

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/276266496>

Promoting Self-Efficacy in Patient-Centered Audiologic Rehabilitation for Adults with Hearing Loss

ARTICLE *in* PERSPECTIVES ON AURAL REHABILITATION AND ITS INSTRUMENTATION · MAY 2014

DOI: 10.1044/arri21.1.24

CITATION

1

READS

49

1 AUTHOR:



[Sherri L. Smith](#)

U.S. Department of Veterans Affairs

27 PUBLICATIONS 218 CITATIONS

SEE PROFILE

Promoting Self-Efficacy in Patient-Centered Audiologic Rehabilitation for Adults with Hearing Loss

Sherri L. Smith

Audiologic Rehabilitation Laboratory, Auditory and Vestibular Dysfunction Research Enhancement Award Program, Veterans Affairs Medical Center
Mountain Home, Tennessee
Department of Audiology and Speech-Language Pathology, East Tennessee State University
Johnson City, Tennessee

Disclosure: Financial: The manuscript is based upon work supported in part by the Department of Veterans Affairs, Veterans Health Administration, and Office of Research and Development, Rehabilitation Research and Development (RR&D) Service. The contents of this manuscript do not represent the views of the Department of Veterans Affairs or the United States Government. Nonfinancial: Sherri L. Smith has no nonfinancial interests to disclose.

Abstract

Self-efficacy is defined as an individual's judgments of their capabilities to perform certain skills necessary to attain a desired outcome or behavior (Bandura, 1986). There is a vast literature across a large range of health conditions that highlights the importance of self-efficacy in the management of chronic health conditions including behaviors related to managing hearing loss and tinnitus (Smith & West, 2006a). The main findings from these studies indicate that patients with higher self-efficacy for managing their chronic health condition tend to be more adherent to treatment plans and have better outcomes than patients with lower self-efficacy. This paper reviews self-efficacy theory and how self-efficacy can be applied to audiologic rehabilitation interventions. Emerging evidence showing that self-efficacy is an essential factor to consider in audiologic rehabilitation for adults is summarized. The way in which individuals formulate self-efficacy beliefs is described and the techniques clinicians can use to promote self-efficacy in audiologic rehabilitation are discussed.

"If I have the belief that I can do it, I shall surely acquire the capacity to do it even if I may not have it in the beginning." Mahatma Gandhi

The central tenet of patient-centered care in audiologic rehabilitation (AR) is understanding the unique needs and goals of the patient with hearing loss while at the same time ensuring that the preferences and values of the patient are guiding all clinical decisions (e.g., Grenness, Hickson, Laplante-Lévesque, & Davidson, 2014a, b; Institute of Medicine, 2001). These goals and needs may be communicative, psychosocial, vocational, educational, or otherwise, in nature. In the patient-centered care model, the rehabilitative approach is tailored based on the needs and goals of the patient, but is driven by the preferences and values of the patient. As such, there may be several appropriate intervention options that can be offered to the patient such as amplification, hearing assistive technology, communication strategies training, auditory training, psychosocial adjustment counseling, and so on. With each specific AR intervention, patients with hearing loss often are faced with acquiring new skills and knowledge to manage the effects of their hearing loss in their daily life. Self-efficacy is the confidence that individuals have in their ability to perform the skills necessary to accomplish a certain behavior (Bandura, 1977; 1986; 1997), including behaviors related to managing chronic health conditions such as hearing loss or tinnitus (Smith & West, 2006a). In this paper, self-efficacy will be considered in the context of improving the patient-centered AR approach and outcomes for adults with hearing loss.

What is Self-Efficacy?

Self-efficacy is a key mediating factor within a larger theory known as social cognitive theory that was developed by Albert Bandura as an explanation of human behavior (1977, 1997). According to Bandura's social cognitive theory, individuals are not powerlessly controlled by their environments, nor do individuals control everything by their own free will. Instead, human functioning is viewed as a result of interactions among behavioral, personal (internal factors of cognition, affective states, and biological events), and environmental factors (Bandura, 1977). Bandura suggests that these factors interact with one another in a bidirectional fashion such that an individual's behavior is influenced by his/her environment and internal factors, and an individual's internal factors are mediated by his/her behavior and environment, and so on (Bandura, 1978, 1986, 2004; Wood & Bandura, 1989). In the context of audiologic rehabilitation, therefore, individuals' approaches for managing their hearing loss may be influenced by the interaction of these three factors, and self-efficacy will play a vital role in mediating this interaction.

