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Behavioral Management of Auditory Hallucinations: Implementation and Evaluation of a 10-Week Course

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Abstract

A 10-session behavioral management course for self-management of auditory hallucinations in patients with schizophrenia has demonstrated positive outcomes. This project disseminated the course and evaluated both the implementation process and patient benefits of attending the course. The course was taught using teleconferencing, electronic media and 26 monthly conference calls to 6 advanced practice nurses (APNs) at 6 sites with 32 patients within the Department of Veterans Affairs (VA). All of the APNs reported course helpfulness, improved communication about voices, and improved harm assessment. Of the patients, 96% found the course helpful; 66% no longer heard voices to harm self or others; 60% had improved intensity scores. The project demonstrated successful implementation and practice integration with APNs' activities corresponding to Rogers' Stages of Innovation Adoption. Facilitators and barriers to implementation are described.

Implementing Evidence-Based Practice: Educating Nurses to Conduct the Behavioral Management of Auditory Hallucinations Course

Introduction

Auditory hallucinations are common in patients with schizophrenia and can be distressing and potentially harmful to self or others. A 10-session behavioral management course for patients with schizophrenia has demonstrated positive outcomes in the past decade (Buccheri, Trygstad, Kanas, Waldron, & Dowling, 1996; Buccheri, Trygstad, Kanas, & Dowling, 1997; Buccheri et al., 2004; Trygstad et al., 2002). This course can provide advance practice nurses (APNs) in psychiatry important skills in empowering patients to manage their distressing symptoms. The purpose of this article is to describe the implementation of this course within the Veterans Health Administration (VHA) and to conclude with an evaluation of the course by APNs and patients.

Background

In the general U.S. population, the incidence of schizophrenia is estimated at about 1%, occurs equally in both genders, and affects all ethnicities. In the Department of Veterans Affairs, 90,678 veterans had the diagnosis of schizophrenia in 2005 (Leslie & Rosenheck, 2006). Of these, 85% received at least one prescription for an antipsychotic medication.

Not all persons obtain relief from symptoms with antipsychotics and voices often persist (Shergill, Murray, & McGuire, 1998). Further, veterans often have somatic and other psychiatric co-morbid conditions, such as post-traumatic stress disorder (PTSD) or depression. These co-morbidities in combat-trained persons place veterans at high risk for suicide. Optimal functioning requires engagement in treatment; learning about one's symptoms in a supportive therapeutic environment is a first step in knowing when treatment is needed and accepting

treatment. Psychiatric staff must be able to talk with patients with schizophrenia about their auditory hallucinations in a supportive manner while concurrently assessing suicide risk.

Nurses assist psychiatric patients in identifying their symptoms, exploring effective treatments, and deciding best strategies in specific situations. Patients with persistent auditory hallucinations benefit from self-monitoring and independent intervention using behavioral strategies to cope with their voices (Buccheri et al., 1996, 1997, 2004, 2007; Trygstad et al., 2004). The objectives of this implementation project were to: 1) educate advanced practice psychiatric nurses (APNs) about how to implement the 10-session course; 2) determine the facilitators and barriers to implementation; and 3) evaluate course helpfulness from APN and patient perspectives.

Literature Review

The 10-session Behavioral Management of Persistent Auditory Hallucinations Course was developed based on the UCSF Symptom Management Model (UCSF, 1995), self-monitoring theory (Brier & Strauss, 1983), and extensive literature review of strategies to manage auditory hallucinations. An experimental pilot study was conducted (Buccheri et al., 1996, 1997) followed by a large multi-site study to examine the short and long-term effects of the 10-session course (Trygstad et al., 2002; Buccheri et al., 2004; Buccheri, Trygstad & Dowling, 2007). Statistically significant improvements included reduced negative characteristics of auditory hallucinations (i.e., less frequency, more self-control, less clarity, less negative tone, ease of distraction away from voices, less distress). Other improvements included decreases in intensity of auditory hallucinations and frequency of commands to harm as well as, lower levels of anxiety and depression.

