AUDITORY HALLUCINATIONS FOLLOWING NEAR-DEATH EXPERIENCES

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Summary

Among persons who reported having had near-death experiences, 80% also reported subsequent auditory hallucinations. Experiencers' attitudes toward these hallucinations were overwhelmingly positive, as contrasted with the overwhelmingly negative attitudes of patients with schizophrenia toward their auditory hallucinations. Auditory hallucinations not related to disease processes are common and may be highly valued by those who hear them.

Keywords: *near-death experience; hallucinations; inner voices*

The *Diagnostic and Statistical Manual of Mental Disorders, 4th ed.* (*DSM-IV*) defines hallucination as "a sensory perception that has the compelling sense of reality of a true perception but that occurs

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without external stimulation of the relevant sensory organ" (American Psychiatric Association, 1994, p. 767). Although the *DSM-IV* notes that transient hallucinatory experiences may occur in people without a mental disorder, its use of the term fails to distinguish between pathological and nonpathological experiences.

"Internal voices" were attributed to divine sources throughout the ancient world as well as in the historical traditions of Judaism, Christianity, Islam, Hinduism, Buddhism, and Taoism. Even today, 63% of 488 societies surveyed worldwide use rituals to evoke hallucinations for inspiration or guidance (Bourguignon, 1970). Following the 16th-century scientific revolution, internal voices were usually attributed to brain pathology. However, although hallucinations are important symptoms of psychoses, many people without any diagnosis report hallucinatory experiences.

Hallucinations among healthy persons were reported in 19th-century medical texts (Galton, 1883; Parish, 1897), and the Census of Hallucinations (Sidgwick, 1894) reported that, in a survey of 15,316 Britons free of physical or diagnosed mental disorders, 8% of men and 12% of women reported at least one hallucination. More recent studies have reported that between 10% and 47% of both Americans (Barrett & Etheridge, 1992; McCready & Greeley, 1976; Page, Landis, & Katz, 1934; Palmer, 1979; Posey & Losch, 1983) and Britons (Bentall & Slade, 1985; McKellar, 1968; Young, Bentall, Slade, & Dewey, 1986) report having a perception of someone not physically present.

Forrer (1960) found brief hallucinations occurring in clear consciousness and in the absence of pathology to be as common as parapraxes and without sequelae. Romme and Escher (1989) surveyed 450 people who heard voices, recruited from the audience of a popular Dutch television show, one third of whom appeared to be coping with their hallucinations well and to be mentally healthy. Among the 70% of their respondents who claimed their voices began after a traumatic event, many felt the voices were helpful in integrating and coping with the trauma. Heery (1989) interviewed 30 persons who acknowledged auditory hallucinations but had no diagnosable mental disorder. She developed a rudimentary cartography of inner voices and concluded that they occur to normal indi-

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viduals as well as to saints and psychotics. The Epidemiological Catchment Area (ECA) study of psychiatric symptoms in the general population yielded a lifetime prevalence of hallucinations in 13% of 18,572 people assessed (Tien, 1991). In a recent review of hallucinatory experiences, Bentall (2000) concluded that "the finding that a substantial minority of the population experiences frank hallucinations at some point in their lives must be considered very robust" (p. 95).

Some clinicians have attempted to delineate the differences between hallucinations of the mentally disturbed and unshared sensory experiences occurring sporadically to healthy persons (Ormond, 1925; Piddington, 1905; Pukui, Haertig, & Lee, 1971; Stevenson, 1969; West, 1960). Various investigators have proposed differentiating pathological from nonpathological hallucinations on the basis of frequency (Johnson, 1978), impetus to detrimental action (Noland, 1928), cultural context (Kroll & Bachrach, 1982; Slade & Bentall, 1988), or verifiability and usefulness to society (Fischer, 1970).

Nonpathological auditory hallucinations are similar to psychotic hallucinations in that they are heard in the mind rather than in the ears and yet appear to have an external origin, they speak in the experiencer's native language, they may be precipitated by disruptions in ego function, and they may have both beneficial and detrimental sequelae. Nonpathological auditory hallucinations differ from psychotic hallucinations in that they tend to be supportive rather than critical; they may offer truths with a validity beyond the limits of the ego; they generally enhance personal, interpersonal, and societal functioning; they usually speak in complete sentences or long discourses; and they are not associated with brain malfunctions (Liester, 1996).

