

TITLE: Auditory Hallucinations in Combat-Related Chronic Posttraumatic Stress Disorder

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ABSTRACT: Intrusive images have been reported to occur in a broad range of people with posttraumatic stress disorder, but the frequency of intrusive auditory perceptions has rarely been addressed. This study compared five posttraumatic stress disorder veterans experiencing auditory hallucinations with 31 nonhallucinating veterans on demographic, military, postmilitary, and symptom variables. Veterans who reported auditory hallucinations had higher combat exposure and more intense posttraumatic stress disorder symptoms than the other veterans. These veterans also tended to be more refractory to treatment than veterans with no hallucinations. Clinical vignettes of the veterans with auditory hallucinations are given, and the implications of the results for a subgroup of chronic posttraumatic stress disorder veterans are discussed.

TEXT:

The most prominent clinical features of posttraumatic stress disorder, according to DSM-III, include reexperiencing the trauma, numbed responsiveness or reduced involvement with the external world, and a variety of other depressive, autonomic, and cognitive symptoms. These symptoms may be present in varying degrees in posttraumatic stress disorder patients, but reexperiencing the traumatic event is a core characteristic that often takes the form of recurrent unpleasant images, nightmares, and symptom triggering in situations similar to the event [n1,n2]. Although clinical reports have documented intrusive visual, affective, and somatic reexperiences in posttraumatic stress disorder combat veterans [n3,n4], little attention has been given to the assessment of analogous auditory perceptions in this population. Similarly, war veterans with dissociated states, hypnagogic hallucinations, and pseudo and real visual hallucinations have been described [n5,n6], but auditory hallucinations have rarely been discussed in the literature.

Van Putten and Emory [n6] described two cases of "traumatic neuroses" in Vietnam veterans who experienced auditory hallucinations. In one case the patient reported hearing enemy footsteps and voices telling him to commit suicide, and in the other the patient heard the groaning of wounded men calling for help. However, both of these veterans also exhibited explosive rages in altered states of consciousness, which is not a DSM-III criterion for posttraumatic stress disorder and is suggestive of a psychotic process secondary to the traumatic event. The present article focuses on auditory hallucinations in combat veterans with posttraumatic stress disorder who showed no other psychotic symptoms.

METHOD

The subjects were 36 male psychiatric inpatients at the West Los Angeles Veterans Administration Medical Center who were referred for diagnostic assessment and (when appropriate) treatment of posttraumatic stress disorder over a 1-year period. All patients met DSM-III criteria for posttraumatic stress disorder as well as more stringent criteria based on a structured interview and the Minnesota Multiphasic Personality Inventory [n7,n8]. This interview provided information regarding patients' demographic characteristics, their military and postmilitary functioning, and the severity of a wide range of psychiatric symptoms. In five of the 36 cases, clinical interviews revealed the presence of auditory hallucinations. All of the veterans with positive diagnoses of posttraumatic stress disorder had experienced moderate to high levels of war trauma assessed by the Combat Exposure Scale [n9], and none had been on active military duty in at least 10 years. Each veteran with posttraumatic stress disorder and auditory hallucinations had received extensive chemotherapy with various neuroleptics, but in no case did the medication ameliorate the hallucinations. Thirteen of the 36 veterans with positive diagnoses of posttraumatic stress disorder were engaged in imaginal flooding treatment [n10].

RESULTS

Posttraumatic stress disorder veterans experiencing auditory hallucinations were compared with nonhallucinating veterans on the variables obtained in the structured interview, which included demographics, military-related variables, postmilitary adjustment, and symptoms. A chi-square test performed on race and the presence of auditory hallucinations was significant, $\chi^2=8.03$, $df=2$, $p<.03$, indicating that more veterans with hallucinations than without were Hispanic (total racial composition: white, $N=20$; black, $N=10$; Hispanic, $N=6$). The two groups did not differ ($p>.10$) in any other of the demographic variables, including age (mean \pm SD=38.8 \pm 8.1 years), years of school (mean \pm SD=11.4 \pm 1.6 years), and marital status (single, $N=9$; married, $N=11$; divorced, $N=16$). There were no significant differences between the two groups for the following military-related variables: the war in which they fought (World War II, $N=1$; Korean, $N=4$; Vietnam, $N=31$), whether they enlisted ($N=27$) or were drafted ($N=9$), their age at induction (mean \pm SD=18.8 \pm 2.4 years), number of months in service (mean \pm SD=14.4 \pm 6.8 months), whether or not disciplinary action was taken against them (yes, $N=16$; no, $N=20$), and alcohol or drug abuse. However, veterans with auditory hallucinations (mean=6.1, range=0-7) had significantly more combat exposure than nonhallucinating veterans (mean=4.9) ($t=2.19$, $df=32$, $p=.036$). The postmilitary variables examined were social support, number of psychiatric hospitalizations, number of arrests, and the extent to which the patient had talked about the war since his discharge from the military. The two groups did not differ in any of these variables ($p>.05$).

