The Model of Functional Deficits Associated With Hallucinations

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Key Words: coping • mental disorders • occupational therapy (treatment)

Objectives. The Model of Functional Deficits associated with hallucinations is used as part of the clinical documentation in the San Jose State University Psychosocial Occupational Therapy Clinic. On the basis of this model, hallucinations are classified according to functional deficits and whether the deficits are a result of the content or intrusiveness of the hallucinations. This classification is important because it helps occupational therapists know the full extent of the dysfunction through understanding the underlying pathology. The purpose of this classification is to assist in the development of clinical treatment plans that incorporate techniques for coping with hallucinations.

Method. The sample included 39 clients seen in the clinic over a 4-year period. Student occupational therapists were responsible for documenting the classifications using the Model of Functional Deficits associated with hallucinations. The clients' charts were then reviewed retrospectively to classify the hallucinations according to the clients' functional deficits. The classification system ranged from Class 0, insufficient information, to Class VI, persistent hallucinations with profound functional deficits. With these classifications, interventions were planned with the clients in order for them to practice coping mechanisms (e.g., self-instruction, decreased stimulation, increased stimulation) to maintain function during their hallucinations.

Results. The findings indicated that 54% of the clients continued to experience hallucinations (i.e., Class II–Class V), although all received psychotropic medication, thus necessitating continuing therapeutic intervention.

Conclusion. This model helps identify specific client experiences that can then be used to develop occupational therapy interventions.

H allucinations are perceptual images experienced as sensations but are not based on actual stimulation from the external environment. They may involve any of the senses—visual, auditory, gustatory, olfactory, tactile (skin surface), and somatic (sensation within the body). Hallucinations affect a person's ability to engage in work, leisure, and self-care tasks, but the effects are highly variable and individualistic. For some persons with persistent psychotic mental illness, hallucinations are directly responsible for profound dysfunction in all aspects of daily life, including an inability to engage in meaningful tasks or relationships. For some persons, hallucinations are problematic only in certain situations or at specific times, such as when they are alone or in a stressful situation. For others, hallucinations have a positive effect in that the hallucinations may provide com-
cannot know the full extent of dysfunction without understanding the underlying pathology. In the model, hallucinations are present.

In the Psychosocial Occupational Therapy Clinic at San Jose State University (SJSU) in California, data on symptoms and function are routinely gathered by use of a revision of the Model of Functional Deficits associated with hallucinations (MacRae, 1991) as part of the client's evaluation and discharge process. The purpose of this article is to demonstrate the usefulness of this model not only in identifying persons who have hallucinations, but also in developing strategies for helping these clients cope with their hallucinations.

Description of the Clinic
The Psychosocial Occupational Therapy Clinic is one of six clinics offered by the SJSU Department of Occupational Therapy as a practicum for senior occupational therapy students before their fieldwork placement. Although on-campus clinics have existed in the SJSU occupational therapy curriculum since 1944 (Pedretti, 1993), a clinic solely for persons with serious mental illness was not introduced until 1982 (Klasson & MacRae, 1985). In all the clinics, each student is assigned one client for the semester for whom the student has primary responsibility for evaluation and the development of a treatment plan. However, a student may actually treat two, or even three, clients during the course of the semester because the clinic often overenrolls clients to compensate for a relatively high rate of absenteeism and recidivism. In fact, students become familiar with every client in the clinic because group activities are a primary intervention.

Concurrent with each clinic is a seminar facilitated by a faculty member and usually a graduate assistant. This seminar is for instruction, support, and supervision, with the faculty member filling the dual roles of student instructor and clinical supervisor. The seminar is conducted like a team meeting, permitting the faculty clinic supervisor to invoke privileges of confidentiality, meaning that participants are not to discuss any aspect of client evaluation or treatment outside of the seminar or clinic without expressed written consent of the client.