Calling all internal voices "hallucinations" does not permit us to discriminate between auditory hallucinations of schizophrenics, pseudohallucinations, bereavement-related auditory perceptions of the deceased, voices of children's "imaginary playmates," the inner voice of the conscience or superego, the inspirational messages heard by many artists, and the revelations heard by many religious leaders (Liester, 1996). Several investigators have suggested that this confusion hinders the study of nonpathological auditory hallucinations by discouraging healthy persons from reporting their experiences for fear of being thought psychotic

(Grimby, 1993; Olson, Suddeth, Peterson, & Egelhoff, 1985). Alternative terms suggested for hallucinations not related to disease processes include *benign hallucination* (Forrer, 1960; Medlicott, 1958), *pseudohallucination* (Medlicott, 1958), *parapsychotic* experiences (Corrigan, 1997), and *idiosyncratic perceptions* or *idiophanies* (Stevenson, 1983).

Between 9% and 18% of persons who have been demonstrably near death report having had a profound experience with mystical or transcendental elements in which they believe they left their physical bodies and transcended the boundaries of time and space (Greyson, 1998; Groth-Marnat & Schumaker, 1989; Quimby, 1989). These events, often called near-death experiences (NDEs), have been reported in the medical literature since the 19th century and are of interest to physicians and others because they may permanently alter the experiencer's attitudes, beliefs, and values including those regarding health practices and health care (Bates & Stanley, 1985; Greyson, 1983b; Groth-Marnat & Summer, 1998; Noyes, 1980; Ring, 1980; Wren-Lewis, 1988). About half of such persons report having heard a voice during the NDE that they identify as "mystical" or "otherworldly" (Greyson, 1990). Following their NDEs, some experiencers report continued auditory hallucinations—perceived internal voices that are experienced as real but are not heard by others—although these persons rarely seek psychiatric treatment (Greyson, 1997).

Greyson (1993) reported that 46% of a sample of near-death experiencers reported hearing internal voices following NDEs. Morse and Perry (1992) reported that 12% of a sample of children with NDEs experienced contact with "guardian angels" following their NDEs, some of which manifested as voices. Other investigators have described anecdotal cases of internal voices following NDEs (Liester, 1998; Moody, 1975; Ring, 1980).

Although near-death experiencers' internal voices meet the clinical definition of hallucinations, there have been no studies comparing or contrasting these inner voices with the hallucinations heard by persons with psychotic disorders to determine if they are similar or dissimilar phenomena. The current study was designed to explore the effect of auditory hallucinations on near-death experiencers who hear them and to compare near-death experiencers' attitudes toward these hallucinations with the attitudes of schizophrenics toward their auditory hallucinations.

METHOD

Sample

Participants were members of support groups for persons who have had NDEs who agreed to complete questionnaires by mail. Seventy-four respondents met the criterion for having had an NDE: a score of 7 or higher on the NDE Scale (Greyson, 1983c; see below). Two others did not meet that criterion and were excluded from analysis. One additional questionnaire was excluded from analysis, because it was completed by the spouse of the individual who had an NDE. The mean score of the remaining 73 participants on the NDE Scale was 20.0 (*SD* = 5.8).

The mean age of the 73 participants was 49.6 years (*SD* = 10.8). The sample included 51 females (70%) and 22 males (30%). Of the 71 respondents who identified their ethnicity, 68 (96%) were Caucasian and 3 (4%) Hispanic. Of the 71 respondents who identified their marital status, 25 (35%) were currently married; 35 (49%) were divorced, separated, or widowed; and 11 (16%) were never married. Of the 73 respondents, 22 (30%) had earned a postgraduate degree, 21 (29%) had earned a college degree, 25 (34%) had attended college without graduating, 4 (6%) had graduated high school, and 1 (1%) had attended high school but not graduated. Of the 68 respondents who identified an occupation, 33 (49%) were professionals, 12 (18%) were managers or administrators, 3 (4%) were in sales or clerical positions, 3 (4%) were laborers or service workers, 6 (8%) were students, 5 (7%) were homemakers, and 6 (8%) described their occupation as "other."

