A Behavior Analytic Conceptualization of the Assessment and Treatment of Delusional Speech

Rebecca Braginton
Western Michigan University, becca.braginton@gmail.com

A Behavior Analytic Conceptualization of the Assessment and Treatment of Delusional

Speech

Rebecca J. Braginton

Western Michigan University

Abstract

This case conceptualization looks at past treatments for schizophrenia and then introduces a behavioral approach to assessing and treating delusional speech in a hypothetical client with schizophrenia. The treatment assessment would consist of five treatment conditions and a control condition. The delusional speech would be triggered by specific conversational themes. The results of the treatment assessment would inform the protocol that would be written for the client's delusional speech. After a protocol is written, there would need to be staff training. Behavioral skills training (BST) has been proven to be an effective form of training that provides trainees with opportunities to practice the protocols being trained. After training is complete routine monitoring provides a way to ensure protocols are working and being run correctly.

Keywords: Schizophrenia, delusional speech, behavioral treatment, treatment assessment, staff training, behavioral skills training, behavioral conceptualization

A Behavior Analytic Conceptualization of the Assessment and Treatment of

Delusional Speech

According to the American Psychological Association (APA; 2013),

schizophrenia affects approximately one in every one hundred Americans. Schizophrenia

is characterized by abnormalities in at least one of the five domains: hallucinations,

delusions, abnormal motor behavior, disorganized thinking, and negative symptoms.

Schizophrenia also involves a variety of dysfunctions in the cognitive, behavioral, and

emotional areas (APA, 2013).

There have been many different treatments and therapies for schizophrenia

throughout the history of the disorder. Most of the previous and current therapies do not

attempt to target specific negative behaviors, such as delusional speech, but rather use

psychotherapeutic or pharmacological approaches to treat the disorder as a whole (Brus,

Novakovic, & Friedberg, 2012). Some of these treatments include psychodynamic

psychotherapy, personal therapy, cognitive enhancement therapy, cognitive behavioral

therapy, and pharmacological therapies (Brus et al., 2012).

Psychodynamic psychotherapy is one of the older treatments for patients with

schizophrenia. Although there are many case reports detailing dramatic recoveries of

patients who went through intensive psychoanalytic treatment, there is limited scientific

data supporting this approach as an effective treatment. Furthermore, psychodynamic

psychotherapy may promote regression and psychotic transference which can be

detrimental to patients with schizophrenia (Lehman, Steinwachs, & the Co-Investigators

of the PORT Project, 1998). This could be explained by the fact that most of these case

studies are anecdotal and emerged from a pre-DSM-III era when the diagnosis of

schizophrenia was unreliable (Kendell, Cooper, Gourlay, Copeland, Sharpe, & Gurland, 1971)

Another treatment is Personal Therapy (PT) and was first introduced by Hogarty et al., (1995) at the Western Psychiatric Institute and was developed to be distinct from traditional analytic therapy. Disorder-relevant practice principles, gradual staging of interventions, and centrality of affect dysregulation are the three issues that this therapy addresses (Hogarty et al., 1995). PT focuses on recognizing the patient's current affective state whereas a traditional analytic therapy focuses on investigating relevant historical events of the patient's development (Hogarty et al., 1995). Hogarty et al.'s PT has a total of three phases and phase one is the only phase to work on reduction of symptoms such as delusions but does so with low doses of medication instead of targeting the behavior itself.

Cognitive Enhancement Therapy (CET) was developed by Hogarty & Flesher (1999) to help patients with schizophrenia attain the social skills of typically developing adults. Effortful and active processing of social context of a typical and healthy adult is among these skills practiced along with cognitive flexibility, personal comfort with abstraction, and tolerance for ambiguity and uncertainty. CET helps patients with schizophrenia obtain these skills by providing "personally meaningful and self-directed experiences tailored to the performance of adult roles that require social cognitive competence" (Hogarty & Flesher, 1999, p. 693). Although this therapy seeks to change social behavior, it does not target specific symptoms or behaviors but rather attempts to treat multiple symptoms at once.