Overview of the Model of Functional Deficits
I developed the Model of Functional Deficits as a framework for examining the phenomenon of hallucinations from an occupational therapy perspective. Occupational therapists often minimize the importance of symptomatology, believing symptoms to be separate from their main concern of functional ability. However, a therapist cannot know the full extent of dysfunction without understanding the underlying pathology. In the model, various types of dysfunction are correlated with specific manifestations of hallucinations. For example, when the dominant feature of the hallucinations is the content (i.e., what the voices are saying), typically there is evidence of poor self-esteem, such as frequent self-deprecatory remarks, poor posture, lack of social interaction, and poor motivation. But when the dominant feature of the hallucinations is the intrusiveness, dysfunctions would more likely include what is considered to be inappropriate behavior, such as giggling, conversations with self, and poor attention to tasks, all of which may be response to internal stimuli.

This model does not differentiate the sensorium involved in the hallucination. Although auditory hallucinations are the most commonly reported phenomena among persons with serious mental illness, other presentations, including visual, olfactory, gustatory, tactile, and somatic hallucinations, are possible. Auditory hallucinations may cause the greatest personal distress and are therefore reported with greater frequency (MacRae, 1993).

It is also possible for a person to continue to function in all occupational performance areas, despite ongoing hallucinations. At times, the hallucinations might even be helpful. In other words, although there are specific dysfunctions associated with hallucinations, pathology or dysfunction cannot be assumed simply because hallucinations are present.

The Model of Functional Deficits has been revised several times since its publication (MacRae, 1991). Since then, two classifications were added:

- Class 0 denotes that there is insufficient information to determine whether hallucinations are present. When psychotic symptoms are mild, or partially controlled by medication, it is often difficult to know whether hallucinations are truly present and whether they are responsible for a client's ongoing dysfunction.
- Class V represents a display of dysfunction related to both the content and the intrusiveness of the hallucinations.

The behaviors suggested in this model are merely guidelines for the therapist to use for observation and to explore with the individual client so that appropriate coping strategies can be developed for specific functional deficits.

Use of the Model in the Clinic
In the Psychosocial Occupational Therapy Clinic, occupational therapy students are instructed in the use of the Model of Functional Deficits early in the 16-week semester and are expected to document the client's hallucination classification on the initial evaluation form. Accuracy of reporting is improved through several methods. For example, the seminar provides an opportunity for students...
to practice asking questions in a nonjudgmental way and to role play interview situations. In the seminar, students also are encouraged to share their observations and findings with each other, allowing them to compare observations, clarify their thinking on the meaning of their observations, and receive guidance from both the instructor and the graduate assistant. Even with these structures, it is often difficult for the novice therapist to ascertain the presence of hallucinations particularly because persons with subtle hallucinations or psychotic symptoms that are partially controlled by medication may underreport or minimize the functional importance of their hallucinations. Even experienced clinicians may overlook the subtle effects of hallucinations. Therefore, students are asked to reevaluate their classification of the client’s hallucination at the end of the semester. If there is a discrepancy between the initial and discharge classifications, the students are expected to document the new information that surfaced during the course of the semester. In some cases, the new information merely represents the maturation of the students’ clinical skills, but in most cases, the client chose to divulge information to the student therapist because of increased trust.

Divulging information that is not readily observable to the clinician is the prerogative of the client. Sufficient time to develop a trusting relationship in an environment that is viewed as safe increases the likelihood that the client will share this information. For this reason, the lengthy amount of time that clients spend in the Psychosocial Occupational Therapy Clinic (an average of two semesters) is an advantage for accurate documentation of the client’s symptoms and related dysfunctions.

Clinical Findings With the Model

During a 4-year period, beginning in the spring semester of 1991 and ending the fall semester of 1994, 39 new clients were seen at the Psychosocial Occupational Therapy Clinic for an average of 12 clients per semester. Approximately half the clients attended clinic for two semesters, and several stayed three to four semesters or longer. Discharge from the clinic is based on mutual agreement among the treating student therapist, client, and clinical supervisor.