Procedure

We obtained a list of support groups for individuals who have had NDEs from the International Association for Near-Death Studies. Forty-three such groups were identified throughout the United States and were contacted first by telephone and then by letter. Thirty-one groups responded, 10 groups did not, and 2 groups had disbanded. The purpose and design of the study were explained to the facilitator of each group who was asked to distribute a 37-item questionnaire to the group's members. All 31 group facilitators who responded to the initial contact agreed to distribute questionnaires to those group members willing to participate

in the study. Five hundred questionnaires were mailed to support group facilitators and 76 were returned. The return rate could not be calculated, because the exact number of questionnaires actually distributed by group facilitators was unknown. After complete description of the study to the participants, written informed consent was obtained.

Instruments

The study questionnaire included four sections: demographics, NDEs, auditory hallucinations, and attitudes toward the hallucinations. The demographic section included six questions about age, gender, ethnicity, marital status, education, and occupation. The NDE section included the 16 questions of the NDE Scale—a reliable and valid self-report, multiple-choice questionnaire for identifying NDEs and differentiating such experiences from other responses to a close brush with death (Greyson, 1983c, 1990). Cronbach's α was .75 for the 16-item scale in the present study, and a score of 7 or higher (out of a possible 32) was used as the standard criterion for confirming that a respondent's experience could be identified as an NDE. The scale includes questions about characteristic NDE features in four categories: cognitive processes (e.g., "Did time seem to speed up or slow down?"), affective processes (e.g., "Did you have a feeling of peace or pleasantness?"), purportedly paranormal processes (e.g., "Did you feel separated from your physical body?"), and experienced transcendence (e.g., "Did you seem to enter some other unearthly world?"). Hearing a voice during the NDE was one of the 16 items that contributed 0 to 2 points on the scale.

The section on auditory hallucinations included items addressing voices heard after the NDE, voices heard before the NDE, similarity of voices heard before and after the NDE, and lifetime diagnoses of schizophrenia, schizoaffective disorder, bipolar disorder, major depressive disorder with psychotic features, or seizure disorder. The criterion question used to separate respondents into those who did or did not hear voices after the NDE was as follows:

> After your near-death experience, have you at any time heard a voice that seemed to be real and that could not be heard by others? This could be an "inner voice" or a voice that seemed to originate outside of yourself.

The section on attitudes toward auditory hallucinations included the 11 items used in a study of patients' attitudes toward hallucinations (Miller, O'Connor, & DiPasquale, 1993), which, in turn, were modified from those originally developed by Lowe (1973). Sample questions from this section are included in Table 2. Lowe's scale for attitude was calculated from these 11 items by rating each item as 2 *(positive attitude only)*, 1 *(both positive and negative attitude)*, or 0 *(neutral or negative attitude only)*.

Analyses

Statistical comparisons were evaluated using two-tailed *t* tests for independent samples and using Pearson χ^2 tests. All analyses were performed using SPSS for Windows, version 9.0.

RESULTS

Auditory Hallucinations and Sample Demographics

Of the 73 respondents, 58 (80%) reported auditory hallucinations after their NDE. Of those 58 respondents, 22 (40%) also reported auditory hallucinations prior to their NDE. Among the 22 participants who reported auditory hallucinations both before and after their NDE, 13 (59%) said that the voices heard before and after the NDE were the same.

Comparisons on demographic variables between the 58 respondents who reported auditory hallucinations after their NDE and the 15 respondents who did not are presented in Table 1. The 5.2-year age difference between the two groups was not statistically significant (95% confidence interval [CI] = –0.9 to 11.4). Those who reported auditory hallucinations tended to have less formal education, but the two groups did not differ significantly on gender, ethnicity, marital status, or occupation.

NDEs

Respondents who reported auditory hallucinations after their NDE had a mean NDE Scale score of 20.7 (*SD* = 5.9), whereas those who denied auditory hallucinations had a mean NDE Scale score of 17.5 (*SD* = 4.6). This difference tended toward statistical signifi-

TABLE 1: Sample Demographics Among Participants With and Without Hallucinations

	With Hallucinations (n = *58*)	*Without Hallucinations* (n = *15*)	*Statistic*	df	p
Female, %	72	60	$\chi^2 = 0.87$	1	.35
Age, years (*SD*)	50.7 (10.9)	45.5 (9.5)	$t = 1.71$	69	.09
Caucasian, %	95	100	$\chi^2 = 0.77$	1	.38
Marital status, %			$\chi^2 = 3.00$	2	.22
Married	32	50			
Divorced/separated/ widowed	54	29			
Never married	14	21			
Education, %			$\chi^2 = 10.12$	4	.039
Postgraduate degree	22	60			
College degree	29	27			
Some college	41	7			
High school graduate	5	7			
Some high school	2	0			
Occupation, %			$\chi^2 = 4.88$	6	.56
Professional	43	67			
Managerial/ administration	21	7			
Sales/clerical	4	7			
Laborer/service	4	7			
Student	11	0			
Homemaker	8	7			
Other	9	7			

