Hearing Loss Within a Jail Population

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HEARING LOSS WITHIN A JAIL POPULATION

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Abstract

A research study conducted at the Prince Georges County (MD) Jail during July and August, 1988 looked at incidence of hearing loss and other factors that may be related to hearing loss. Of those who participated in the study, almost 35% failed the hearing screening. A questionnaire administered to the subjects revealed that those who failed the hearing screening tended to be older, have experienced more general medical problems and problems related to their hearing, to have had more exposure to loud noises, and to have more communication difficulties. Recommendations for future research and intervention with the incarcerated population are provided.

Introduction

Very little is known about the actual incidence of crime within the deaf community from the standpoint of victims and offenders. The FBI's Uniform Crime Reports do not record this information. No federal agency (Department of Justice, National Institutes of Health, Department of Education) receives this information from state and local sources, and no reports are compiled. All federal prisons screen inmates for hearing impairments, but the Federal Bureau of Prisons does not compile and report this information. Only a few state correctional institutions keep such records. The Bureau of Justice Statistics, a research division of the U.S. Department of Justice, has never completed a study documenting the number of hearing impaired prisoners in the nation’s prisons and jails.

According to Public Health surveys, approximately five percent (5%) of the 18-44 year old population is estimated to have hearing impairments, with a greater prevalence occurring in the over-60 age group (Hotchkiss, 1987). In contrast, individual studies conducted on jail, prison, and delinquent populations show that the incidence of hearing impairment among those incarcerated is significantly higher than 5%.

The study to be presented here examines the incidence of hearing loss in a jail population and attempts to look at a number of demographic factors as they relate to hearing loss among these incarcerated persons.

Procedure

During the months of July and August, 1988 a research study was conducted at the Prince Georges County Jail in Upper Marlboro, Maryland. The purpose of the research was to conduct hearing screenings of jail inmates and to look at other factors possibly related to hearing loss. The University of Maryland, Department of Speech and Hearing provided equipment for hearing screenings. Six people conducted the research—three Conference Center (a private consulting firm specializing in issues related to handicapped individuals) employees, three students of the University of Maryland, Department of Speech and Hearing (one of whom was also a Conference Center employee), and one non-affiliated person.

The screening was conducted in a room in the health suite of the jail because it afforded a quiet environment, reasonable security, a clinical atmosphere, and relatively random access to the inmate population. Those who participated were from any of the housing units, including the infirmary unit, who were making “sick calls” to the infirmary. The only persons screened out were those who were too ill, too violent, or who refused. One hundred forty-nine inmates participated in the study.

Inmates were taken into an infirmary room individually for the study. One researcher first asked the inmate a series of questions possibly related to hearing loss. These questions covered such areas as familial and medical history, communication difficulties, and exposure to loud noises. (See questionnaire.) The second researcher then did a hearing screening using procedures recommended by the American Speech, Hearing and Language Association. Pure tones were presented through earphones at 20 dB at 1000, 2000, and 4000 Hz. Testing was
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QUESTIONNAIRE

Directions: Please circle the correct response.

Have you had your hearing screened here in jail before? Y N

What is your name? ________________________________

What is your birthdate? ____________________________

What is the highest level of education that you have completed? __________________

Do you suspect that you may have a hearing loss? Y N

Does anyone in your family have a hearing loss? If yes, Who? __________________

Have you ever gotten ear aches? Y N

Are you susceptible to ear aches now? Y N

Have you ever suffered a high fever? Y N

Have you ever used drugs? Prescriptions/Medications? Y N

Have you ever suffered a blow to the head? Y N

Have you ever been unconscious? Y N

Have you ever heard ringing in your ears? Y N

Have you had any major illnesses or diseases? Y N

If yes, what kind? _________________________________

Have you ever had ear surgery? If yes, what kind? Y N

Have you ever had ear pain? Y N

Have you ever had ear discharge? (fluid) Y N

Have you ever had dizziness? Y N

Have you ever been exposed to excessively loud noises, such as gun fire, explosions, loud music, factory or construction noise? Y N