Symptom ratings were obtained by having patients rate the degree of problem experienced on a 5-point Likert-type scale (0=no problem, 4=extreme problem). The mean symptom ratings for the two groups and the probability levels are in table 1. Inspection of this table shows that the auditory hallucination group of posttraumatic stress disorder veterans had higher symptom scores on 23 of the 26 symptoms and that this difference was statistically significant ($p<.05$) for eight of these symptoms.

TABLE 1. Symptom Self-Ratings in Veterans With Posttraumatic Stress Disorder Who Had (N=5) or Did Not Have (N=31) Auditory Hallucinations

ááá[SEE ORIGINAL SOURCE]

Evaluation of response to imaginal flooding treatment was conducted by assigning treated patients to one of four categories: veteran terminated treatment, no response (less than 20% reduction in posttraumatic stress disorder symptoms), partial response (between 20% and 80%), or response (greater than 80%). Of the four patients with auditory hallucinations who underwent imaginal flooding treatment, two did not respond and two responded partially; the fifth hallucinating patient left the hospital before treatment could be initiated. In comparison, of the nine treated patients without hallucinations, three terminated treatment prematurely, one failed to respond, two responded partially, and three responded completely. Only 13 veterans were treated with imaginal flooding, but the results suggested a trend for veterans with auditory hallucinations to be less responsive. This group was also less likely than veterans who did not experience hallucinations to terminate treatment prematurely.

CASE REPORTS

Case 1. Mr. A, a 50-year-old Hispanic veteran, had fought for 13 months in the Korean War when he was 16 years old. During the war he had fought with ground troops, engaged in hand-to-hand combat, killed enemy soldiers, and witnessed the deaths of several close friends. His chief complaints were auditory hallucinations, nightmares, and depression. Mr. A heard voices inside his head of people he believed he had killed in Korea and of some recently deceased relatives. He reported that the voices cried to him and criticized him, at times encouraging him to take his life. The patient stated that he had been hearing these voices for many years, starting several years after he had returned from Korea. Nonetheless, he had been able to work fairly consistently as an engineer since his discharge from the army.

Mr. A received several months of intensive imaginal flooding treatment [n10], which was successful in alleviating his auditory hallucinations as well as his other posttraumatic symptoms. A year and a half later, following the deaths of several close family members, the veteran experienced a return of his

posttraumatic stress disorder symptoms, including his auditory hallucinations. He returned to the hospital for further treatment.

Case 2. Mr. B, a 55-year-old Hispanic veteran, had fought for 6 months in the Korean War when he was 18 years old. He was hospitalized with complaints of intense guilt, suicidal ideation, auditory hallucinations, nightmares, and depression, in addition to classical posttraumatic stress disorder symptoms. Although the veteran had had considerable combat experience, including multiple shrapnel wounds, which terminated his tour of duty, his auditory hallucinations and other symptoms focused on one specific event: shooting a young North Korean soldier who was wounded. Auditory hallucinations involving a voice, ascribed to the Korean, that berated the patient and told him to commit suicide began about 1 week later and had continued ever since. The voice was perceived as coming from the patient's environment, not within his head. Mr. B sought psychiatric treatment while still in the service but owing to negative experiences left the hospital. Although his hallucinations and other symptoms did not decrease, he managed to work steadily and raise a family. Approximately 3 months prior to his current hospitalization, the symptoms unexplainably worsened; following a near suicide attempt on a freeway, he sought professional help.

Mr. B's symptoms proved extremely refractory to a variety of treatment modalities, including numerous psychotropic medications. He agreed to a trial of imaginal flooding treatment and was placed on one-to-one, 24-hour supervision as a suicide precaution. The veteran received four flooding sessions, after which he attempted suicide, and treatment was suspended. The patient continued to be followed for maintenance; however, his symptoms remained under tenuous control.

Case 3. Mr. C, a 37-year-old black veteran who had served 11 months in Vietnam, was admitted to the hospital with symptoms including insomnia, nightmares, frequent bursts of anger, nervousness, and headaches. In Vietnam he had served as a supply truck driver, where on several occasions his convoy was attacked and some men were seriously wounded. The veteran also reported being deeply disturbed by the loss of a close friend who had been killed in combat.

Mr. C reported being very distressed by voices, which he heard through his ears, of his friend who had died and of some of his comrades who were wounded in one of the attacks. The voice of his friend sometimes merely spoke to him; at other times it told him to kill himself. The voices of the wounded men were heard as groans and cries, similar to those he heard on the night they had been attacked. The veteran had worked in a variety of odd jobs since his discharge from the service, but in the past year he had been homeless and unable to work.

Six flooding treatment sessions were conducted. Initially he showed a favorable response to the treatment and his mood improved. However, his

improvement then reversed, and many of his symptoms returned to their baseline level. Although the patient continued to report auditory hallucinations, he said that his feelings about his friend who had died had changed and he was now able to view their relationship in a positive light.