Cognitive behavior therapy (CBT) is an evidence-based therapy that has been adapted to treat multiple disorders, one of which is schizophrenia. It uses talking therapy to attempt to change both cognitive and behavioral areas based on an individual's personal history, world views, and presenting problems (Tai & Turkington, 2009). Some of the earlier forms of CBT primarily relied on behavioral techniques such as pairing one task with another to affect change. CBT's secondary aim was on the cognitive components (Tai & Turkington, 2009). As a part of CBT, the cognitive model describes how delusions occur when unusual experiences that are common to the typical person are misinterpreted by the person with schizophrenia in ways that are extreme and that threatens the patient's personal meaning (Tai & Turkington, 2009). In more recent uses of CBT, therapists have attempted to specifically make the patient's delusions/hallucinations subject to treatment by thinking of them as either intrusive thoughts (like those in obsessive compulsive disorder) or misinterpretations of ordinary experiences (Tai & Turkington, 2009). Even though CBT can improve overall functioning in patients with schizophrenia, it does not necessarily decrease symptoms of schizophrenia like delusions which may still leave patients with significant impairments (Tai & Turkington, 2009).

During the psychopharmacological revolution in the 1950's (Rosenbloom, 2002), mental-health professionals were optimistic and believed antipsychotic medications would be a cure for schizophrenia (Brus et al., 2012). However, despite the positive outcomes many patients experienced with this form of therapy, there were also detrimental side effects and many symptoms were left untreated (Correll, Leucht, & Kane, 2004). While the use of medications can be helpful in the treatment of

schizophrenia, research suggests that the longer the patient has been ill with the disorder, the less likely pharmacological treatments will work (Kolb, 1968). Therefore, because of the side effects and because of their inability to fully treat the disorder, antipsychotic medications may only be useful in conjunction with another forms of treatment.

As stated earlier, abnormalities in one or more of five domains are what characterize Schizophrenia as a disorder (American Psychiatric Association, 2013). One of these domains are delusions. Delusions are classified as fixed beliefs that do not change even in the light of conflicting evidence (APA, 2013). These can manifest themselves in the form of speech (bizarre or non-bizarre), thoughts, or writings. Typically, patients with schizophrenia who present delusional speech symptomologies gravitate around particular themes such as, government surveillance, prosecution, or false relationships (American Psychiatric Association, 2013). For example, a study by DeLeon, Arnold, Rodriguez-Catter, & Uy's (2003) defined bizarre speech as "vocalizations unrelated to the topic being discussed or to stimuli in the environment," (p. 102). There exists slight variations with the definitions of delusional/bizarre speech depending on the patient but the definition generally includes statements that are known to be false.

It has been shown that verbal symptoms of schizophrenia or delusional speech have been responsive to behavioral procedures (e.g., Liberman, Teigen, Patterson, & Baker, 1973). Furthermore, Hoeing & Hamilton (1966) and Wing, Monck, Brown, & Carstairs (1964) found that the re-admittance of schizophrenic patients to a hospital was higher for those who engaged in delusional speech. Therefore, although this is an empirical question, it is conceivable that by specifically targeting delusional speech for

treatment, it may be possible to reduce the number of hospital re-admittance which is socially significant.

Liberman et al.'s (1973) study used social contingencies that reinforced rational speech in a multiple baseline design. The staff conducted four 10-minute interviews throughout the day that were terminated when the patient began engaging in delusional speech. The amount of time in the evening that the patients were able to spend one-on-one with a staff was directly proportional to the number of minutes acquired during the daily interviews. Results of the interventions showed a significant increase in the amount of rational speech and a decrease in delusional statements throughout the day after the implementation of the intervention (Liberman et al., 1973).

