective has been termed *deliteralization* or *cognitive defusion* in ACT (Hayes, Strosahl, & Wilson, 1999) and as *disidentification* or *decentering* in acceptance-based cognitive therapy (Teasdale, 1997).

Similar processes may occur naturally. Many individuals diagnosed with a psychotic disorder remain out of the hospital despite persistent positive symptoms (Breier et al., 1991). In a study examining the posthospital course of persons with schizophrenia, Carone et al. (Carone, Harrow, & Westermeyer, 1991) found that although most participants continued to report symptoms of psychosis, the correlation between symptoms and hospitalization decreased over time. They suggested that this could be because patients gradually became less emotionally committed to their symptoms. It could be that acceptance-based treatment merely induced this natural process.

The present treatment was extremely brief. We are unaware of any other psychosocial intervention that has shown a significant impact on rehospitalization in a controlled study when presented in such brief form. Sensky et al. (2000) showed a similar impact, for

example, but their intervention contained 21 sessions of cognitive-behavioral intervention, spread out over 9 months. It is not our intention to suggest that such a brief intervention is adequate, however. Such difficult problems as those dealt with in this study will surely require more extensive and comprehensive approaches. Indeed, the data in the present study suggest as much. In the first 2 months after discharge, fewer than 7% of ACT participants were rehospitalized compared with just over 30% of TAU participants. The survival curves subsequently assumed similar slopes for the two conditions. In other words, the effects were powerful for a few months and then began to wear off. This is hardly surprising with such a minimal intervention being used with such a disturbed population. It seems worth building on these methods to try to produce more extensive and long-lasting improvements. Lengthier treatment, covering a more extensive set of acceptance and defusion skills and including booster sessions after discharge, would be a logical next step. Researchers should also examine how to integrate acceptance procedures into more comprehensive packages of known benefit (e.g., social skills training, family therapy, cognitive-behavioral therapy, Assertive Community Treatment) to see if additive effects can be obtained.

One reason to try lengthier versions of ACT with this population is that ACT did not seem to have a beneficial effect for the one third of delusional participants in the ACT condition who continued to deny symptoms. A growing body of work in cognitive psychology has shown that delusions can act as a defense against underlying feelings of low self-esteem (e.g., Bentall & Kaney, 1996; Kaney & Bentall, 1992; Kinderman & Bentall, 1997; Lyon, Kaney, & Bentall, 1994). Indeed, in the baseline phase for both groups, and in the follow-up phase in the TAU condition, the more believable delusions were or became, the less distressing they were or became (e.g., for TAU participants believability and distress were correlated  $r = -.32$  at follow-up and  $-.51$  for changes in believability and changes in distress from pretreatment to follow-up).

The foreshortened version of ACT used in this study undermined this form of avoidance by reducing the believability of symptoms, but that initially might remove a prime coping strategy in some patients. In the ACT condition, unlike TAU, more believable delusions were associated with more distress ( $r = .3$  at follow-up), perhaps showing that the avoidance function of delusions was being undermined. Eventually defusion and acceptance tend to reduce stress (e.g., Bond & Bunce, 2000) and the feelings of failure, depression, anxiety, and so on that the delusions may help regulate (Hayes, Strosahl, & Wilson, 1999), but the brief form used here may not have been enough to produce that effect for all participants. Delusional participants continuing to deny symptoms may represent a particularly well-defended subgroup; the poorer outcomes in that subgroup would be understandable given the brief form of ACT used in this study.

Participants initially complaining of hallucinations but denying symptoms may not represent the same kind of well-defended subgroup. Undermining avoidance through guided exposure has previously been shown to be helpful with auditory hallucinations (Persaud & Marks, 1995). García and Pérez (2001) found evidence that ACT can reduce the actual frequency of hallucinations; thus, some of the hallucinating participants denying symptoms may

have been experiencing genuine symptom reduction, which might help explain the more positive outcomes in this subgroup.