The classification of hallucinations is recorded on all clients who attend the clinic, regardless of the diagnosis given (see Table 1). All diagnoses for the clients were compatible with the criteria from the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 1994), but not all the diagnoses were psychotic disorders. A decision was made to include all diagnoses seen in the clinic because of questions concerning the reliability of some of the diagnostic information available and because of some of the atypical presentations of nonpsychotic disorders that had been observed. The diagnoses for the 39 clients included schizophrenia, schizoaffective disorder, bipolar disorder, obsessive–compulsive disorder, and borderline or mixed personality disorder.

Class 0

For the eight clients on which there was insufficient information about hallucinations, all showed symptoms of either overt paranoia or Axis II personality disorder as either a primary or secondary condition. (In three cases, both paranoia and personality disorder were noted.) Six of these clients were seen for only one semester, four of whom were currently enrolled in the clinic and two of whom stopped coming. This finding indicates the importance of a sustained therapist–client relationship for accurate evaluation, particularly when characterological disorders or paranoid ideation are present. The trend toward managed care and sharp reduction in allowed time for clinical intervention decreased the ability for occupational therapists to sustain clinical relationships, which in some cases may have prevented the uncovering of vital evaluative information.

Class 1

Of the ten clients classified as not having hallucinations, six had experienced hallucinations when they were acutely ill, but the symptoms either were completely resolved or were completely controlled by medication. In this sample, 27 clients were known to have experienced hallucinations sometime in their lives. Only 6 (22%) of these clients experienced a complete remission of their hallucinations. This percentage is much lower than the 60% to 80% rate of remission commonly quoted with the use of antipsychotic medication (Arana & Hyman, 1991). The assumption is often that if the medications did not control hallucinations, then either the wrong dose was administered or the client was not taking the drug as prescribed (Maxmen & Ward, 1995). My clinic’s finding of 22% suggests that a higher than expected number of persons may have symptoms partially rather than completely controlled by medication. Because the likelihood of clients divulging information that they view as potentially negative or damaging may be greater in longer stay programs than in shorter stay programs, my clinic’s findings may differ substantially from those in other reports.

Class II

Four clients experienced intermittent hallucinations with minimal deficits. Consistent with the description of this class, behaviors usually associated with having hallucinations were not apparent in any of these clients, but they
Table 1
Model of Functional Deficits Associated With Hallucinations

<table>
<thead>
<tr>
<th>Classification</th>
<th>Observable Behavior</th>
<th>Discharge Status of Clients*</th>
</tr>
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<tbody>
<tr>
<td>Class 0 — Insufficient information</td>
<td>None identifiable</td>
<td>8 (20.5)</td>
</tr>
<tr>
<td>Class I — No hallucinations</td>
<td>None</td>
<td>10 (25.6)</td>
</tr>
<tr>
<td>Class II — Intermittent hallucinations with minimal or no functional deficits</td>
<td>Hallucinations reported upon questioning or in inappropriate settings; client may appear withdrawn</td>
<td>4 (10.3)</td>
</tr>
<tr>
<td>Class III — Intermittent or persistent hallucinations with functional deficits related to the content of the phenomena</td>
<td>Evidence of poor self-esteem, such as frequent self-deprecating remarks, poor posture, lack of social interaction, and poor motivation</td>
<td>6 (15.4)</td>
</tr>
<tr>
<td>Class IV — Intermittent or persistent hallucinations with functional deficits directly related to the intrusiveness of the phenomena</td>
<td>Inappropriate behavior while apparently responding to internal stimuli; inappropriate affect, such as giggling, not related to the outside environment; conversations with self; poor attention to task on hand but can be redirected to task and surroundings</td>
<td>3 (7.7)</td>
</tr>
<tr>
<td>Class V — Intermittent or persistent hallucinations with functional deficits related to both content and intrusiveness of the phenomena</td>
<td>See Class III and Class IV</td>
<td>8 (20.5)</td>
</tr>
<tr>
<td>Class VI — Persistent hallucinations with profound functional deficits (generally acute)</td>
<td>Inability to appropriately respond to the external environment</td>
<td>0 (0.0)</td>
</tr>
</tbody>
</table>