Carr & Britton (1999) conducted another study addressing delusional speech, which evaluated non-contingent reinforcement (NCR) to reduce of problematic speech maintained by attention. Non-contingent reinforcement has previously demonstrated successful decreases of problem behavior that is maintained by social reinforcement (Vollmer, Iwata, Zarcone, Smith, & Mazaleski, 1993). During baseline, the subject received three to five seconds of attention contingent on every instance of problematic speech (Carr & Britton, 1999). After baseline was stable, the NCR was implemented on a fixed time schedule where every ten seconds the therapist would deliver three to five seconds of attention to the subject (Carr & Britton, 1999). After reductions in problematic speech were observed, the fixed interval schedule was thinned to sixty, ninety, one-hundred twenty, and one-hundred eighty seconds (Carr & Britton, 1999). Results indicated that the NCR intervention substantially reduced delusional speech from that of baseline levels.

Because behaviors, such as delusional speech, can be complex, one thing to keep in mind is that the process by which a behavior is acquired and the process by which that behavior is maintained may involve different mechanisms (Salzinger, 1973). It is important to remember that the issue is not only whether or not the behavior of people with schizophrenia is learned but how that particular behavior is maintained (Salzinger, 1973). In addition, behavior varies as a function of the consequences that produced that behavior in the past and thus can be reinforced in the presence of a particular stimuli (discriminative stimuli) and not reinforced in the presence of another stimuli (Salzinger, 1973). This means that behaviors, such as delusional speech, can be triggered (evoked) by a stimulus. Then after they are triggered, they can be reinforced, increasing the likelihood of that stimulus triggering the behavior again in the future.

A behavior analytic approach to treatment generally involves the identification of the function (i.e., environmental variables influencing behavior) of a specific behavioral symptom of schizophrenia. A functional behavior assessment of delusional speech would be conducted which would then lead to the development of treatment recommendations in the form of a behavior support plan. One component of the functional behavior assessment process is the functional analysis. A functional analysis involves the manipulation of environmental variables that may influence behaviors like delusional speech. This assessment yields information about the function of a particular behavior, which in turn informs treatment recommendations.

Another approach is to conduct a treatment assessment as a way to identify specific treatment(s) that would be effective in decreasing the frequency of the specific target behavior. With the treatment assessment, we are able to test specific treatments in

order to determine the effectiveness of specific treatment options, but it does not directly give us information about the function of behavior.

The purpose of this paper is to provide a behavior analytic conceptualization of how a treatment assessment of delusional speech would be conducted, how the information gathered would inform treatment recommendations, and how staff training materials would subsequently be developed for the effective training of staff who would carry out the implementation of the treatment.

<div align="center">**Assessment & Treatment Process**</div>

Case Presentation

Supposed we had a client diagnosed with schizophrenia. This client engages in delusional speech which could be defined as speaking about events unrelated to the topic being discussed or talking about events that have not happened or are untrue as if they did happen or were true. The client's delusional speech may have themes that could include statements suggesting that they were under government surveillance, were being poisoned, or was in a relationship with a partner who did not exist. In addition, let's suppose the client also engaged in other, more severe, forms of behaviors such as property destruction and delusional speech is found to reliably precede those more severe behaviors. It could then be hypothesized that the delusional speech was a precursor behavior to the more severe behaviors.

As is sometimes the case, delusional speech that is influenced by environmental factors are sometimes triggered by social events. If it was reported that the client began engaging in delusional speech after someone began talking about a particular topic that the client found aversive, then it could be hypothesized that the client's delusional speech

socially mediated and would perhaps have an escape function. Another scenario would be if the client continued to engage in delusional speech when someone talked about the delusions with the client. Then it could also be hypothesized that the delusional speech was maintained by social attention. This means that the longer that someone talked about the delusions with the client, the longer the client would engage in delusional speech.

Treatment Assessment

Dependent Measures and Recording System

A treatment assessment is a way to systematically test and identify specific treatments that most effectively decrease the frequency of the specific target behavior. In order to conduct a treatment assessment, we would need to define the behavior we are targeting. We could operationally define the client's delusional speech as speaking about life events or life experiences that have not happened or are untrue as if they have happened or are true. This definition would be obtained after conducting a functional assessment interview with the client's caregivers and guardian.