cance, $t = 1.94$, $df = 71$, $p = .056$ (mean difference = 3.2; 95% CI = –0.1 to 6.5). Respondents who reported auditory hallucinations prior to their NDE had a mean NDE Scale score of 22.0 ($SD = 5.3$), whereas those who denied auditory hallucinations prior to their NDE had a mean NDE Scale score of 19.4 ($SD = 6.3$). That difference was not significant, $t = 1.58$, $df = 53$, $p = .12$ (mean difference = 2.6, 95% CI = –0.7 to 5.8).

Psychopathology

Of the 58 respondents who reported auditory hallucinations after their NDE, 56 answered questions about previously diag-

nosed psychopathology or seizure disorders. Only 9 of those respondents (16%) had been diagnosed with a major mental or seizure disorder. None had a lifetime diagnosis of schizophrenia, 1 (2%) had been diagnosed with schizoaffective disorder, and 4 were each diagnosed (7%) with bipolar disorder, major depression with psychotic features, and seizure disorder. The total number of neuropsychiatric diagnoses exceeded 9, because some respondents reported more than one diagnosis.

Those respondents who reported a previous neuropsychiatric diagnosis had a mean NDE Scale score of 15.8 (SD = 8.0), whereas those who did not report a prior diagnosis had a mean NDE Scale score of 21.4 (SD = 5.1). This difference was statistically significant, t = –2.74, df = 54, p = .008 (mean difference = –5.6, 95% CI = –9.7 to –1.5).

None of the 15 respondents who denied auditory hallucinations answered the questions about previously diagnosed psychopathology or seizure disorders. Therefore, we could not evaluate possible associations between prior neuropsychiatric diagnoses and auditory hallucinations after an NDE.

Attitudes Toward Auditory Hallucinations

Of the 58 respondents who reported auditory hallucinations after their NDE, 57 answered questions about their attitudes toward those hallucinations. Of these 57 respondents, 55 (97%) reported some positive attitudes toward their hallucinations, whereas only 29 (51%) reported any negative attitudes. Using Lowe's (1973) scale for attitude by rating variables as 2 *(positive only)*, 1 *(both positive and negative)*, or 0 *(neutral or negative only)*, the mean score on these 11 items was 10.0 (SD = 4.1).

Responses to individual items are presented in Table 2. A large majority of those respondents with auditory hallucinations would rather keep hearing the voices than have them go away and would want to be able to hear the voices if they could control them. More than half found their voices soothing, described positive effects on self-concept, and reported that their voices protected them or warned them of danger. Only a small minority would prefer their voices go away or found their voices distressing or threatening.

Participants who had a diagnosed psychiatric or seizure disorder had significantly fewer positive attitudes toward their auditory hallucinations than those without a diagnosis. Only 7 of the 9

TABLE 2: Attitudes of Near-Death Experiencers (*N* = 58) Toward Hallucinations

Question	*Positive*	*Negative*	*Both*	*Neutral*
Would you rather keep hearing the voice or have it go away?	49 (86%)	6 (11%)	1 (2%)	1 (2%)
If you could control when the voice came, would you want to be able to hear it?	50 (88%)	6 (11%)	0 (0%)	1 (2%)
Is the voice comforting, soothing, distressing, or threatening?	36 (63%)	2 (4%)	13 (23%)	6 (11%)
Does hearing the voice affect how you feel about yourself?	33 (58%)	1 (2%)	5 (9%)	18 (32%)
Does the voice keep you company when you're lonely or make you more lonely?	14 (25%)	4 (7%)	1 (2%)	38 (67%)
Does the voice protect you from uncomfortable situations or warn you of danger or create uncomfortable situations or danger?	31 (54%)	4 (7%)	9 (16%)	13 (23%)
How do you feel about the way other people react toward your voice?	10 (18%)	7 (12%)	1 (2%)	39 (68%)
Does the voice affect your ability to work or make your work harder or easier?	13 (23%)	10 (18%)	1 (2%)	32 (57%)
Has hearing the voice affected your relationships with other people?	18 (31%)	9 (16%)	1 (2%)	29 (51%)
How would your financial situation be different if you did not hear the voice?	5 (9%)	4 (7%)	0 (0%)	47 (84%)
Does the voice interfere with or enhance your sexual interest or activity?	6 (11%)	3 (6%)	6 (11%)	40 (73%)