Self-efficacy is defined as an individual's perception of his or her capability to perform certain skills that are necessary to attain a desired outcome (Bandura, 1997). Self-efficacy beliefs are not concerned with the actual skills themselves, but with how individuals judge what they can do with those skills (Shortridge-Baggett, 2001). Self-efficacy has been found to play a role in almost all aspects of one's life and is thought to influence an individual's judgments, motivation, effort, resilience, perseverance in the face of difficulties or relapse, life choices, and self-regulation (Bandura, 1997; Pajares, 2002). Obtaining new knowledge and acquiring new abilities, which also are influenced by self-efficacy (Bandura, 1997), are important for patients who are learning new information and skills to manage hearing loss in daily life.

It is essential to distinguish general self-confidence, which is a personality construct, from self-efficacy, which is a domain-specific form of confidence related to a certain behavior. In this context, individuals may have high self-confidence overall and believe that they can handle various life issues as they arise. In contrast, self-efficacy is the confidence the person has in a particular skillset needed to achieve a certain behavior or outcome, which may differ depending on the behavior or outcome of interest (Bandura, 1997). For example, a given person may have high self-efficacy regarding his/her math abilities and at the same time have low self-efficacy for his/her public speaking abilities. Thus, self-efficacy for managing hearing loss may vary within a person depending upon the behavior being addressed (e.g., hearing aid self-efficacy may differ from self-efficacy related to assertiveness).

Why is Self-Efficacy Important for the Management of Chronic Health Conditions?

Health care providers strive to help their patients achieve the best health status and the greatest degree of independence possible. To accomplish this, health care providers may need to encourage patients and their families to change their behavior. This is often a challenging task because many factors such as knowledge, ability, motivation, effort, and resilience (e.g., Bandura, 1997; Pajares, 2002) influence changes in health behavior (Shortridge-Baggett, 2001). Bandura's research offers a way to understand changes in behavior, including behaviors related to managing chronic health conditions (Bandura, 1997). In fact, research suggests that self-efficacy plays a role in adopting and maintaining health behaviors (Schwarzer & Fuchs, 1995).

There is a vast literature across a large range of health conditions that highlight the importance of self-efficacy in the successful management of chronic health conditions (e.g., Marks, Allegrante, & Lorig, 2005). Examples include diabetes (Aalto, Uutela, & Aro, 1997; Talbot, Nouwen, Gingras, Gosselin, & Audet, 1997; van de Laar & van der Bijl, 2001), cardiac rehabilitation (Ni et al., 1999; Winkleby, Flora, & Kraemer, 1994), cancer (Rogers et al., 2005), obesity (Bradshaw et al., 2004), vision loss (Brody et al., 1999; Horowitz, Reinhardt, & Kennedy, 2005), arthritis

(Focht, Rejeski, Ambrosius, Katula, & Messier, 2005; Lorig, Ritter, & Plant, 2005; Pariser & O'Hanlon, 2005), and balance disorders (Tinetti, Richman, & Powell, 1990), to list just a handful. The main findings from these studies indicate that patients with higher self-efficacy for managing their chronic health condition have higher adherence with treatment plans, more favorable perceived health and social functioning, better treatment outcomes, and better maintenance of health behaviors. They tend to be more motivated and put forth effort in challenging situations regarding their health condition. It is not to say that having high self-efficacy causes these positive effects, but that enhanced self-efficacy will increase the likelihood that patients will adopt and maintain the skills and behaviors necessary to manage the condition.

Why Is Self-Efficacy Important for Audiologic Rehabilitation?