*N = 39.

readily disclosed the information when interviewed. All four clients were taking psychotropic medication and probably experienced more frequent and intense hallucinations in the past. However, each client stated that although they experienced hallucinations to some degree, they did not cause problems. Either they occurred too infrequently to be a source of concern, or the client developed coping strategies to minimize their disruption. Two clients reported that at times they enjoyed their hallucinations and believed that the hallucinations kept them from feeling lonely.

Class III

Six clients reported experiencing functional deficits related to the content of their hallucinations. All six displayed behaviors consistent with poor self-esteem, including self-deprecating comments, and reported auditory hallucinations. Four of these clients were considered to have negative symptoms of schizophrenia as defined by Andreasen (1984), including flat affect, alogia (poverty of speech), avolition (poor initiation of activities or inability to sustain goal-directed activities), and anhedonia (inability to experience pleasure). The relationship between negative and positive symptoms in these four clients is unclear. Each displayed the negative symptoms consistently, whether he or she was being observed or not. But at least part of the time, hallucinations that fell into the category of positive symptoms contributed to the behaviors associated with the negative symptoms. For example, these clients reported that the voices often told them not to engage in activity by saying, “You will fail anyway, why bother?” and “You’re no good.”

Class IV

Three clients reported experiencing hallucinations that caused dysfunction because of intrusiveness. Two of these clients were diagnosed with schizophrenia, disorganized type. The diagnosis for the third client had been changed repeatedly, but at the time of his discharge, the diagnosis was schizoaffective disorder. The hallucinations of all three clients involved both auditory and visual senses. One client also experienced auditory hallucinations. Other sensorium may have been involved in these clients, but the reporting was unclear.

Multiple presentations of hallucinations probably cause the greatest level of dysfunction in that the more senses involved with hallucinatory experiences, the more difficult it is to stay reality oriented (MacRae, 1993). When multiple presentations exist, auditory hallucinations are typically reported first. Only when the clinician keeps the dialogue open is he or she likely to hear about other presentations. For example, one client talked only about hearing voices from the devil, which yelled at him so loud at times that he could not concentrate on tasks. After several months at the clinic, the client added that he sometimes also saw the devil, reporting that the apparition of the devil would “get in my face” so that he could not pay attention to anything else. Almost a year elapsed from the first mention of hallucinations to any report about other presentations.

During a particular session with this client, I was describing various presentations that hallucinations might take. At one point he said, “Oh, do you mean those bolts of lightning the devil puts in my body?” After further con-
In this conversation, it became apparent that this client had experienced somatic hallucinations for years but had never thought to report them. This example highlights the need for clinicians to be well trained in interview technique and to phrase questions in ways that invite clients to disclose details of their experiences, not what they think the clinician wants to hear. Sufficient time must be allowed for clients to describe their experiences in their own words. Only when clients give a rich description of their experiences can the clinician be relatively assured of the accuracy of the phenomenon. In this case, several conversations over the course of several months occurred before I was convinced of the presence of somatic hallucinations. The client was given a medical examination to rule out any known physical cause for the sensations, and he repeatedly described the phenomenon as a sensory experience rather than simply part of his delusional system.

Class V

Eight clients reported dysfunction related to both the content and intrusiveness of hallucinations. Some were more bothered by the content of their hallucinations, whereas others experienced greater dysfunction because of the intrusiveness of the hallucinations. Six of these clients experienced multisensory hallucinations; the other two experienced auditory hallucinations only. This group was generally more dysfunctional than the clients in Classes 0 through IV, but within the group, the actual functional capabilities were quite variable. It should not be assumed that clients with Class V hallucinations necessarily have greater dysfunction than clients with Class III or Class IV hallucinations.

