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Counseling our aging population: A training program for pharmacy students on hearing loss

Michele Pisano^{a,*}, Suzanne Miller^b

^a St. John's University, College of Pharmacy and Health Sciences, Department of Clinical Health Professions, 8000 Utopia Parkway, St. Albert Hall, Room 114, Queens, New York, NY 11439, United States

^b St. John's University, Department of Communication Sciences and Disorders, 8000 Utopia Parkway, St. John Hall, Room 344J, Queens, New York, NY 11439, United States

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ABSTRACT

Background and purpose: Hearing loss affects approximately one-third of adults age 61–70 and >80% of those older than 85 years. This can impede the ability to hear medication administration instructions, leading to poor adherence and unnecessary disease progression and complications. The study purpose was to educate students on hearing loss and identify program impact.

Educational activity and setting: An online program for advanced pharmacy practice experience (APPE) students was developed to train students how to counsel patients with hearing loss to improve medication understanding and adherence. The purpose of the training program was to provide background on hearing loss, increase understanding of the impact hearing loss, and to prepare students to counsel this population. A link from SurveyMonkey was provided upon training program completion.

Findings: Ninety-two students completed the survey. Prior to training, < 20% (18.5%) were comfortable interacting with patients with hearing impairment, despite ~50% of these students completing more than three APPEs with direct patient care. The majority (88%) recognized that hearing loss contributes to poor medication adherence. More than 80% believed that the training program improved their understanding of the psychological consequences of hearing loss and ability to counsel patients with hearing loss. Over 70% agreed that the training program made them feel more prepared to counsel patients with hearing loss.

Discussion and summary: It is crucial to prepare students to better understand this population in order to meet their needs. This program enhanced students' knowledge of hearing loss and increased their understanding of communication barriers.

Background and purpose

Individuals 60 years and older represent the largest growing segment of American society. There are currently 35.9 million people 65 years of age and older in America.¹ By 2030, that number will rise to 73 million and represent 12% of our population.¹ Presbycusis, also known as age-related hearing loss, is common among non-institutionalized elderly adults. Nearly 25% of adults between the ages of 65 and 74 have hearing loss and this number rises to 50% for adults over the age of 75.²

Presbycusis is thought to be caused by age-related degeneration of the genetic makeup, a lifetime of noise exposure, and exposure

* Corresponding author.

E-mail addresses: pisanom@stjohns.edu (M. Pisano), millers2@stjohns.edu (S. Miller).

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to ototoxic agents.³ Those with presbycusis will initially have trouble hearing high frequency sounds, followed by a decrease in the ability to hear mid and low frequency sounds. There is also a decline in speech recognition abilities. Those with hearing loss may also experience declines in auditory processing capabilities, and have trouble listening during demanding tasks and in noisy environments.³ Presbycusis is irreversible, and it affects all aspects of a person's work, home, and social life.

Hearing impairment alters a person's ability to communicate with others and has been found to increase cognitive decline in community-dwelling adults.⁴ Hearing impairment in old age is also linked to a number of negative outcomes, including depression and diminished functional status.⁵ Strawbridge et al.⁶ found a hearing loss of moderate degree or worse correlated to a decline in activities of daily living (ADL), such as self-care, as well as instrumental activities of daily living (IADL), such as preparing meals, taking daily medications, and physical performance. Hearing loss also has a negative effect on recall tasks that can affect medication adherence.⁷ These declines can affect future health outcomes and quicken the need for supportive services.⁶

Hearing loss is an invisible condition because, unless a person is wearing hearing aids or a cochlear implant, there are no visible markers of the loss. A person may easily bluff or pretend to understand what is being said in conversation.⁸ An untrained medical professional may not easily recognize that a patient is having trouble hearing instructions. This may lead to confusion later on for the individual with the loss, which in turn can lead to mistakes and oversights in treatment, decreased medication adherence, and poor patient outcomes.⁹

Medication non-adherence is linked to many problematic issues including the worsening of disease and increased mortality, which can lead to an increase in healthcare costs. For example, better adherence to antihypertensive treatment could prevent 89,000 premature deaths annually and every dollar spent on medication is equivalent to a dollar spent on medication-related issues.^{10,11} Medication non-adherence has also been linked to hospital and nursing home admissions, as it is estimated that 33% to 69% of medication-related hospital admissions are the result of poor medication adherence.¹² For example, taking doses at the wrong time or in combination with the wrong medications or supplements can have serious consequences.¹³ Incorrectly storing medications or using medical devices improperly may have additional consequences.¹³

Pharmacists have the responsibility of informing their patients about when and how to take their medications. Effective communication improves patient satisfaction and can lead to a reduction in errors and improved medication adherence.¹⁴ Effective patient counseling can also reduce both medication-related problems and non-adherence. Most pharmacists will likely have large caseloads of patients with hearing loss, though they often have very limited background knowledge of hearing, hearing loss, or communication strategies for working with patients that have hearing loss.¹⁵

Noting this need, an interprofessional collaboration was developed between the pharmacy and audiological departments at our institution. To our knowledge, a program designed specifically for pharmacy students on hearing loss has not yet been published. A four-part online training program was designed to educate pharmacy students currently on their advanced pharmacy practice experiences (APPEs) about the implications associated with hearing loss. The goal of the project was to improve APPE students' skills in working with persons that have hearing impairment. It is believed that this interprofessional collaboration between pharmacy and audiology will improve students' ability to educate patients with hearing loss, thus improving medication adherence.

Educational activity and setting

A total of 12 faculty members were chosen to have their APPE students participate in this pilot program. Faculty members were chosen if their specialty area had a high degree of patient interaction, involved the geriatric population or both. Most faculty members were practicing at ambulatory care or advanced community sites. Each faculty member had two students per rotation, and the pilot program ran from January 2016–May 2017. The rotations that the APPE students completed prior to this pilot program varied based on students schedule.

Both the pharmacist and the audiologist created the topics covered in the four-part video series. The audiologist utilized Camtasia® video and screen recording software (TechSmith, Okemos, MI) to develop the program. After editing, videos were uploaded to YouTube (San Bruno, CA), a video sharing website. The innovative online training program was designed to cover topics necessary for pharmacists to provide informed instruction to their patients with hearing loss (Table 1).

Pharmacy students at St. John's University were encouraged to view the video series online before starting at the rotation

Table 1
Video series and run time.

Video	Overview	Times
Part 1: The mechanics of hearing	Provided an overview of the structure and function of the auditory system. Explanations of the outer, middle, and inner ears as well as the auditory nerve were provided	4.41 min
Part 2: Types and degrees of hearing loss	Discussed acoustics of sound, pathologies and etiologies of hearing loss including ototoxic medications: occurrence, progression, and degree of hearing loss	5.48 min
Part 3: Listening devices and related technologies	Covered the technology behind hearing aids, cochlear implants, and assistive listening devices. Use of these devices was also discussed	4.49 min
Part 4: The patient and age-related hearing loss	Discussed the patient with hearing loss, the psychosocial consequences of hearing loss, conversations with those that have hearing loss, and communication strategies to use with the patient and communication strategies to use with the patient	9.51 min
		Total = 24.19 min

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