The present study has weaknesses and limitations. The measures of symptom severity were self-report, and the lack of standardized diagnostic assessment limits the degree to which these results can be confidently applied to specific diagnostic populations beyond the simple inclusion criteria of hospitalization and positive psychotic symptoms. The participants were fairly chronic. Relatively few had a secondary substance abuse diagnosis, but those that were dually diagnosed responded similarly to the larger sample. Although these sessions were scripted, and the therapist had been trained to competence by the originator of this therapy, no explicit measures were taken of adherence to the manual. None of these participants reported complete medication noncompliance (although collateral information identified 1 such participant). If participants willing to be involved in such research are individuals who are more compliant generally, the results of this study may not generalize to other types of psychotic patients. Use of a treatment as usual comparison group controls for only some nonspecific factors. As these patients were hospitalized and had many forms of therapy presented daily, the gross amount of therapy seems fairly well controlled, but it would be useful to compare ACT with an attention-placebo program oriented specifically toward positive symptoms of psychosis or to existing treatment packages that purport to work according to different psychological processes. Finally, a far larger trial will be needed to explore in a statistically adequate way the impact of ACT on specific subgroups of participants.

Against these weaknesses must be weighed the fact that an effect was found on an objective measures of social importance (e.g., rehospitalization). Further, the relationship found between process measures and objective outcomes, although coherent in terms of the theory underlying ACT, would not be obvious to participants. For example, if patients in the ACT group were merely compliant or responding to gross demand characteristics (always a worry with self-report measures), it is not clear why symptom reporting would be higher and believability would be lower in the ACT group, with both changes related to rehospitalization, whereas reports of medication compliance would be neither higher nor related to rehospitalization. The unusual nature of this pattern of results provides some indication that an active process is at work in the ACT intervention.

Psychosocial interventions can significantly reduce rehospitalization and improve patient functioning over medication alone (Gorman, 1996). Acceptance approaches can readily be combined with other psychosocial components that are known to be helpful with this population (see Paul & Menditto, 1992, for a review). The relatively large impact of even a very short acceptance intervention suggests that this form of intervention deserves research attention in psychotic populations.

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## Appendix

### Components Used in the Acceptance and Commitment Therapy Condition

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#### Session 1

- Explore previous approaches to coping with symptoms of psychosis
- Discuss the continuum between psychotic symptoms and more ordinary private events
- The problem is not symptoms per se, but how one responds to them
- Describe the option of just noticing thoughts rather than believing and acting on them
- Distancing exercise (pp. 148–150, 158)
- Taking your mind for a walk exercise (pp. 162–163)
- Successful working: Engage in behaviors that work toward desired goals (pp. 227–228)
- Medication compliance is an issue of workability, allowing other goals to be pursued

#### Session 2

- Describe their specific symptoms in detail, how distressing they are
- The futility of attempts to control unwanted thoughts (pp. 128–132)
- Polygraph metaphor (pp. 123–124)
- Letting go of the struggle with private events (p. 109)
- Accepting one's symptoms even though one may not like them (pp. 77–79)

Appendix (*continued*)

## Session 3

Review: Accepting symptoms rather than trying to get rid of them  
Distinguishing between their descriptions and evaluations of private events (bad cup metaphor, pp. 168–169)  
Normalize thought processes, such as hallucinations, that are often negatively evaluated  
Specify valued goals (pp. 228–229)  
Past attempts to control symptoms may have interfered with goal attainment (pp. 96–102)  
What action is in one's best interest depends on the context (pp. 78–79)  
Contexts in which given responses to symptoms may be more or less workable  
Focusing on process rather than content as a means of coping with symptoms (pp. 72–74)  
Purpose of coping is not to decrease symptom frequency, but to carry out valued activities whether or not symptoms occur (pp. 60–61, 245–246)

## Session 4

Review: continuity of symptoms with normal private events  
Review: acceptance of symptoms (pp. 77–79)  
Review: distinguishing process from content (pp. 92–95)  
Review: distancing from private events (pp. 170–171)  
Review: successful working toward the attainment of individual goals (pp. 210–218)  
Review: coping in the service of workability (pp. 60–61)

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*Note.* Page numbers in parentheses refer to areas of the main manual related to this session. From *Acceptance and Commitment Therapy: An Experiential Approach to Behavior Change*, by S. C. Hayes, K. Strosahl, and K. G. Wilson, 1999. New York: Guilford Press. Copyright 1999 by Guilford Press. Adapted with permission.

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### **Call for Nominations** ***Psychology of Addictive Behaviors***

Division 50 (Addictions) has opened nominations for the editorship of *Psychology of Addictive Behaviors*. Candidates should be members of APA and should be available to start receiving manuscripts in early 2004 to prepare for issues published in 2005. The typical editor's term is 5 years. (Please note that Division 50 encourages participation by members of underrepresented groups in the publication process and would particularly welcome such nominees.) Self-nominations are also encouraged.

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