Self-efficacy is an important factor to consider in the patient-centered care model because the level of self-efficacy patients have for managing their hearing loss plays a role in various points along the care continuum. A suggestion has been made, for example, that individuals may not pursue amplification if they have low self-efficacy in their abilities to handle/care for hearing aids, *viz.* hearing aid handling self-efficacy, (Kricos, 2000; Smith & West 2006a; Weinstein, 2000). Meyer, Hickson, Lovelock, Lampert, and Khan (2014) examined whether or not several audiologic and non-audiologic variables predicted help-seeking behaviors of individuals with hearing loss. Hearing aid self-efficacy was among the non-audiologic variables included in the study. Using a modified (verbiage on the endpoints on the response scale were changed slightly) version of the Measure of Audiologic Rehabilitation for Self-Efficacy (MARS-HA; West & Smith, 2007) to assess hearing aid self-efficacy beliefs, they found older adults with hearing loss indeed were more likely to seek help if they had higher hearing aid self-efficacy. In another study, Meyer, Hickson, and Fletcher (2014) examined factors that influenced hearing aid self-efficacy. They found that non hearing aid owners were more likely to report high self-efficacy (i.e., $\geq 80\%$ on certain MARS-HA subscales) if they did not have a self-reported visual disability, if they believed that they would have social support, and if they were less anxious about adjusting to wearing hearing aids. Hearing aid users were more likely to report high self-efficacy if they did not have a self-reported visual disability and their hearing aid experience was positive. Other research has shown that hearing aid users who have more significant degrees of hearing loss and poorer word recognition scores have lower aided listening self-efficacy than those with better hearing, suggesting that they need additional intervention to learn to manage their aided listening abilities with greater confidence (Smith & West, 2006b). There is evidence that intervention does improve self-efficacy beliefs in the context of audiologic rehabilitation (Jennings, 2006; West & Smith, 2007), but additional data are needed to demonstrate further the added value of self-efficacy based interventions. Nonetheless, just as self-efficacy has been shown to be important in rehabilitation programs to manage other chronic health conditions, there is emerging evidence that self-efficacy is an essential factor to consider in audiologic rehabilitation for adults.

How Do Individuals Formulate Their Self-Efficacy Beliefs?

Individuals form self-efficacy beliefs based on information drawn from four sources that include: (1) mastery experience, (2) vicarious experience, (3) verbal persuasion, and (4) physiologic and affective states (Bandura, 1997). These factors are important because self-efficacy is a perception or a belief, and as such, self-efficacy levels can be influenced both positively and negatively.

Mastery experience is the most influential source of information from which individuals form their domain-specific self-efficacy beliefs (Bandura, 1997). Individuals make self-efficacy judgments based on their performance of the skill in question. While individuals are performing skills, they consider how difficult the skill is, how much effort is needed to be successful, and whether or not support is needed from other sources. They also are influenced by their preconceived notion about their capabilities. Considering everything, if they have *mastered* the skill and can perform the task with expertise or ease, then they are likely to have high self-efficacy beliefs

regarding that skill based on mastery experience. If, on the other hand, they execute the skill with marked struggle, then they are more likely to have moderate self-efficacy beliefs for that skill. If they cannot perform the skill at all, low self-efficacy beliefs are likely to ensue. It is vital for individuals to have positive experiences while they are mastering a behavior because, as stated above, mastery experiences are the most influential source of information from which self-efficacy beliefs are formulated. If individuals experience challenges or are unsuccessful when performing a skill, then they may be at risk for putting forth less effort, losing motivation, or giving up (Bandura, 1997; Pajares, 2002).

The second source of information from which individuals form self-efficacy beliefs is through vicarious experience. Self-efficacy judgments based on this source of information are derived from individuals vicariously experiencing the task or behavior as it is being performed by another person (i.e., a vicarious model). When individuals observe the vicarious model executing a skill well, they may imagine themselves also able to accomplish the same task well, and thus judge their self-efficacy level for that skill as high. Similarly, if individuals observe the vicarious model perform a skill or behavior unsuccessfully or with several challenges, then they may judge their own self-efficacy level as low. Individuals who are uncertain about their capabilities or who have little experience with the skill or behavior rely heavily on vicarious experience when formulating their self-efficacy beliefs (Bandura, 1997). Self-efficacy judgments based on this source of information are most effective when the vicarious model is similar to the individual in terms of personal characteristics (e.g., gender, age, physical status, etc.) and to a shared experience (e.g., performing the skills for similar reasons, situations, environments, etc.) (Bandura, 1995).

The third source of information from which individuals formulate self-efficacy beliefs is verbal persuasion. Individuals make judgments about their self-efficacy level for a given skill when others provide verbal feedback to them regarding their capability to accomplish the skill. If a person tells an individual that she or he is performing the skill well, is capable of performing the skill, or is improving when the skill is being performed with effort, then the individual will likely have higher self-efficacy beliefs regarding that skill. If, however, the feedback being provided by the person is negative and not constructive, then the individual's self-efficacy level is likely to be low for the skill. Individuals will draw upon this source of information for formulation of their self-efficacy beliefs when the person providing the feedback about their skill performance is viewed as knowledgeable and trustworthy (Bandura, 1997; Pajares, 2002). In addition, individuals drawing upon this source of information will likely consider the information when setting goals for themselves, which tend to be higher and more realistic (van de Laar & van der Bijl, 2001).