Rogers' sequential stages of innovation adoption guided authors' facilitation of APNs' participation (Rogers, 2003). Rogers describes five stages that individuals undergo in adopting innovation. Specifically, these stages are: 1) knowledge—when the individual is exposed, learns and understands the innovation; 2) persuasion—when the individual develops a favorable attitude about the innovation; 3) decision—when the individual begins activities that lead to a choice to reject or adopt; 4) implementation—when the individual actually begins the innovation; and 5) confirmation—when the individual decides to continue, reject, or delay adoption. The characteristics of the deciding unit (e.g., an individual or an organization) can impact both the decision and the rate of adoption. Adoption rates are usually faster when the decision rests on only one or two individuals rather than on a large unit or organization. Additionally, the characteristics of the innovation itself must be attractive, such as being advantageous; compatible with values, beliefs, needs, and former practices; flexible to implement; relatively easy to do in the clinical setting; observable as a consequence of implementing. Table 1 depicts the APNs' processes and activities that correspond with Rogers' theory of stages of innovation adoption.

Methods

Design

This was an evaluation of the implementation of an evidence-based clinical innovation.

Procedures

Sites and subjects

As the authors planned to obtain identifying information from APNs and patients, Institutional Review Board (IRB) and VA Research and Development approvals were obtained. The authors introduced the project on one of the monthly VA APN nationwide conference calls

comprising representatives from each of the 22 regions (Veterans' Integrated Service Networks or VISNs) that incorporate the VA's 153 medical facilities across the United States and territories. The course was offered to both inpatient and outpatient settings and to a maximum of 10 sites. An electronic mail message followed the call to solicit interest and provide contact information. APNs self-selected their sites, comprising a convenience sample. They were included if they had experience leading groups with patients with schizophrenia; were willing to participate in training and monthly conference calls, obtain supplies, conduct the course with their patients, and return the completed Program Evaluation Form that represented their site's participation.

The APNs invited patients in their inpatient or outpatient settings to participate if they had schizophrenia, reported distressing persistent auditory hallucinations despite taking psychiatric medications, were interested in participating, were legally able to consent and were not so acutely psychotic that they were behaviorally disruptive. The consent explained the course and patients self-selected participation. They received treatment regardless of their participation in this extra course.

Course Leader Training and Mentoring: Conference calls, email, phone

The authors reviewed the Treatment Manual, instruments, and homework in an initial 80-minute conference call with the nurse course leaders. A second training session was recorded as a DVD for additional reinforcement. Monthly telephone conference calls provided support and guidance, identified challenges and solutions, and enabled site-to-site interaction. Agendas included progress reports, successes, problem-solving, and collaborative presentations. The authors were also available by e-mail and phone.

Using the Treatment Manual: Teaching How to Conduct the Course with Patients

The 10-session course provides a structured approach for nurses to teach people with schizophrenia behavioral strategies to manage their auditory hallucinations. The Treatment Manual gives specific guidelines for class structure and climate and provides directions for each 50-minute class with scripts specific to each behavioral strategy (Trygstad et al., 2002). In each class, participants are taught a behavioral strategy, given time to practice it, and taught to self-monitor what improves or worsens voices. Strategies include talking with someone, listening to music with or without earphones, watching television or something that moves, saying "stop"/ignoring what the voices say to do, using an ear plug, relaxation techniques, keeping busy with an enjoyable activity and/or helping others, and using prescribed medication and not using drugs and alcohol.

Nurse course leaders were encouraged to adapt the course to meet the needs of their settings. For example, the course could be taught 5 times a week for 2 weeks for short inpatient stays or 2 times a week for 5 weeks; the published typical outpatient format is once weekly for 10 weeks.

Safety Protocol

The Safety Protocol was developed specifically based on new VA updates to suicide assessment. If during the course, APNs assessed that patients were a danger to self or others, a safety protocol was in place. This protocol was developed to enable rapid risk assessment to an expressed intent for harm. While not intended to be a full suicide/homicide risk assessment, the Safety Protocol is designed to assess three major risk components to suicidal/homicidal intent. These include: 1) expressed intent to hurt self or others; 2) has the means and the plan to do so (the threat is credible); and 3) has a prior history of hurting self or others. A script for the

protocol is provided for nurse course leaders to determine the need for further evaluation and for the possibility of hospitalization (or extending the hospital stay).

Measurement and Instrumentation

*Program Evaluation Form***.** This 29-item investigator-developed instrument evaluates the nurse course leaders' perceptions, querying about the background and number of course leaders, class format, client diagnoses, the helpfulness of the Treatment Manual and instruments, perceptions of changes in communication with patients about voices, summarized pre- and post-course patient data for the Characteristics of Auditory Hallucinations Questionnaire and the Unpleasant Voices Scale, feedback from nurse course leaders about their experience with the training methods, and their perceptions about the facilitators and barriers to course implementation. The course leaders at each site collaboratively completed one form at the end of the course.