respondents (78%) with a prior neuropsychiatric diagnosis reported some positive attitudes toward their hallucinations, whereas all 47 respondents (100%) who denied diagnoses reported some positive attitudes. That difference was statistically significant, $\chi^2 = 10.83$, $df = 1$, $p = .001$. The proportions of respondents with diagnoses (6/9, 67%) and without diagnoses (23/47, 49%) who reported some negative attitudes toward their auditory hallucinations were statistically comparable, $\chi^2 = 0.95$, $df = 1$, $p = .33$. Using Lowe's scale for attitude, the mean positive attitude score for respondents with prior neuropsychiatric diagnoses was 6.9 (SD = 5.6), whereas that for respondents without a neuropsychiatric diagnosis was 10.6 (SD = 3.6). That difference was statistically significant, $t = –2.55$, $df = 54$, $p = .014$ (mean difference = –3.7, 95% CI = –6.6 to –0.8).

Comparison With Psychiatric Patients

Compared to the sample of hallucinating psychiatric patients reported by Miller et al. (1993), respondents in the present study had significantly more positive attitudes on all 11 items. The near-death experiencers were more likely than the psychiatric patients to want to keep hearing the voice, $\chi^2 = 61.34, df = 3, p < .001$; to want to hear it if they could control when it came, $\chi^2 = 53.04, df = 3, p < .001$; to find the voice comforting and soothing rather than distressing or threatening, $\chi^2 = 37.34, df = 3, p < .001$; to feel positively about themselves because of hearing the voice, $\chi^2 = 38.34, df = 3, p < .001$; to feel that the voice keeps them company, $\chi^2 = 25.72, df = 3, p < .001$; to feel that the voice is protective, $\chi^2 = 27.48, df = 3, p < .001$; to feel positively about others' reactions to the voice, $\chi^2 = 31.60, df = 3, p < .001$; to feel that the voice makes work easier, $\chi^2 = 25.70, df = 3, p < .001$; to feel that the voice has affected their relationships positively, $\chi^2 = 25.43, df = 3, p < .001$; to feel that the voice does not harm their financial situation, $\chi^2 = 82.29, df = 3, p < .001$; and to feel that the voice does not interfere with their sexual interest or activity, $\chi^2 = 14.47, df = 3, p = .002$.

Representative comparisons are presented in Table 3. Whereas 97% of our sample of near-death experiencers reported some positive attitudes toward their auditory hallucinations, only 52% of psychiatric patients reported some positive attitudes (Miller et al., 1993). On the other hand, whereas only 51% of our sample of near-death experiencers reported any negative attitudes toward their auditory hallucinations, 98% of psychiatric patients reported negative attitudes (Miller et al., 1993).

DISCUSSION

Our finding that 80% of participants reported hearing auditory hallucinations following their NDEs reflected a higher prevalence than the 46% reported previously (Greyson, 1993). However, our sample was self-selected from among members of NDE support groups. It is possible that near-death experiencers who choose to attend support groups may have more auditory hallucinations than those who do not attend support groups and/or that those who have auditory hallucinations may have been more inclined to complete and return the questionnaire than those without hallucinations.

TABLE 3: Attitudes Toward Hallucinations of Near-Death Experiencers (*N* = 57) and Schizophrenic Patients

Attitude	*Near-Death Experiencers*	*Schizophrenics*[a]
Would you rather keep hearing the voice?	86%	12%
If you could control when it came, would you want to hear it?	88%	20%
Is the voice comforting or soothing?	63%	14%
Is the voice distressing or threatening?	4%	38%
Does the voice make you feel positively about yourself?	58%	20%
Does the voice make you feel negatively about yourself?	2%	50%
Does the voice keep you company?	25%	28%
Does the voice protect you?	54%	20%
Do you feel positively about others' reactions to the voice?	18%	12%
Do you feel negatively about others' reactions to the voice?	12%	58%
Does the voice make your work easier?	23%	12%
Does the voice make your work harder?	18%	64%
Does the voice have a positive effect on your relationships?	32%	8%
Does the voice have a negative effect on your relationships?	16%	60%
Does the voice have a positive effect on your financial situation?	9%	4%
Does the voice have a negative effect on your financial situation?	7%	56%
Does the voice enhance your sexual interest or activity?	11%	10%
Does the voice interfere with your sexual interest or activity?	6%	32%

a. SOURCE: Miller et al. (1993).

