

FM use by adults: Selection criteria and self-reported benefit

Summary

FM systems allow for substantial improvements of speech understanding in noisy situations and provide clear benefits in a range of everyday situations. Despite this, only a small percentage of adult hearing impaired actually use FM systems. The presented study indicates that the application of well-defined candidacy criteria and a systematic approach to counseling, coaching and instruction in FM system use are key factors for successful FM fittings in adults and improving the patient's quality of life.



The major complaint of people with hearing loss is difficulty understanding speech in the presence of background noise. For sufficient speech understanding, hearing impaired with sensorineural loss need a better signal-to-noise ratio (SNR), compared to people with normal hearing. This is due to declined spectral and temporal processing in the impaired auditory system.

FM systems provide a massive improvement of the SNR by "bridging" the distance between the talker and the listener. Previous research has clearly demonstrated the SNR enhancement by FM systems and the related dramatic improvement terms of speech understanding in noise^{1,2}. In addition, there are perceived benefits in a range of everyday situations^{3,8}.

However, only a small percentage of adult hearing impaired actually use FM systems. Research suggests that a lack of considerable counseling, instruction and coaching regarding FM systems³ and a lack of clear cut criteria for determining device candidacy might be reasons for limited use of FM systems in the adult population.

A recently published study⁴ systematically addressed the role of counseling and candidacy determination for FM systems*.

Setup

A list of candidacy criteria was established by clinicians experienced with fitting FM systems to adults. These criteria include:

1. At least a moderate-to-severe bilateral hearing loss
2. Experience using BTE instruments or willingness to use them
3. No known physical or psychological problems that would preclude FM use
4. Lack of satisfaction with hearing aid use in at least one situation where an FM device could be helpful

Based on these criteria, 36 subjects were recruited at two research sites for a 7-week trial period of FM use. One outcome of the trial was the degree of achievement of individualized goals, as measured through the Client Oriented Scale of Improvement (COSI)⁵. At the onset of the

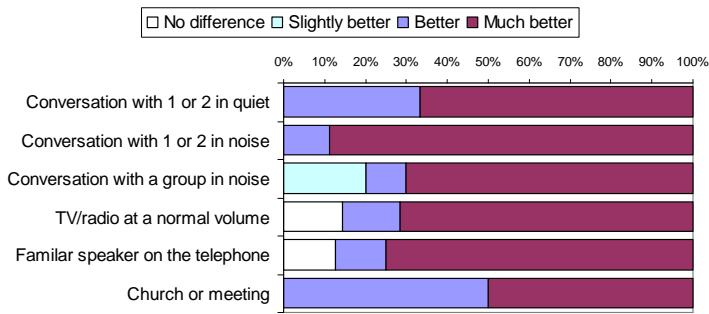


Figure 1: Degree of Change when listening with the FM systems vs. hearing instruments alone.

trial, each subject identified one to three individual situations in which their current hearing aids were not effective in improving communication. The individual situations were classified into one of 16 categories for comparison across groups of subjects. The subjects were asked to rate the *Final Ability* (i.e., how much they can hear with their hearing aids in the situations they nominated as treatment goals). The COSI scale includes five options: "hardly ever" (10%), "occasionally" (25%), "half of the time" (59%), "most of the time" (75%), and "almost always" (90%).

At the onset of the trial, instructions on FM system use were given. Over the FM trial period, the goals were addressed in individual sessions with detailed instructions on how the goal could be achieved. Progress was monitored and instruction reinforced, if necessary. At the end of the trial, the subjects rated the *Final Ability* using the FM system.

Results

The majority of subjects indicated that their listening abilities were much better with FM systems than with hearing instruments alone (Figure 1). The *Final Ability* to hear in the individual situations with hearing aids alone and with FM systems is shown in Figure 2. A significant improvement is reached in all situations.

In addition to the COSI, selected items from the Communication Profile for the Hearing Impaired⁶ and from the MarkeTrak survey⁷ were used as outcome measures. They showed positive effects in terms of self-perception of communication performance and satisfaction with device use in specific listening situations, respectively.

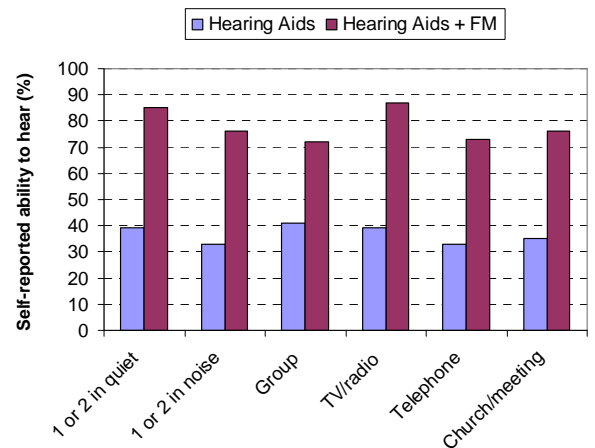


Figure 2: Final Ability to hear in the individual situations with hearing aids alone and with FM systems.

At the end of the trial period, all participants chose to continue to use the FM system. According to the researchers, their systematic approach to counseling, coaching and instruction in FM system use was critical to this success. They stress the importance of determining individualized goals (as with the COSI), and of actively addressing these goals in follow-up sessions. The follow-up sessions are also necessary to ensure that the patients are using the devices appropriately to achieve their goals.

The researchers conclude: "When a patient tells us that the FM system 'has already in 6 weeks improved the quality of my life significantly', we know that the systematic counseling, instruction and coaching we provided was time well spent".

*The study was conducted by Theresa Hnath Chisolm, PhD (University of South Florida), Colleen M. Noe, PhD (James H. Quillen VA Medical Center, TN), Rachel McArdel and Harvey Abrams (VA Medical Center in Bay Pines, FL).

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