Class VI

None of the 39 clients had experienced hallucinations that profoundly affected their ability to respond to the external environment. This was not unexpected because the clinic requires that all clients have some degree of independence and stability. All the clients in this clinic are prescribed psychotropic medication and live in the community, either independently, with family members, or in a residential care facility. The level of dysfunction associated with Class VI would typically only be seen in a locked facility, usually during an acute psychotic episode.

Summary of Findings

Twenty-one (54%) of the 39 clients seen in the SJSU Psychosocial Occupational Therapy Clinic over a 4-year period experienced hallucinations at least part of the time, although all clients were receiving psychotropic medication. If clients in Class 0 (insufficient information) were added, this statistic would be 74%. This frequency of 54% to 74% matches the estimate provided by Kaplan, Sadock, and Grebb's (1994) finding that 50% to 75% of persons medically treated for schizophrenia continue to have serious impairments. But these authors' figures do not specify the cause of ongoing dysfunction and would therefore include the whole range of positive and negative symptoms. One might conclude that the effectiveness of psychotropic drugs in controlling hallucinations is overstated. Many studies only take into account the rate of rehospitalizations for full-blown psychotic episodes (MacRae, 1991). My clinic's findings from use of the Model of Functional Deficits suggest that psychotic symptoms may be persistent, but not of sufficient severity to require rehospitalization, and may go unreported by the client. My clinic's findings also suggest that subtle dysfunction associated with ongoing hallucinations is usually not recognized by clinicians.

Psychotropic medication is an important treatment for reducing psychotic symptoms and, therefore, for potentially increasing a person's level of function. Eliminating all hallucinations may not be a necessary or realistic therapeutic goal. Each client's pattern of dysfunction needs to be looked at individually to determine what, if anything, needs be done about the hallucinations.

Occupational Therapy Intervention

Occupational therapy intervention for a person with hallucinations depends on how the symptom directly or indirectly affects the person's ability to engage in daily life tasks. In the SJSU Psychosocial Occupational Therapy Clinic, information gained from the Model of Functional Deficits becomes part of the initial occupational therapy evaluation. This information is encompassed into a treatment plan, which is formulated with the client. Issues of safety and trust are explored at the beginning of treatment to diffuse the client's feeling of being judged or criticized when symptoms are discussed with mental health care providers. Clients often need to be assured that they are not "bad people" because of what they experience.

Specific interventions used to reduce hallucinations are variable because they are based on the needs and interests of the individual client; viable interventions are outlined in Table 2. The maintenance of function in the presence of hallucinations is partially due to the development of coping mechanisms. In the Psychosocial Occupational Therapy Clinic, clients practice using mechanisms such as self-instruction (e.g., affirmations, routines), decreased stimulation (e.g., quiet room, reading, solitary walk), or increased stimulation (e.g., conversation, social contact) to cope with their hallucinations. These mechanisms can help manage symptoms but only if the client can clearly identify personal and cultural meaning or purpose in the activity. Clients consistently deem activities that bolster a

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sense of personal achievement and mastery as more successful than randomly chosen activities for coping with hallucinations (MacRae, 1993). For example, one client initially described her auditory hallucinations as voices that
tell me how stupid and lazy I am, and then I don't have any motivation and I just lay on my bed and just curl up and listen to them. I just cry and try to go to sleep and get them out of my head because it's just so rough, not being able to do anything. (MacRae, 1993, p. 205)

For this client, attempts to use sleep (decreased stimulation) to escape the hallucinations were only partially successful, but when the client was able to identify and engage in activities that were both enjoyable and rewarding for her, she found that her hallucinations were not as bothersome:

I've got to learn not to sleep so much. You know, because I tend to just escape. The best thing for me to do is just try to keep busy. If I keep busy, occupied—like right now I'm working on a latch-hook rug my therapist gave me....Well, listening to my portable stereo headphones helps a lot. I'm glad I bought that; it drowns them out, or listening to my stereo in my room, or, trying to keep busy doing something to occupy myself, so that I don't get into my mind and start having head trips. Like cooking a meal; I can concentrate long enough to make macaroni and cheese and have a dinner....I can read a box and follow directions and make my dinner, and usually, it's done and I can't believe that I did it without getting too distracted and burning the noodles or something. (MacRae, 1993, pp. 189, 206)