During the treatment assessment, we would use ten second partial intervals for five minutes to record if the client was engaging in delusional speech, if the client was engaging in appropriate speech, or if the client exhibited tantrum behaviors. A partial interval recording system is a conservative measurement system which would help track the client's behavior during treatment assessment sessions. However, it must be noted that this type of recording method tends to overestimate the occurrence of behaviors being recorded.

Procedures

Trigger themes would be used to evoke the client's delusional speech. Specific triggers would be identified during the functional behavior assessment (specifically the interview with caregivers or during direct observations).

A treatment assessment of the delusional speech in which different treatment conditions would be administered sequentially, following trigger themes, for short periods of time to determine the intervention which would most effectively decrease the client's delusional speech. For example, treatment conditions may involve providing high quality attention, verbal redirection, rule statement, low quality attention, and ignore.

Session Initiation

Treatment assessment sessions would not begin until at least two minutes without the presence of delusional speech in order to ensure that the client was not in a delusional cycle already. Each session would begin by having the assessor verbally addressing the client using one of the trigger themes. The assessor would deliver one of the trigger themes for one minute. Five to ten second pauses would be interspersed throughout to allow the client to respond. The assessor would deliver the same trigger until the specific trigger duration elapsed or until the client began engaging in delusional speech. If the client does not engage in delusional speech by the end of the trigger duration then the assessor would then switch to the next known trigger theme. If the client does engage in delusional speech then the assessor would start the programed treatment condition and the scorers would start the session timer. In between each condition there would be a one to two minute break to reset and prepare for the next condition. The client would also be prompted to take a three to five minute break every fifteen minutes.

Treatment Conditions

  High Quality Attention Condition - During the high quality attention condition, high quality attention would be delivered immediately contingent on the client engaging in delusional speech. High quality attention would involve statements that would be thematically relevant to the content of the client's delusional speech. The assessor would not ask any questions except to ask the client to repeat or clarify something that the client said. If the assessor asked a question it would make this condition different from the others because asking questions is a form of requesting (manding) for more information; this means the client is responding to a question as opposed to delusional speech being maintained because it is receiving high quality social reinforcement. The assessor would deliver a high quality statement after every instance of delusional speech emitted by the client. If the client asked the assessor a question thematically consistent with the delusional speech, the assessor would provide a short response and follow up with a high quality comment. Sessions would be terminated if thirty seconds elapse without the client engaging in delusional speech or with the client making appropriate verbal responses, or if five minutes elapses with delusional speech present. This condition would be administered to see if the delusional speech would be effectively maintained by social attention.

  Low Quality Attention Condition – During the low quality attention condition, the assessor would deliver a low quality attention comment in the form of "yup", "ok", "I see", "ah", "oh", or "uh huh" immediately contingent on the client engaging in delusional speech. The assessor would delivered a low quality attention comment every five to ten seconds while the client is engaging in delusional speech or after every delusional

statement the client makes. If the client asks the assessor a question, the assessor will

respond with "yes", "no", or "I don't know" and answers would be delivered in a neutral

tone. If thirty seconds elapses without the client engaging in delusional speech or with

the client making appropriate verbal responses or if five minutes elapses with delusional

speech present then the assessor terminates the session. This condition would be

administered to see if the delusional speech could be maintained by just the slightest of

attention.

Rule Statement Condition – During the rule statement condition, the assessor

would interrupt the client's delusional statement and state the rule "I'm not talking about

this right now". The assessor would repeat the rule every five to ten seconds while the

client is engaging in delusional speech. If the client asks the assessor a question

thematically consistent with the delusional speech the assessor restates the rule. If thirty

seconds elapses without the client engaging in delusional speech or with the client

making appropriate verbal responses or if five minutes elapses with delusional speech

present then the assessor terminates the session. This condition would be administered to

see if delusional speech would decrease or terminate with a rule statement which

interrupted the target behavior and specified that it would not be reinforced further.