Do you often ask people to repeat what they say? Y N

Do you have trouble hearing the radio or the television unless you turn the volume up loud? Y N

If you are in a noisy room, do you find it difficult to carry on a conversation? Y N

Do you find that you answer questions incorrectly because you misunderstand the question? Y N

Have you ever seen a psychologist, psychiatrist, or counselor? Y N

Have you ever received special education services? Y N

If yes, what kind? _________________________________

Do you now or have you ever worn a hearing aid? Y N

Have you ever had a hearing test before? If yes, what were the results? Y N

OBSERVATION

Is there any structural deformity to the ear? Y N

Put a "✓" for a positive response or "✗" for negative response

Put a "P" for Pass or an "F" for Fail

SCREENING RESULTS

<table>
<thead>
<tr>
<th></th>
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<th>2,000</th>
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<tbody>
<tr>
<td>(1) Right Ear</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left Ear</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) Right Ear</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left Ear</td>
<td></td>
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</tbody>
</table>
done for the right and left ears separately. Inmates were asked to raise their hand when they heard the tone. Anyone who failed to respond to any tone in either ear was readministered the test a second time. Failure to respond during a second administration as well was considered failure of the hearing screening. The room in which the study was conducted was not soundproof. However, it was relatively quiet, and all possible attempts were made to conduct the hearing screening portion of the study when there were no interfering noises.

Findings

Of the 149 persons who participated in the study, 52 failed the hearing screening. This represents 35% of those tested. Of this number, 23 had a mixed hearing loss, 21 had a high frequency hearing loss, and 8 had a low frequency hearing loss. (See Figure 1.)

Of those tested, 136 were men and 13 were women. The statistics presented throughout this report do not differentiate between the responses of men and women because the number of women was so low. The comparisons presented below are between those who passed and those who failed the hearing screening.

Those who failed the screening were a slightly older population that those who passed. Figure 2 shows the distribution of ages for both groups. This fact seems reasonable because hearing loss is positively correlated with age. That is, older people are generally more likely to have a hearing loss.

Those who failed the hearing screening also seemed to be slightly better educated than those who passed. One possible explanation, is that this was an older group who had more opportunity to continue their education. (See Figure 3.)

Of those who failed the hearing screening, half suspected that they had a hearing loss before having their hearing tested. Of those who passed the hearing screening, only 23% thought they might have a hearing loss before they were tested. (See Figure 4.) This would indicate that many of those who had a hearing loss knew this before having their hearing tested.

Although only 24 out of 149 inmates reported having family members with hearing losses, those who failed the screening were slightly more likely to report other incidence in their family. (See Figure 5.) This finding was expected because geneticists...
believe hereditary factors may play some role in up to 50% of cases of hearing loss.

Several questions were asked about the health of the ear itself. Of those who failed the hearing screening, 65% reported having ear aches previously, as opposed to 47% of those who passed. Of those who failed, 36% reported having ear aches now, as opposed to 21% of those who passed. Ear pain was reported by 42% of those who failed as opposed to 30% of those who passed. Incidence of ear surgery was minimal but was reported by 4% of those who failed and 1% of those who passed. Having an ear discharge some time in their lives was reported by 23% of those who failed, but only by 8% of those who passed. Slightly over 78% of those who failed reported having ever had ringing in their ears (tinnitus) while 69% of those who passed reported this. Ringing in the ears was frequently reported by heroin users during use of the drug. One person who passed the hearing screening reported use of a hearing aid. One person who failed said that he wore one on his left ear now. (See Figure 6.)