Another possible explanation for the higher prevalence of auditory hallucinations in the present study is that our respondents reported more elaborate NDEs: Their mean score on the NDE Scale (19.6) was higher than that of participants in the previous study (16.5). The idea that auditory hallucinations may be more prevalent after more elaborate NDEs is supported by our finding that participants in the current study with auditory hallucina-

tions following their NDEs scored higher on the NDE Scale than participants without subsequent hallucinations. On the other hand, scores on the NDE Scale were similar between those who did and did not have auditory hallucinations *prior to* their NDEs. Thus, prior auditory hallucinations did not seem to affect the NDE, but having a more elaborate NDE did predispose experiencers to hallucinate afterward.

A surprising finding was that 40% of respondents who reported auditory hallucinations after their NDEs (30% of the entire sample) also reported auditory hallucinations prior to their NDEs. Again, the self-selected nature of our respondent sample precludes our generalizing to all near-death experiencers. However, our data are consistent with the prior report that 35% of persons who come close to death without having an NDE report auditory hallucinations (Greyson, 1993).

The increase in prevalence of auditory hallucinations from 40% before the experience to 80% after is consistent with the previously reported increase in other anomalous or abnormal phenomena following NDEs (Greyson, 1983a). Although it is plausible that NDEs enhance one's tendency to hallucinate, these correlational data do not establish a direct causative role for the NDE. It is possible that some third factor, such as dissociative tendencies, elicited both the NDE during a close brush with death and the subsequent increase in auditory hallucinations.

Our respondents who reported neuropsychiatric diagnoses had significantly lower scores on the NDE Scale than those who reported no diagnosis. That correlation suggests that mentally healthy individuals may have more elaborate NDEs than those with psychiatric disorders. This finding must be interpreted cautiously, because diagnoses were based on participants' self-reports rather than on diagnostic interviews. However, it is consistent with prior reports of comparative mental health among near-death experiencers (Gabbard & Twemlow, 1984; Greyson, 1991, 2000, 2001; Irwin, 1985; Locke & Schontz, 1983).

Limitations of the Study

The findings of the current study must be interpreted with caution because of its reliance on self-selected participants who may conceivably differ from near-death experiencers who do not volunteer to participate in research. It is possible that experiencers who

hear voices may be more likely to volunteer for research than those who do not or that experiencers who are distressed by such voices may be less likely to volunteer than those who are not. Additionally, participants' reports of psychiatric diagnoses were not confirmed by clinical interview or medical record review. It is also conceivable that having participants complete the questionnaire in writing was not comparable to administering it orally, as was done by Miller et al. (1993). For these reasons, it may be informative to repeat this study with an unselected cohort of near-death experiencers who can be administered both a diagnostic interview and the hallucination questionnaire orally.

CONCLUSIONS AND IMPLICATIONS

The major finding of this study was the positive nature of near-death experiencers' attitudes toward their auditory hallucinations. Our respondents' attitudes toward their hallucinations were much more positive than the responses of psychiatric patients to the same questions, as reported by Miller et al. (1993). It is possible that procedural differences in the administration of the questionnaire may have influenced that finding. However, the marked differences in attitudes of near-death experiencers and schizophrenic patients toward auditory hallucinations raise questions about the etiology of these hallucinations, specifically about whether in all circumstances internal voices should be classed as hallucinations.

Chadwick and Birchwood (1994) proposed a cognitive model for the maintenance of auditory hallucinations in which emotional and behavioral reactions to the hallucinations reflect not only their content but also the meaning given to them. As indicated in the present study, auditory hallucinations in the absence of mental disorder often are highly valued by persons who hear them. Auditory hallucinations may offer inspiration, guidance, and intuitive knowledge, and their study may contribute to knowledge about the mind and human nature (Corrigan, 1997; Stevenson, 1983). Regarding them in all circumstances as pathological may inhibit our investigation and understanding of their powerful influence on our world (Liester, 1996). Our finding of a high prevalence rate and predominantly positive attitudes toward auditory hallucinations following an NDE reinforces the need for further research into the physiology, phenomenology, and etiology of these experiences.