Symptom Management Course Questionnaire (SMCQ). This 4-item instrument is a tool that queries patients about helpfulness of both the course and of specific strategies to manage voices. They are asked to rate helpfulness of the course with responses ranging from 1 "not at all helpful" to 5 "extremely helpful". Patients are also asked to list what are the least and most helpful aspects of the course and to identify the behavioral strategies that are helpful to them. The SMCQ was administered once, at the end of the 10-session course.

Characteristics of Auditory Hallucinations Questionnaire (CAHG). The CAHQ is a 7-item Likert-type instrument on which patients rate characteristics of their auditory hallucinations (i.e., frequency, loudness, self-control, clarity, tone, distractibility and distress) over the past 24 hours on a scale from 1-5 with higher scores indicating intensity of negative characteristics (e.g., more frequent, louder, less self-control) (Buccheri, et al., 2004; Trygstad et al., 2002). Test-rest

reliability estimates for the CAHQ have ranged from .73 to .78 ($p<.001$). The CAHQ was completed by patients during each of the 10 classes.

Unpleasant Voices Scale (UVS-1-10). This 5-item scale asks patients to rate the intensity of their unpleasant voices on a scale of 0 "no voices heard" to 10 "the most unpleasant your voices could be" during the past 24 hours and past week as well as whether they are hearing pleasant voices and/or command harm hallucinations and intent to act on those commands. The UVS is a clinical tool that measures change within each patient. As a subjective tool, the UVS is internally consistent within the person but not between persons (e.g., like the 0-10 pain scale). The UVS was completed by patients during each of the 10 classes.

Data Analyses and Results

Demographics about sites and participants are depicted in Table 2. Of the 10 sites that volunteered to participate, 6 completed and 4 dropped that were unable to complete the IRB process.

Objective One: to educate advanced practice psychiatric nurses to implement the course, "Behavioral Management of Persistent Auditory Hallucinations."

Data were obtained from the Program Evaluation query asking the nurses whether the objective was met. Frequencies were calculated. 100% of the nurse course leaders agreed that education and support from the authors were effective for this course implementation with their patients.

Objective Two: to determine facilitators and barriers to implementation.

Data were obtained from the Program Evaluation Form, conference call minutes, and electronic mail. Categories of the facilitators and barriers were created from these descriptions and are presented in Table 3.

Objective Three: to evaluate patient and staff appraisal of course helpfulness.

Patients: Data analysis included calculating means from the Likert-type scale for course helpfulness on the SMCQ. Percentages were calculated for the change in patients' scores on the CAHQ and UVS, comparing scores at first class to scores at last class. Patient perceptions of course helpfulness and the effect on their symptoms are depicted in Table 4.

Staff: Mean ratings of staff evaluations of content helpfulness were calculated. Data were also obtained from comments on the Program Evaluation Form, conference call minutes, and electronic mail and were used to create a list of the nurses' perceptions. Staff perceptions of course helpfulness are depicted in Table 5. Of note is that the nurse leaders found the conference calls most helpful when sites with obstacles learned how other sites successfully overcame challenges and implemented the course. Nurse course leaders found patient homework least helpful.

Four of the 6 nurse course leaders tracked changes over time for individual patients using the CAHQ and UVS. Those 4 said the UVS helped the leader(s) to monitor the intensity of AH for individual patients and track changes over time. Conference call participants reported that consistent course leaders, monitoring at the end of each session, and tracking over time were valuable for ongoing assessment of at-risk patients.

All nurse course leaders said that communication with patients, rapport and comfort between patients and nurses improved during the course. Nurses reported that they felt better able to ask more detailed questions about hallucinations and that patients were more open to discussing their voices. They reported that patients liked talking about voices in a safe, structured setting. Genuine discussion was described as promoting depth and bonding in the

professional relationship. Nurses also reported "increased patients' competence and self-esteem."

Discussion

Implementing an evidence-based practice requires dedication and commitment from nurses and their organizations. The activities developed for each stage of adoption helped also to assess participating sites' readiness to implement the course. While many APNs on the initial call expressed interest in participating, some needed more knowledge about the course and their facilities. All of the sites needed multidisciplinary cooperation at the unit, department, and medical center levels. Despite individual nurses' interest and commitment, system issues created obstacles that impacted implementation. Specific organizational features that impacted adoption decisions included short inpatient stays, small psychiatric units, limited outpatient services, and mentorship structure for research approval (see Table 3).