This particular client benefited from increasing her activity level through specific goal-directed tasks, but she had difficulty engaging in tasks and controlling the hallucinations when she was in highly stimulating social environments. Consequently, her treatment plan included activities that could be carried out when she was alone at home. During the clinic time, the student therapist evalu-
ated her progress with the chosen tasks as well as modified and explored additional activities.

Conclusion

My clinic's findings suggest a need for finer definition of what is adequate symptom management. A continuum that considers one end of the spectrum to be "complete elimination of hallucinatory symptoms" and the other end to be "no change in acute hallucinatory symptoms" or "a decompensation to acute hallucinatory symptoms" would be helpful in identifying the actual stability and functional levels of persons who experience hallucinations. In addition, an outcome measure of related interventions is needed. In the SJSU Psychosocial Occupational Therapy Clinic, documentation often verified that a client's overall functional level improved after interventions to facilitate coping with hallucinations, but there is no standardized method for measuring these results. A valid measure of functional improvements may include a rating scale within each classification to record subtle changes in function, even though the client's hallucinations may remain in the same class.

In summary, the use of the Model of Functional Deficits associated with hallucinations provides insight into the kinds of psychopathology experienced by clients and the resulting dysfunctional behaviors. Because the model is used to categorize and classify a client's symptoms, it is also helpful in identifying specific types of occupational therapy interventions to meet the client's needs. With adaptation, the model could also be the basis for further research into the phenomenon of hallucinations and the efficacy of occupational therapy intervention.

Acknowledgments

I thank all the student occupational therapists and graduate assistants

Table 2

<table>
<thead>
<tr>
<th>Element</th>
<th>Strategy</th>
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<tbody>
<tr>
<td>Foster trust</td>
<td>- Create a safe environment that allows the therapist to validate the experiences of the clients without appearing to judge them</td>
</tr>
<tr>
<td>Work with the client</td>
<td>- Identify the types and classification of the experienced hallucinations (using terminology that is understandable to the client)</td>
</tr>
<tr>
<td></td>
<td>- Identify the specific dysfunctions that result from the hallucinations (using terminology that is understandable to the client)</td>
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<tr>
<td>Explore skills and interests</td>
<td>- Assess the activity interests and cognitive abilities of the client</td>
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<td></td>
<td>- Determine the availability of resources to pursue interests</td>
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<tr>
<td>Modify the environment</td>
<td>- Recommend and assist in implementing changes in living, work, and social environments to alter stimuli</td>
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<tr>
<td>Facilitate coping strategies</td>
<td>- Develop a repertoire with the client of simple techniques that are easy to remember and implement</td>
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<td></td>
<td>- Assist the client in identifying and articulating the personal meaning of these techniques</td>
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<tr>
<td>Provide consistency and support</td>
<td>- Develop strategies to incorporate techniques into daily living outside the clinic (e.g., home program)</td>
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<td></td>
<td>- Educate members of the client's support system (e.g., family members, residential care operators) in the purpose and structure of the home program interventions</td>
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<td></td>
<td>- Allow time for &quot;check in&quot; so that the therapist can monitor the results of the chosen techniques and modify the program as needed</td>
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who have worked in the San Jose State University Psychosocial Occupational Therapy Clinic. Many persons contributed to the data collection process, and without their desire to learn, seemingly endless questions, and dedication to the clients, this article would not have been possible.

References


Coming in February:

- Prenatal Cocaine Exposure and Mother-Infant Interaction: Implications for Occupational Therapy Intervention
- Geriatric Occupational Therapy: The Uncertain Ideology of Long-Term Care
- An On-Site Job Evaluation Performed Via Activity Analysis

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