Other questions were asked regarding the inmates' general health and use of medication and drugs. Those who failed the hearing screening (35%) were more likely to have had a major illness in their
lives than those who passed the hearing screening (20%). There was no attempt to categorize the illnesses reported. High fevers were reported by 67% of those who failed and 58% of those who passed. High fevers are a frequent cause of hearing loss and also associated with many of the major illnesses identified as frequent etiologies of hearing impairment. (See Figure 7.)

One of the researchers failed to indicate on some of the questionnaires whether those reporting drug use were reporting use of prescription or unauthorized drugs. Therefore, data are presented only for those who were positively identified and categorized according to drug use. Those who failed were slightly more likely to have used unauthorized drugs (60% vs. 56%), slightly less likely to have used prescription drugs (48% vs. 53%), and equally likely to have used one or the other (86%).

These statistics would seem to indicate that those who failed are slightly more likely to use illegal drugs.
drugs and slightly less likely to get medical treatment for their illnesses. However, many of the prescription drugs used could have been ototoxic because most were reported to be antibiotics or painkillers. Unfortunately, there is no way that this information could be verified. Other statistics within this report highlight these findings in that the group that failed reported more major illnesses. Also, a number of the inmates who used heroin indicated that they could tell the quality of drug by the intensity of the ringing in their ears. However, the relatively small statistical differences between the groups and the problems previously noted in reporting indicate that the results should be considered suggestive rather than conclusive.

Questions related to head injury were asked due to the fact that trauma can cause hearing loss and because a study conducted by McRandle and Goldstein (1986) reported higher incidence of head trauma and unconsciousness by prisoners in Wisconsin who had hearing loss. Contrary to expectation, a higher percentage of those who passed (69%) had...
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experienced a blow to the head, as opposed to the percentage (63%) of those who failed. However, a larger percentage (52%) of those with a hearing loss reported having been unconscious at some time in their lives in contrast with 44% of those who passed. It is possible that those who failed had more serious head traumas, but this cannot be verified by the information obtained. More of those who failed the screening (64%) reported having experienced periods of dizziness (some of these were reported as drug use or head injury related) than did those who passed the screening (56%).

A number of questions were asked related to exposure to noise, and auditory response to the environment. A large percentage of both groups (86%) reported exposure to loud noises. Many of these individuals had been exposed to gunfire, construction noise, factory noise, or loud music. Notwithstanding the high number of individuals found to have a hearing loss within this population, the fact that so many are exposed to loud noises makes this a very “at-risk” group for hearing damage.

Many of those participating in the study reported having difficulty carrying on a conversation in a noisy room, but the statistics were higher for those who failed the screening (56% vs. 47%). More of those who failed (69% vs. 42%) indicated that they frequently have to ask people to repeat themselves. Those with a hearing loss were more likely to feel that they frequently answer questions incorrectly because they misunderstood the question (42% vs.30%). The need to turn the volume up on TV’s and radios was reported more often by those who failed the screening (42% vs. 32%). The high reporting of both groups on questions related to communication suggests that effective communication is a problem. (See Figure 8.)

Those who reported having seen a psychiatrist, psychologist, or counselor were slightly more represented among those who passed the screening (42% vs. 40%). Hearing loss is not correlated with any kind of clinical psychiatric illness; however, one might anticipate that those who did not know that they have a disability would have adjustment problems for which they sought assistance. This is not the case. More of those who failed the screening indicated that they had received some kind of special education services while in school (21% vs. 8%). Most of this was reported as reading or mathematics assistance. Many of those who participated in the study were in school before Public Law 94-142, the Education for All Handicapped Children Act, was implemented, and, therefore, may not have participated in a formal special education program as we know it but received tutorial or resource type help. (See Figure 9.)