Verbal Redirection Condition – During the verbal direction condition, the

assessor would deliver a verbal redirection statement by asking the client a question or

making a comment immediately after every delusional comment made by the client. The

assessor's comment would be thematically irrelevant to the client's delusional statement.

If the client asks the assessor a question consistent with the theme of the delusion then the

assessor would respond with a question or comment that was thematically irrelevant to

the delusion. If the client responds with a question or comment that is thematically

irrelevant to the delusion then the assessor would make a follow up comment about the

client's response. If thirty seconds elapses without the client engaging in delusional

speech or with the client making appropriate verbal responses or if five minutes elapses

with delusional speech present then the assessor terminates the session. This condition

would be administered to see if we could talk about something else with the client and

provide them with attention for appropriate conversational topics.

     Ignore Condition – During the ignore condition, the assessor would immediately

begin ignoring the client. While the assessor is ignoring the client the assessor would

provide no attention and no trigger for a minimum of ten seconds after the last instance of

delusional speech. The assessor would ignore the client as long as the client is engaging

in delusional speech. If thirty seconds elapses without the client engaging in delusional

speech or with the client making appropriate verbal responses or if five minutes elapses

with delusional speech present then the assessor terminates the session. This condition

would be administered to see if delusional speech would decrease if it did not produce

any social attention.

     Control Condition – During the control condition, the assessor would engage the

client in normal conversation without the presentation of triggers. This condition would

be administered to compare to the other treatment conditions to see whether or not the

delusional speech was present without the trigger themes. This condition would also

support an operant (learned) function for delusional speech. If delusional speech was not

learned, we would expect to observe delusional speech in the absence of triggers.

Session Termination

We would build in session termination criteria in order to ensure the safety of the client and for our assessment to remain ethical. A session would be terminated if the client is engaging in severe levels of behavior which could result in injury to the client or others or that could require medical attention, or if the severe behavior results in the destruction of personal or private property.

Sessions would also be terminated if twenty minutes elapses after the onset of the assessment session and the client does not engage in delusional speech. In this case, the assessor would prompt the client to take a five minute break and then the assessor would try to begin the session initiation process again. If ten more minutes elapses without the client engaging in delusional speech then the session would be terminated and rescheduled for another day.

Assessment Termination

Assessment termination criteria would be in place to help assessors know when sufficient information is gathered to make data-based and clinical decisions for treatment. The treatment assessment would be terminated when at least three sessions per condition were conducted and if data are stable within each condition. More than three sessions may be conducted if one or more conditions show high variability from one session to the next. Graphical analysis and clinical judgment would be used to determine if more than three sessions need to be conducted for each condition or if clear treatment effects are observed.

Treatment Recommendation

By using the treatment assessment process of testing specific treatments to see which is most effective, we would use the data obtained during each condition to inform

our treatment recommendation for the client. Depending on which treatment condition turned out to be the most effective in stopping the client from engaging in delusional speech, we would write a treatment protocol describing the steps involved in administering the treatment. For example, if it turned out that the most effective treatment was to verbally redirect the client, then we would write a protocol into the client's behavior support plan that was very similar to the verbal redirection treatment condition administered during the treatment assessment.

Development of Staff Training

Most clients that are receiving services have direct care staff who are hired to carry out these services. It was recognized early in the history of behavior analysis that making an impact on clients on a large scale required effective training of staff (Frazier, 1972). According to Reid, Parsons, & Green (2012), training staff is essential because when new staff are hired for direct care positions, they often have no prior training related to their new job. This means that they must have sufficient training once they are hired in (Reid et al., 2012). Another reason it is important to train direct care providers on what the specifics of the required job duties are because they do not get job-specific training during orientation, but rather company-wide policies (Reid et al., 2012). One of the most important goals of training staff is to provide staff with the necessary "knowledge and skills to perform their jobs in a quality manner," (Reid et al., 2012 p. 50). After writing the treatment protocol based off of the treatment assessment results, we would begin to write staff training job aids in order to be able to adequately train the client's home staff.