There were no negative comments about the course itself, thereby validating past findings that both nurse course leaders and patients benefit from interacting about auditory hallucinations and testing new strategies. Perhaps this is true because the APNs were experienced group leaders who self selected. Patient participants enjoyed the content, and some did not want to end their participation. Some nurse course leaders created variations to accommodate their patients. For example, at one site, patients discharged prior to completion of the course returned to the inpatient area to attend the course. Such course content flexibility contributed to APNs' motivation to implement. The decision to continue using the innovation after completion of the project was evident in that all 6 sites persisted in using the course materials in individual work with patients and in education of other clinical staff. One site developed a "graduate group" to meet the needs of patients who wanted to continue meeting.

Nurse course leaders gave feedback that change in the patients' scores from pre to post course on the UVS and CAHQ sometimes missed what they perceived clinically as individuals' improvement. Their explanations were that scores varied with patient stress at the time of the actual assessment. Some examples of fluctuation in scores from baseline to end of the course were: 1) for some patients, learning about the voices initially increased voice intensity which was reflected in less initial improvement; 2) for one patient, travelling to the course -- which was seen as progress-- brought him into stressful situations which was reflected in less than expected improvement; 3) a patient who denied hearing voices in the beginning of the course but felt comfortable to admit hearing voices at the end appeared to look worse; and 4) a patient whose voices worsened with lack of sleep before the last class showed less improvement. These are more examples of how individual analyses provide information not available from group data (Buccheri et al., 2007).

Of note was that the particular element staff found least helpful was the homework for patients. Perhaps the value of homework was not clear. Further, since patients were not accustomed to homework and needed help reading and understanding the questions, more staff time and energy were required.

Nurse course leaders found that flexibility for adapting the course to site-specific patient and setting needs enabled innovative practice, such as engaging patients in reading the scripts. Sharing sites' solutions demonstrated helpfulness to sites experiencing barriers. In evaluating a flexible approach the main issues are: 1) supporting patient comfort and discussion, 2) ensuring the strategies are taught, 3) having patients practice the strategies, 4) identifying symptom severity, and 5) maintaining safety.

Implications for Practice

APNs can easily implement this course in psychiatric inpatient and outpatient settings; such ease is dependent on the facilitators and barriers in individual and organizational features. Identifying these features can enhance understanding of the stage of adoption and enable customized attention to each site's needs. Rogers' theory provides a framework for guiding teaching experiences and activities for successful site implementation efforts (see Table 1). Successful implementation could be related to consistent support from the authors, flexible format without compromising course integrity, and the tools to ensure patient safety. Staff and patient discussions about auditory hallucinations outside of the group meetings demonstrated successful implementation and practice integration.

The finding that patient homework was not helpful suggests a need to emphasize the value of practicing a strategy in one's own living context. Past research demonstrated that what was successfully implemented in the laboratory was not transferred into real life (Green & Kinsbourne, 1989). Our clinical experience has revealed that people who practice strategies in their real-life environment are more likely to incorporate the strategies into their lives.

Implications for Research and Future Directions

This project demonstrated feasibility of course implementation using our dissemination methods. Our sample was very small, and further research should include a larger sample with randomly selected sites and settings. Additionally, outcomes should be evaluated for teaching the course to patients with co-morbidities that worsen psychosis (e.g., posttraumatic stress disorder). Revision of the Treatment Manual could include patient-centered and setting-specific strategies for course implementation, including involvement of patients as partners, more strategies for anxiety, and tips for teaching the course in a shorter time frame. Studies are

needed to determine how best to sustain patient benefits (i.e., ongoing support group) and the impact of patients' self-management strategies on appropriate resource utilization.

In conclusion, this project confirms the value of teaching APNs an additional intervention in working with patients with persistent auditory hallucinations. Making self-management strategies available to patients with schizophrenia has the potential to decrease their distress, help them learn new coping skills, and improve their communication with the clinicians who care for them.