REFERENCES

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders, 4th ed*. Washington, DC: Author.

Barrett, T. R., & Etheridge, J. B. (1992). Verbal hallucinations in normals: I. People who hear voices. *Applied Cognitive Psychology*, *6*, 379-387.

Bates, B. C., & Stanley, A. (1985). The epidemiology and differential diagnosis of near-death experiences. *American Journal of Orthopsychiatry*, *55*, 542-549.

Bentall, R. P. (2000). Hallucinatory experiences. In E. Cardeña, S. J. Lynn, & S. Krippner (Eds.), *Varieties of anomalous experience* (pp. 85-120). Washington, DC: American Psychological Association.

Bentall, R. P., & Slade, P. D. (1985). Reliability of a measure of disposition towards hallucinations. *Personality & Individual Differences*, *6*, 527-529.

Bourguignon, E. (1970). Hallucination and trance: An anthropologist's perspective. In W. Keup (Ed.), *Origin and mechanisms of hallucinations* (pp 183-190). New York: Plenum.

Chadwick, P., & Birchwood, M. (1994). The omnipotence of voices: A cognitive approach to auditory hallucinations. *British Journal of Psychiatry*, *164*, 190-201.

Corrigan, F. M. (1997). Parapsychotic grief, theory of mind and the concept of soul. *Medical Hypotheses*, *49*, 301-302.

Fischer, R. (1970). Prediction and measurement of perceptual-behavioral change in drug-induced hallucinations. In W. Keup (Ed.), *Origin and mechanisms of hallucinations* (pp. 303-332). New York: Plenum.

Forrer, G. R. (1960). Benign auditory and visual hallucinations. *Archives of General Psychiatry*, *3*, 119-122.

Gabbard, G. O., & Twemlow, S. W. (1984). *With the eyes of the mind*. New York: Praeger.

Galton, F. (1883). *Inquiries into human faculty and its development*. London: J. M. Dent.

Greyson, B. (1983a). Increase in psychic phenomena following near-death experiences. *Theta*, *11*, 26-29.

Greyson, B. (1983b). Near-death experiences and personal values. *American Journal of Psychiatry*, *140*, 618-620.

Greyson, B. (1983c). The Near-Death Experience Scale: Construction, reliability, and validity. *Journal of Nervous & Mental Disease*, *171*, 369-375.

Greyson, B. (1990). Near-death encounters with and without near-death experiences: Comparative NDE scale profiles. *Journal of Near-Death Studies*, *8*, 151-161.

Greyson, B. (1991). Near-death experiences precipitated by suicide attempt: Lack of influence of psychopathology, religion, and expectations. *Journal of Near-Death Studies*, *9*, 183-188.

Greyson, B. (1993). Near-death experiences and the physio-kundalini syndrome. *Journal of Religion & Health*, *32*, 277-290.

Greyson, B. (1997). The near-death experience as a focus of clinical attention. *Journal of Nervous & Mental Disease*, *185*, 327-334.