Another important aspect of effective staff training is not only have performance training but also competency based training (Reid et al., 2012). Performance training means that trainers show the staff how to perform certain job duties and then the staff practices how to do those duties under the supervision of the trainer (Reid et al., 2012). Competency-based training means that the staff must demonstrate competence or understanding of the job duties before the training can be complete (Reid et al., 2012).

Reid et al. (2012) describes five steps to an evidence-based protocol for staff training. The first step is to describe the skill that is going to be trained by describing in detail the specific behaviors that the staff need to perform in order to complete the job duty. We would do this by providing the rational for, and a verbal description of, the procedure that we are going to train. We would explain to staff how the results of our assessment informed the protocol that was written.

The second step it to provide a written summary of the skills being trained. This can be in the form of a performance checklist or job aid and provides the staff with a permanent product that they can refer to on how to perform the task (Reid et al., 2012). A job aid describes the key steps in the treatment protocol and can be given to the staff to refer to during training and also to have in the house for reference after training.

The third step is for the trainer to demonstrate how to perform the skill being trained to the staff that are being trained. This is one of the most effective ways for trainees to learn a skill and goes back to the performance-based aspect of training mentioned earlier (Reid et al., 2012). After we described the protocol, we would model how to perform the protocol by role-playing. One trainer would play the role of the client and one trainer would play the role of the staff.

The fourth step is for the trainees to practice the skills being trained and have the trainers give feedback. After watching the trainee practice the skill, the trainer would immediately give feedback on the accuracy of the skill being performed by each staff member. The trainer should inform the staff of both what they did correctly and how to improve in the areas that they did not perform correctly(Reid et al., 2012). After the trainers modeled how to perform the protocol, they would split the staff members into groups of two and they would take turns playing the role of the client and the staff member. Then, after a pair of staff had gone through the role play, trainers would give staff performance-based feedback on both things that they did correctly and well and things they needed to improve on if applicable.

The fifth and final step is to repeat the first, third and fourth step until all staff are able to perform the skill proficiently. Because training is not only performance-based but also competency-based, training does not end until every staff member being trained is able to demonstrate competency in performing the skills being trained (Reid et al., 2012). Trainers would use the role-play previously described until staff members demonstrate proficient in the performance of the protocol. To further ensure that they were competent in how the protocol worked, trainers could also give a short quiz on the specifics of the protocol. This type of assessment would ensure knowledge-based competency of the procedures being trained.

Reid et al. (2012) also talk about two different formats for staff training. One is a formal training with a group of staff and the other is an informal training with just one individual. A group format is used when all of the staff need training on a set of skills, for example a new behavior support plan.   Because our protocol would be new to staff

and would require intense training, it would be more efficient to train a group of staff

members than one at a time.

   After training of staff is complete, we must monitor staff performance by

objectively and systematically observing the staff throughout the day and recording data

on the how well the staff perform the protocol in the natural setting (Reid et al., 2012).

To ensure that staff monitoring by supervisors is done in a focused, consistent, and

objective way, there should be materials created such as monitoring forms to guide their

observations (Reid et al., 2012). To collect data consistently, we would create a checklist

from the job aid that was given to the staff during training. As the staff performed the

protocol, we would check off the steps of the protocol as they were completed. By

providing routine monitoring we can gather the necessary information about the quality

of staff performance that will inform supervisors on whether they should support or

improve the current performance of the staff (Reid et al., 2012).