Case 4. Mr. D, a 52-year-old white Korean War veteran, had had numerous previous hospitalizations for alcohol abuse and posttraumatic stress disorder. He had entered the service at age 18 and served in Korea for 28 months. Combat exposure was quite extensive; Mr. D had received numerous battle citations and had been taken prisoner of war by the North Koreans. He was admitted to the hospital with complaints of intense guilt over the many soldiers he had killed, depression, suicidal ideation, classic posttraumatic stress disorder symptoms, and auditory hallucinations. The patient reported hearing voices that emanated both from within his head and from the outside. The voices were perceived as being those of his fellow soldiers, who told him to kill himself and that it was time to join those he had killed. He claimed that the voices were present even after successful periods of detoxification for alcohol dependence. Mr. D left the hospital against medical advice prior to the instigation of behavioral treatment for posttraumatic stress disorder.

Case 5. Mr. E, a 35-year-old Hispanic veteran who had served in the Vietnam War for 18 months, was admitted to the hospital complaining of depression, alienation, and auditory hallucinations. In Vietnam he had served as a "point man," drawing enemy fire and frequently engaging in combat. He had seen several close friends be killed and had personally been responsible for the deaths of enemy military personnel and the accidental deaths of enemy civilians. On one occasion he became enraged at a commanding officer who had egged him into combat, and he impulsively killed a prisoner of war whom he had just captured. Mr. E's auditory hallucinations, heard through his ears, included voices of people he had killed, crying of a distressed comrade, laughter, mortar and gunfire, and sounds of helicopters and airplanes. The veteran also reported occasional visual and olfactory hallucinations that were usually related to deaths he had witnessed in combat. Since his discharge he had worked irregularly in the construction business, but despite his competence and success he felt no satisfaction and was often disturbed by his memories of Vietnam.

Mr. E received 17 imaginal flooding treatment sessions. Although he reported that he found the treatment sessions helpful, his self-reported symptoms indicated a steady worsening in posttraumatic stress disorder symptoms. Treatment was terminated when his repeated challenges to his inpatient treatment team made him a management problem on the ward, and he was discharged from the hospital.

DISCUSSION

While rarely discussed in the literature, our experience suggests that persistent auditory hallucinations can accompany posttraumatic stress disorder in the absence of any gross impairment in reality testing or other psychotic symptoms. The hallucinations are typically depressive in nature, and in four of the five cases they directed the patient to commit suicide. In the case of Mr. B, these hallucinations carried an elevated risk for suicide.

Whether the presence of auditory hallucinations in posttraumatic stress disorder indicates a variant of the disorder worthy of differentiation is unknown at this time. Although our sample is small, the data do suggest that significant differences characterize posttraumatic stress disorder patients with auditory hallucinations. A significantly greater proportion of veterans with auditory hallucinations (60%) than without hallucinations (10%) were Hispanic, suggesting that cultural factors may play a role in the development of this symptom. However, these two groups differed in other symptoms as well. Specifically, patients with hallucinations, when compared with other posttraumatic stress disorder patients, were more likely to complain of greater severity for symptoms that appear to cluster around physiological arousal (jumpiness, avoidance of activities that arouse unpleasant memories, panic attacks, heart racing, waking during the night) and cognitive dysfunction (memory and concentration difficulties). In other respects, the patients with auditory hallucinations were quite similar to the other posttraumatic stress disorder patients. This suggests that chronic posttraumatic stress with auditory hallucinations may be a posttraumatic stress disorder subtype that is not a function of substance abuse or psychotic depression. It is possible that these patients have a constitutional increased sensitivity to the development of auditory hallucinations. This might account, in part, for the fact that these patients were quite refractory to treatment and that in no case did neurologic medications reduce the hallucinations.

Posttraumatic stress disorder veterans with auditory hallucinations had significantly higher combat exposure scores than other veterans, suggesting that severe or prolonged trauma contributes to the development of hallucinations in some persons. We have seen patients with extreme degrees of combat exposure who did not report hallucinations. Perhaps the combination of prolonged, intense combat stimuli, coupled with a physiologically based heightened arousability, would account for this phenomenon. Research conducted by Kolb [n11,n12] has suggested the existence of a subtype of posttraumatic stress disorder that is characterized by increased physiological responding and heightened startle responses. This subtype may be similar to that of the veterans with posttraumatic stress disorder and auditory hallucinations, with amount of combat exposure mediating the presence of hallucinatory experiences.

The behavioral treatment of imaginal flooding was partially successful in two of the cases, ineffective in one case, and perhaps iatrogenic in two cases of

auditory hallucinations. In contrast, posttraumatic stress disorder veterans with no hallucinations responded more favorably to the flooding treatment but were also more likely to terminate treatment prematurely than were veterans with hallucinations. Since the flooding treatment requires patients to conjure up and concentrate on covert imaginal stimuli, the increased cognitive dysfunction of posttraumatic stress disorder veterans with auditory hallucinations may have limited their ability to attend to images long enough to extinguish the anxiety.

These observations are preliminary but suggest that the presence of auditory hallucinations in posttraumatic stress disorder may indicate relatively specific etiological and treatment factors. Continued research in this area is needed to answer these questions.

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