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Table 1. Activities characterizing Rogers Stages of Innovation Adoption Theory

Stages of Rogers' Theory	**APNs' Specific Activities Corresponding to Rogers' Stages of Innovation Adoption**
Stage I. Knowledge—when the individual is exposed, learns and understands the innovation	• Attended APN conference call, heard about Managing Voices Course and invitation to participate, and APNs self-selected their sites. • Evaluated appropriateness of the course for patient population in own settings. • Obtained training materials (e.g., articles, Treatment Manual, instruments).
Stage II. Persuasion—when the individual develops a favorable attitude about the innovation	• Assessed openness to innovation in the organization at all levels; obtained approvals; accommodation of staff, space, time allocation and support for patient attendance. • Established alignment with mission and goals.
Stage III. Decision--when the individual begins activities that lead to a choice to reject or adopt	• Determined roles, learning plan, co-leadership, substitutes, timeline, staff communication plan. • Signed agreement to participate. • Described plans for implementation. • Staff training completed: utilization of Treatment Manual, DVD, relaxation CD, instruments, homework.
Stage IV. Implementation—when	• Established conference call schedule; posted it for staff; participated on calls

the individual actually begins the innovation	• Staff conducted the course • Described adaptations specific to site and setting (e.g., length of stay) • Patients completed homework; assessment of patients' ratings on Unpleasant Voices Scale
V. Confirmation—when the individual decides to continue, reject, or delay adoption	• Determined patients' perspective about benefits; patients completed • Symptom Management Course Questionnaire • Staff completed Program Evaluation Form. • Staff decided whether to continue to conduct the course or elements of the course beyond the project's end.

Table 2. Demographics

Characteristics of sites and patient participants	
Sites completing	6
Settings	1 inpatient 4 outpatient 1 combined in- and outpatient
Number of patients per group (range)	1-12
Number of patients completing the course (total, all sites)	32
Characteristics of nurse course leaders and training sessions	
Number of training sessions	2
Number of monthly conference calls	26
Nurse course leaders (n=8) (total, all sites)	4 groups led by 1 APN 2 groups led by 2 APNs

Table 3. The facilitators and barriers to course implementation

Facilitators	**Barriers**
Dissemination team support: • Assistance with IRB • Problem-solving issues • Providing materials • Providing forum for staff to share new strategies (wallet cards, clarity of homework, templated progress notes) • Encouraging staff to create their own processes for implementation	Process of obtaining approval through the Institutional Review Board (IRB) • Inconsistent IRB requirements/interpretations across sites created difficulty for sites to exchange IRB applications • IRB was "long," "difficult," "slow," "consuming a lot of time"
Knowledge gained from conducting the course: • Limiting discussion to hallucinations • Redirecting discussion from delusions to hallucinations • Making the group a priority for the work week • Using flip charts to help participants stay on track • Using praise for patients completing homework	Patient problems • Premature discharges • Outpatients forgetting to come to group • Irregular attendance
Rewards derived from interacting with	Staff challenges

patients: • "I learned more about the patients' experiences" • "I have better criteria to use in my assessments" • "Staff noticed that patients seem to feel more free to talk to them about their voices"	• Finding space, getting supplies • Preparing for the classes was sometimes hectic • Feeling uncomfortable initially with leading the course, getting patients to talk • Cancelling classes because of staff illness or other unusual events (e.g., natural disasters, institutional remodeling) • Rescheduling classes because of holidays • Identifying the correct procedural code for documentation

Table 4. Patients' ratings of helpfulness of the course and effect on their symptoms

Helpfulness ratings	**Results**
Course helpfulness (n=30 who completed SMCQ)	Extremely helpful (n=7) Very helpful (n=16) Moderately helpful (n=6) Minimally helpful (n=1)
Effect on symptoms	**Results**
Harm self voices (CAHQ)	66% of those who reported harm self voices (n= 8 of 12) at the first class no longer heard them at the last class Newly acknowledged to staff but voices present throughout (n=2)
Harm others voices (CAHQ)	66% of those who reported harm others voices (n= 4 of 6) at the first class reported not hearing them at the last class
Unpleasant Voices Scale (UVS) (n=30)	Change scores reported 60% (n=18) had lower score at end (less distressed)

Table 5. Nurse course leaders' mean ratings of helpfulness (n=6 Program Evaluation Forms)

Element of the Course	**Mean (range)** **1 -6 (6 = most helpful)**
Treatment Manual	5.6 (5-6)
Instruments (overall)	5.6 (5-6)
Characteristics of Auditory Hallucinations (CAHQ)	4.3 (3-5)
Unpleasant Voices Scale (UVS)	4 (2-5)
Homework for patients	3.3 (3-4)
Communication with project investigators	5.8 (5-6)