References

American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders*. *Arlington*. http://doi.org/10.1176/appi.books.9780890425596.744053

Brus, M., Novakovic, V., & Friedberg, A. (2012). Psychotherapy for schizophrenia: A review of modalities and their evidence base. *Psychodynamic Psychiatry*, *40*(4), 609–16. http://doi.org/10.1521/pdps.2012.40.4.609

Carr, J. E., & Britton, L. N. (1999). Idiosyncratic effects of noncontingent reinforcement on problematic speech. *Behavioral Interventions*, *14*(1), 37–43. http://doi.org/10.1002/(SICI)1099-078X(199901/03)14:1<37::AID-BIN28>3.0.CO;2-Z

Correll, C. U., Leucht, S., & Kane, J. M. (2004). Lower risk for tardive dyskinesia associated with second-generation antipsychotics: A systematic review of 1-year studies. *American Journal of Psychiatry*, *161*(3), 414–425. http://doi.org/10.1176/appi.ajp.161.3.414

DeLeon, I. G., Arnold, K. L., Rodriguez-Catter, V., & Uy, M. L. (2003). Covariation between bizarre and nonbizarre speech as a function of the content of verbal attention. *Journal of Applied Behavior Analysis*, *36*(1), 101–104. http://doi.org/10.1901/jaba.2003.36-101

Hoeing, J., & Hamilton, M. W. (1966). The schizophrenic atient in the community and his effect on the household. *Internationsl Journal of Social Psychiatry*, *12*, 165–176.

Hogarty, G. E., & Flesher, S. (1999). Practice principles of cognitive enhancement therapy for schizophrenia. *Schizophrenia Bulletin*, *25*(4), 693–708.

Hogarty, G. E., Kornblith, S. J., Greenwald, D., DiBarry, a L., Cooley, S., Flesher, S., … Ulrich, R. (1995). Personal therapy: A disorder-relevant psychotherapy for schizophrenia. *Schizophrenia Bulletin*, *21*(3), 379–393.

Kendell, R. E., Cooper, J. E., Gourlay, A. J., Copeland, J. R. M., & Sharpe, L. Gurland, B. J. (1971). Diagnostic criteria of american and british psychiatrists. *Archives of General Psychiatry*, *25*(2), 123–130. http://doi.org/10.1001/archpsyc.1971.01750140027006

Lehman, A. F., Steinwachs, D. M., & Project, the C.-I. of the P. (1998). At issue: Translating research into practice: The Schizophrenia Patient Outcomes Research Team (PORT) treatment recommendations. *Schizophrenia Bulletin*, *24*, 1–10.

Liberman, R. P., Teigen, J., Patterson, R., & Baker, V. (1973). Reducing delusional speech in chronic, paranoid schizophrenics. *Journal of Applied Behavior Analysis*, *6*(1), 57–64. http://doi.org/10.1901/jaba.1973.6-57

Reid, D. H., Parsons, M. B., & Green, C. W. (2012). *The supervisor's guidebook* (4th ed.). Morganton, NC: Habilitative Management Consultants, Inc.

Rosenbloom, M. (2002). Chlorpromazine and the psychopharmacologic revolution. *The Journal of the American Medical Association*, *287*(14), 1860–1861. http://doi.org/10.1001/jama.287.14.1856-a

Salzinger, K. (1973). *Schizophrenia: Behavioral aspects*. New York: John Wiley & Sons, Inc.

Tai, S., & Turkington, D. (2009). The evolution of cognitive behavior therapy for schizophrenia: Current practice and recent developments. *Schizophrenia Bulletin*, *35*(5), 865–873. http://doi.org/10.1093/schbul/sbp080

Vollmer, T. R., Iwata, B. a, Zarcone, J. R., Smith, R. G., & Mazaleski, J. L. (1993). The role of attention in the treatment of attention-maintained self-injurious behavior: Noncontingent reinforcement and differential reinforcement of other behavior. *Journal of Applied Behavior Analysis*, *26*(1), 9–21. http://doi.org/10.1901/jaba.1993.26-9

Wing, J. K., Monck, E., Brown, G. W., & Carstairs, G. M. (1964). Morbidity in the community of schizophrenic patients discharged from London Mental Hospitals in 1959. *The British Journal of Psychiatry*, *110*(464), 10–21. http://doi.org/10.1192/bjp.110.464.10