

J. H. OYER, HARVARD, CAMBRIDGE, MASS. —  
H. J. OYER, OHIO STATE UNIVERSITY, COLUMBUS

## HEARING AND SPEECH DISORDERS AND THE ELDERLY

*Dedicated to Professor Petar Guberina  
on the occasion of his seventy-fifth birthday*

The purpose of the present report is to offer a somewhat different perspective on the frequency with which otolaryngological and communication disorders were seen in patients age 65 years and above within a six-month period in a modern otolaryngology practice in a large medical clinic setting.

### INTRODUCTION

Some of the health problems of the elderly are associated with the normal aging process and others with pathological conditions that are more prevalent in the later years. Disorders of human communication provide no exception to this. The efficiency of the speech, oral receptive and expressive language, and hearing systems frequently suffer as a function of diminished integrity of the peripheral and/or central nervous systems. Of great importance as well are pathologies of other kinds.

Extant data on the prevalence of speech, language, and hearing problems among the elderly in the United States provide only limited information. The U. S. National Health Survey<sup>1</sup>, for example, estimated that the number of persons aged 65 years and over having two-ear impairments was 2 226,00 and 715,000 with one-ear impairments. Harris<sup>2</sup> states that impairment of hearing rank second only to arthritis as one of the five most prevalent conditions affecting the health of older adults. According to the U. S. Administration on Aging, older individuals are only twice as likely to wear eyeglasses as younger persons but thirteen times as likely to own a hearing aid<sup>3</sup>. Still another view by Gentile and Reis<sup>4</sup> suggests that over one-half of the persons in the U.S.A. with

<sup>1</sup> Glorig, A., Roberts, J., Hearing Levels of Adults By Age And Sex: United States 1960—62, *Vital Health Statistics Series 11*, No. 11, Table 11, p. 28, Washington, D. C., U. S. Department of Health, Education and Welfare, 1965.

<sup>2</sup> Harris, C. S., *Fact Book On Aging: A Profile of America's Older Population*, Washington, D. C.: National Council On Aging, p. 100, 110, 1978.

<sup>3</sup> U. S. Administration On Aging, *New Facts About Older Americans*, Washington, D. C.: USDHEW Publication (SRS) 73—20006, p. 1, 1973.

<sup>4</sup> Gentile, A., Reis, P., Population Estimates of the Number of Deaf Persons 65 Years of Age and Over for the Next 15 Years, Services for Elderly Persons, Deafness Research and Training Center, New York University, p. 15—18, 1971.

bilateral hearing loss are sixty-five years of age and older. Rupp<sup>5</sup> states that from ages 45—46 years the hearing impairment rate per 1000 population in the U.S.A. is 52.2; from 65—74 years it is 129.2 per 1000; and from age 75 years and above it is 256.4 per 1000 people. There appears to be a difference in the prevalence of hearing loss between institutionalized and noninstitutionalized elderly persons with the institutionalized showing substantially poorer hearing levels than those not so confined.<sup>6</sup> One hospital survey for example indicated that hearing impairment among senior patients could exceed seventy per cent. With greater longevity it can be expected that hearing problems will increase in number as well as the many problems that are associated with hearing loss.<sup>7</sup>

Estimates of speech and language problems of older people are somewhat more difficult to obtain. Monograph 10 of the then National Institute of Neurological Disease and Stroke (NINDS) gives gross figures of 10,000,000 people with speech disorders and 2,100,000 with disorders of communication of central origin for the entire population of the U.S.A.<sup>8</sup> Bollinger<sup>9</sup> estimates that between 40—50 percent of the patients in extended care facilities have speech-language handicaps.

In view of these rather incomplete and somewhat unrelated data, it becomes obvious that there is need for a comprehensive epidemiological study that would give a clear picture of, among other things, the incidence and prevalence of disorders of communication by age groupings.

## PURPOSE

The purpose of the present report is to offer a somewhat different perspective on the frequency with which otolaryngological and communication disorders were seen in patients age 65 years and above within a six-month period in a modern otolaryngology practice in a large medical clinic setting. The data gathered include all patients 65 years and over in order that the problems of communication might be viewed against a backdrop of the caseload in this practice.