Conclusions

This study found an incidence rate of hearing impaired persons within a jail facility in Maryland (35%) that far exceeds the incidence rate of that is anticipated for the general population (less than 5%).
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Figure 8
Auditory and Communication Factors

<table>
<thead>
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<th>Inmates Passing</th>
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<tbody>
<tr>
<td>Exposure</td>
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<td>86</td>
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<tr>
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<td>47</td>
</tr>
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</tr>
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<tr>
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</table>

than 10%). Considering the fact that this is a relatively young population, the discrepancy would be even greater since hearing loss is positively correlated with age. (The expected incidence would be approximately 5%.) However, other studies documenting incidence rates of hearing impairment among incarcerated persons report similarly high rates (Slawson, 1926; Molitch & Adams, 1936; Lamb & Graham, 1962; Cozad & Rousey, 1966; Blom, 1967; Kelmenson, 1968; Melnick, 1970; Walle, 1972; Hamre, 1973; Spiro, 1973; Campbell, 1973; Sample, 1985; McRandle & Goldstein, 1986; Belenchia & Crowe, 1983).

Other demographic factors that were gleaned through self-reporting indicate that the hearing impaired group tend to have more evidence of familial and medical factors affiliated with hearing loss. Indications of persons at risk for hearing loss could be gleaned through thorough medical histories. Certainly, correlations with ear related medical problems were very high. Also, half of those who actually had a hearing loss thought they had

Figure 9
Psychological/Educational Assistance

<table>
<thead>
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<th>Educational</th>
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</thead>
<tbody>
<tr>
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<td>42</td>
</tr>
<tr>
<td>Educational</td>
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</tbody>
</table>

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As a group, inmates tended to come from backgrounds where there was a lot of noise or violent lifestyles or occupations in which head trauma was likely. Many worked in construction or factory jobs, had participated in the military, been exposed to gunfire, or listened to loud music. Exposure to noises above 90 dB can cause permanent hearing loss. The louder the noise, the shorter the exposure needs to be before loss can occur. For example, permanent hearing loss can result from an hour exposure to amplified music at 90 dB, or from proximity to a single gun shot at 160 dB. A number of inmates reported blows to the head from fights or accidents some of which were the causes of their incarceration. This may have liability consequences to the police.

Communication difficulties were prevalent with both groups, although particularly so among those with a hearing loss. In an environment where following commands is so essential, clear communication should be a priority. It is highly recommended that jails and prisons use strategies that optimize communication. Poor acoustics is a problem that plagues most correctional facilities due to construction that makes heavy use of concrete and metal and little use of carpeting, upholstered furniture, and acoustic tiles. Individuals with even a minimal hearing loss will have a very difficult time understanding conversation in this type of environment. In addition, the researchers suspect that some of the hearing loss found among the inmates was due to acoustic shift. This is a phenomenon during which hearing thresholds are altered in noisy environments. An example of this would be when a person comes out of a disco in which there is loud music and has difficulty hearing for a while. Other recommendations would be to train jail personnel to employ types of communication that are more visual. This is generally the opposite of the type used in correctional institutions where guards tend to use little facial expression and more voice inflection to convey meaning.

There has been sufficient research to date to substantiate the fact that the incidence of hearing impairment among inmates of jails and prisons far exceeds that of the general population. At this time, it is recommended that more extensive research be conducted on the jail and prison population, looking specifically at demographic factors that may relate to hearing loss among this population. Factors that particularly warrant attention or further attention are drug and alcohol use, type of offense, and length of incarceration. Additionally, studies should be conducted which assess the impact of training of jail and prison officials on the implications of hearing loss to see if there are positive repercussions to prisoners in terms of behavior, medical services, rehabilitation, environmental modifications, attitudes of prison and jail personnel, legal intervention, and referral to appropriate resources.

The author wishes to thank the following persons for their assistance in implementing this research: Samuel Saxton, Mary Stewart, Bruce Orenstein, and the nurses, guards, and inmates of the Prince Georges County Jail; Gerald McCall and Sandra Gordon-Salant of the University of Maryland, Department of Speech and Lucinda Michell, Daphne Gallmon, Angela Vicks, Karen Wells, and Thomas Washington who conducted the research.
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