Greyson, B. (1998). The incidence of near-death experiences. *Medicine & Psychiatry*, *1*, 92-99.
Greyson, B. (2000). Dissociation in people who have near-death experiences: Out of their bodies or out of their minds? *Lancet*, *355*, 460-463.
Greyson, B. (2001). Posttraumatic stress symptoms following near-death experiences. *American Journal of Orthopsychiatry*, *71*, 368-373.
Grimby, A. (1993). Bereavement among elderly people: Grief reactions, post-bereavement hallucinations and quality of life. *Acta Psychiatrica Scandinavica*, *87*, 72-80.
Groth-Marnat, G., & Schumaker, J. F. (1989). The near-death experience: A review and critique. *Journal of Humanistic Psychology*, *29*, 109-133.
Groth-Marnat, G., & Summer, R. (1998). Altered beliefs, attitudes, and behaviors following near-death experiences. *Journal of Humanistic Psychology*, *38*, 110-125.
Heery, M. (1989). Inner voice experiences: An exploratory study of thirty cases. *Journal of Transpersonal Psychology*, *21*, 73-82.
Irwin, H. J. (1985). *Flight of mind*. Metuchen, NJ: Scarecrow.
Johnson, F. H. (1978). *The anatomy of hallucinations*. Chicago: Nelson-Hall.
Kroll, J., & Bachrach, B. (1982). Medieval visions and contemporary hallucinations. *Psychological Medicine*, *12*, 709-721.
Liester, M. B. (1996). Inner voices: Distinguishing transcendent and pathological characteristics. *Journal of Transpersonal Psychology*, *28*, 1-30.
Liester, M. B. (1998). Inner communications following the near-death experience. *Journal of Near-Death Studies*, *16*, 233-248.
Locke, T. P., & Schontz, F. C. (1983). Personality correlates of the near-death experience: A preliminary study. *Journal of the American Society for Psychical Research*, *77*, 311-318.
Lowe, G. R. (1973). The phenomenology of hallucinations as an aide to differential diagnosis. *British Journal of Psychiatry*, *126*, 621-633.
McCready, W. C., & Greeley, A. M. (1976). *The ultimate values of the American population*. Beverly Hills, CA: Sage.
McKellar, P. (1968). *Experience and behaviour*. London: Penguin.
Medlicott, R. W. (1958). An inquiry into the significance of hallucinations with special reference to their occurrence in the sane. *International Record of Medicine*, *171*, 664-677.
Miller, L. J., O'Connor, E., & DiPasquale, T. (1993). Patients' attitudes toward hallucinations. *American Journal of Psychiatry*, *150*, 584-588.
Moody, R. A. (1975). *Life after life*. Covington, GA: Mockingbird Books.
Morse, M. L., & Perry, P. (1992). *Transformed by the light*. New York: Villard.
Noland, M. J. (1928). Hallucinations and sanity. *Journal of Mental Science*, *74*, 49-59.
Noyes, R. (1980). Attitude change following near-death experience. *Psychiatry*, *43*, 234-242.
Olson, P. R., Suddeth, J. A., Peterson, P. J., & Egelhoff, C. (1985). Hallucinations of widowhood. *Journal of the American Geriatric Society*, *33*, 543-547.

Ormond, A. W. (1925). Visual hallucinations in sane people. *British Medical Journal*, *2*, 376-379.
Page, J., Landis, C., & Katz, S. E. (1934). Schizophrenic traits in the functional psychoses and in normal individuals. *American Journal of Psychiatry*, *90*, 1213-1225.
Palmer, J. (1979). A community mail survey of psychic experiences. *Journal of the American Society for Psychical Research*, *73*, 221-251.
Parish, E. (1897). *Hallucinations and illusions*. London: Walter Scott.
Piddington, J. G. (1905). Review of Dr. Head's Goulstonian lectures. *Proceedings of the Society for Psychical Research*, *19*, 267-341.
Posey, T. B., & Losch, M. E. (1983). Auditory hallucinations of hearing voices in 375 normal subjects. *Imagination, Cognition and Personality*, *3*, 99-113.
Pukui, M. K., Haertig, E. W., & Lee, C. A. (1971). *Nani i ke kumu: Look to the source, volume 1*. Honolulu, HI: Hui Hanai.
Quimby, S. L. (1989). The near-death experience as an event in consciousness. *Journal of Humanistic Psychology*, *29*, 87-108.
Ring, K. (1980). *Life at death*. New York: Coward, McCann, & Geoghegan.
Romme, M. A. J., & Escher, A. D. M. A. C. (1989). Hearing voices. *Schizophrenia Bulletin*, *15*, 209-216.
Sidgwick, H. (1894). Report on the census of hallucinations. *Proceedings of the Society for Psychical Research*, *10*, 25-422.
Slade, P. D., & Bentall, R. P. (1988). *Sensory deception*. Baltimore, MD: Johns Hopkins University Press.
Stevenson, I. (1969). *The psychiatric examination*. Boston: Little, Brown.
Stevenson, I. (1983). Do we need a new word to supplement "hallucination"? *American Journal of Psychiatry*, *140*, 1609-1611.
Tien, A. Y. (1991). Distribution of hallucinations in the population. *Social Psychiatry & Psychiatric Epidemiology*, *26*, 287-292.
West, D. J. (1960). Visionary and hallucinatory experiences: A comparative appraisal. *International Journal of Parapsychology*, *2*, 89-100.
Wren-Lewis, J. (1988). The darkness of God: A personal report of consciousness transformation through an encounter with death. *Journal of Humanistic Psychology*, *28*(2), 105-122.
Young, H. F., Bentall, R. P., Slade, P. D., & Dewey, M. E. (1986). Disposition toward hallucinations, gender and IQ score. *Personality & Individual Differences*, *7*, 247-249.

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