Analysis of caseloads is an approach that has been employed by various specialities for various reasons. Within otolaryngology for example Brod-

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<sup>5</sup> Rupp, R. R., *Understanding the Problems of Presbycusis*, *Geriatrics*, 25, p. 100—107, 1970.

<sup>6</sup> Maurer, James F., Rupp, R. R., *Hearing And Aging*, New York: Grune and Stratton, Inc., p. 24, 1979.

<sup>7</sup> Oyer, Herbert J., Kapur Y. P., Deal, Leo V., *Hearing Disorders And Aging: Effects Upon Communication*, In Oyer, H. J., & Oyer, E. J., (ed.), *Communication And Aging*, Baltimore: University Park Press, p. 175, 1976.

<sup>8</sup> *Human Communication And Its Disorders*, NINDS, Monograph 10, USDHEW, 1970.

<sup>9</sup> Bollinger, R. L., *Geriatric Speech Pathology*, *Gerontologist*, 14, p. 217—220, 1974.

nitz<sup>10</sup> and Batza<sup>11</sup> studied their patient loads with particular reference to vocal disorders. The present investigators are not aware of any previous study made of an otolaryngological patient load of elderly within the categories employed in this study, namely medical/surgical and communication.

## CATEGORIES

The medical/surgical categories included (1) head and neck, (2) facial plastic, (3) ear, (4) nose, and (5) throat. The communication categories included (1) speech, and (2) hearing.

## PATIENTS

There were 216 patients examined that were placed within two age groups as follows: Group 1 — »Young-Old« (65—74 years) and Group 2 — »Old-Old« (75 years and above). In Group 1 — (Y-O) there were 76 males and 66 females, and in Group 2 — (O-O) there were 36 males and 38 females. The age range for both spanned 24 years (65—89 years). The median ages for Group — (Y-O) were 69 for males and 66 for females, and, 79 years for both males and females within Group 2 — (O-O). Patients visits totaled 250.

## RESULTS AND DISCUSSION

The rank order of medical/surgical problems seen was: Ear — (113 — 48.7%); Nose — (46 — 19.8%); Throat — (32 — 13.8%); Facial Plastic — (30 — 12.9%); Head & Neck — (11 — 4.7%). Upon inspection of these data the question was raised as to whether or not there were sex and age differences. Null hypotheses were generated namely that there were no statistically significant differences with reference to each of the five medical/surgical sub-categories (1) between Group 1 — (Y-O) and Group 2 — (O-O); (2) between male and female patients within Group 1 — (Y-O); (3) between male and female patients of Group 2 — (O-O); (4) between sexes for combined groups; (5) for female patients of Group 1 — (Y-O) and Group 2 — (O-O); (6) for male patients of Group 1 — (Y-O) and Group 2 — (O-O), and; (7) in the frequency of occurrence of each medical problem in relation to the frequency of occurrence of each of the other four medical problems.

Results of Chi Square analysis showed that at the .05 level the null hypotheses could not be rejected for age or sex differences relative to the medical problems, however the seventh hypothesis was rejected for frequency of occurrence of the ear problem when compared to each of the other four

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<sup>10</sup> Brodnitz, F. S., *Vocal Rehabilitation*, (3rd ed.), Rochester: American Academy of Ophthalmology and Otolaryngology, 1965.

<sup>11</sup> Batza, E. M., *Adventures in Vocal Rehabilitation*, In Cooper, M. & Cooper M. H., (ed), *Approaches To Vocal Rehabilitation*, Springfield: Charles C. Thomas Publishers, 1977.

medical problems: Head and Neck — (.01 level); Facial Plastic (.001 level); Nose — (.001 level); and Throat — (.001 level). Ear problems appeared significantly more frequently than any others. In all other comparisons the Chi Square values were less than the critical value at the .05 level of confidence.

With respect to the problems of communication, it was found that there were considerably more hearing impairments than speech impairments observed. Of the speech impairments observed, all were disorders of voice. Hearing problems were diagnosed principally as a type of presbycusis. Null hypotheses were formulated stating that there were no significant differences in the occurrence of either speech or hearing problems (1) between Group 1 — (Y-O) and Group 2 — (O-O); (2) between males of the two age groups and females of the two groups; (3) between sexes within each age group; (4) between sexes for speech and hearing problems combined; (5) between Group 1 — (Y-O) and Group 2 — (O-O) for speech and hearing problems combined, and; (6) when collapsed over age and sex.

Chi Square analysis showed that there was a significant difference in the frequency of occurrence of speech (voice) problems between Group 1 — (Y-O) and Group 2 — (O-O) with greater occurrence among the »young-old« patients. Thus, null hypothesis one was rejected in relation to speech.

As for the differences between the age groups with respect to hearing impairment, the Chi Square value computed was 3.83 with the critical value of Chi Square  $\geq 3.84$  at the .05 level of confidence. We chose for »practical« purposes to reject null hypothesis one as related to hearing. It is of interest to note at this point that there were 15 percent more hearing problems among the »old-old« patients than among the »young-old«. In no other instances did the statistical analyses yield significant sex differences, thus the null hypotheses two, three, and four concerning sex differences and communication problems could not be rejected. A significant difference (at .01) was found between age groups when speech and hearing problems were combined, thus a rejection of hypothesis five. Group 1 — (Y-O) had significantly more speech and hearing problems than did Group 2 — (O-O). A significant difference (at .001) was also found between the frequency of occurrence of the problems of speech and hearing with hearing problems occurring more frequently.

It is of some interest to note that no problems of language (dysphasia or aphasia) or of speech (dysarthria, apraxia, functional articulatory or alaryngeal) except for voice were manifested in this sample of elderly patients. We believe that it would be of considerable interest to determine whether or not a similar distribution of patient problems would be observed in a study of older persons consulting otolaryngologists in countries other than the U.S.A. Such a comparative study might be useful in further understanding and theory development concerning communication problems associated with the aging process.<sup>12</sup>

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<sup>12</sup> Oyer, Herbert J., Importance of an International Perspective, In Oyer, Herbert J., (ed.), *Communication For The Hearing Handicapped- -An International Perspective*, Baltimore: University Park Press, p. 8, 1976.

For the medical/surgical problems seen, the necessary medical and or surgical interventions were invoked. And for the patients with communication problems, steps were taken for example with the voice cases to identify the etiologies and to provide the necessary medical, surgical, or other rehabilitation procedures. For hearing problems, most of which were sensorineural impairments, full otological and audiological workups were provided which frequently resulted in recommending amplification with a hearing aid.

Perhaps the most striking feature of this study of elderly patients seen within a large medical clinic was that approximately one-half (48.7%) of all the medical problems seen were involved with the ear (52.3% of the patients). Well over threefourths (85.2%) of the communication problems were those of hearing impairment; 40.3% of all patients seen.

These facts highlight the importance of integrating the functions of otology and audiology in providing care for the elderly who have problems of communication, particularly those associated with impairments of audition. Through informed diagnostic, treatment, testing, and rehabilitative procedures the stresses and handicaps that accompany impaired communication can be alleviated and hopefully, by so doing, improve the quality of the lives of the elderly.

### Sažetak

#### PROBLEMI SLUHA I GOVORA KOD STARIJIH OSOBA

Autori proučavaju probleme sluha i govora kod starijih osoba u SAD. Iznose najprije brojne statistike objavljene u SAD o gubitku sluha i smetnjama u govoru kod starijih osoba u SAD, ali ističu da još ni jedan istraživač nije sistematski obradio te probleme u cjelini otorinolaringološkog aspekta. Toga su se rada prihvatili dr. Joseph H. Oyer, predstojnik u Odjelu za Otorinolaringologiju na Harvardu i dr. Herbert J. Oyer, Profesor znanosti o govoru i sluhu na Ohio State University, Columbus, Ohio.

Broj pacijenata: 216, koje su podijelili u dvije grupe: 1) »Mladi-stari« (65—74) g. i 2) »Stari-stari« (preko 75 godina). Ispitali su područja: lica, vrata, uha, nosa i grla. Najviše je problema bilo s uhom: 48,7%. Onda su problemi slijedili ovim redom: Nos, 19,8%, grlo: 13,8%, lice: 12,9%, glava i vrat: 4,7%. Nije bilo razlike između spolova. Zaključci su bili slijedeći: Prvo, najviše je problema s uhom, te je presbiakuzija najčešća od svih problema ORL. Drugo: potrebno bi bilo napraviti u istom smislu komparativne studije da se vidi status ORL problema u SAD i drugdje u svijetu.