The final source of information that individuals use to make self-efficacy appraisals is through interpretation of *physiologic and affective states*. This process involves individuals' observations of their physical and emotional reactions while performing the skill. Successful skill performance obtained with positive physical and emotional reactions will likely result in a high self-efficacy appraisal. For example, if individuals perform the skill calmly and with ease, then they will likely have high self-efficacy. If, however, the individual experiences stress-related symptoms or negative emotions such as frustration or anger during skill performance, they will be more likely to judge their self-efficacy as low.

How Can Self-Efficacy Be Increased?

Clinicians can play an important role in influencing patients' self-efficacy in their skills for managing hearing loss. First, clinicians need to recognize the source(s) of information by which patients are basing their self-efficacy perception. Second, clinicians should select an appropriate clinical technique (i.e., self-efficacy enhancing technique) to positively influence patients' self-efficacy levels for the skill being learned. For example, if patients are practicing a skill and become frustrated, then they likely may be drawing upon physiologic/affective states to make self-efficacy judgments about their ability for executing that skill. An appropriate clinical strategy for influencing self-efficacy in this example would be to take a break from the skill and then try again. There are

several self-efficacy-enhancing strategies clinicians can utilize to influence self-efficacy beliefs in their patients for each source of information. These will be described briefly for each source of information; a more detailed tutorial can be found in Smith and West (2006a) and Smith (2014).

Mastery Experience

Repeated practice is an effective way to increase self-efficacy through mastery experience (van der Bijl & Shortridge-Baggett, 2001). If there are several steps that an individual must execute to achieve a desired skill, then one effective strategy is to parse the practice session into smaller steps. With a multistep skill, clinicians can focus on supervised practice with subsets of easier skills prior to advancing to more difficult steps in the sequence (Bandura, 1997). Role-play is another valuable clinical tool that can be used to build self-efficacy. Role-play offers the opportunity for individualized, supervised practice in a simulated, yet safe, environment. Patients can make mistakes during role-play without feeling threatened as they might in a difficult listening situation in the real world. Clinicians can identify areas of weakness in the patient's skill execution so that they can become the focus of more practice in subsequent trials. The use of role-play fits well with the patient-centered care model because the simulated listening situation can be one nominated by the patient. Clinicians then can suggest that patients practice the skill(s) in their own environment, which is another useful self-efficacy enhancing technique for mastery experience. Real-world practice can help reinforce the skills that are being learned in the clinic (Smith & West, 2006a). If patients are successful executing a skill in a simulated clinical environment, then they may be more willing to try the skill in their real-world setting and to persevere if challenges arise. Finally, another technique to increase self-efficacy is to set realistic and achievable goals. Patients may lower their self-efficacy beliefs if a difficult task is attempted before mastering the skills necessary for successfully achieving that task. Thus, realistic goal-setting can be a useful self-efficacy enhancing tool.

Vicarious Experience

In a clinical setting, the clinician is usually, by default, the vicarious model for patients. Hence, when learning new skills, patients may formulate self-efficacy judgments about executing a particular skill simply by observing the clinician execute that skill. In many cases, however, the clinician may not be viewed as a peer in terms of personal characteristic (e.g., gender, social status, age, profession, education, etc.) or shared experiences (e.g., living with hearing loss). Thus, a peer model would serve as a better vicarious model than a person who is not similar to the patient (Pajares, 2002). Peer models often are readily available in audiology clinics that have group rehabilitation programs. Group settings also are important because the patient potentially can observe several peers successfully performing the skill, which is more effective than observing only one vicarious peer model (Bandura, 1997). If role play is incorporated in the group setting, then this can further serve to influence self-efficacy through vicarious experience (Smith & West, 2006a). When group programs are not available, then the clinician can encourage the patient's significant other to learn the skills alongside the patient. Clinicians should take caution in soliciting peers to serve as vicarious models, however, because if the model fails at performing the skill at hand, then that failure can serve to lower the patient's self-efficacy beliefs. Thus, clinicians need to be confident that the selected individual can perform the skill successfully before inviting the peer to serve as a model.

Other clinical strategies for promoting self-efficacy through vicarious experience include cognitive rehearsal, instructional videos of peer models, and self-observation. Cognitive rehearsal refers to individuals envisioning themselves successfully executing the skill that is being modeled. After the clinician models the skill execution of a given task, then the clinician can ask the patient to visualize the steps (i.e., rehearse) involved with skill performance prior to the patient attempting it. Cognitive rehearsal allows the patient to work out the steps mentally, possibly foreseeing obstacles and planning strategies to overcome them prior to attempting the skill execution. Instructional videos of peers performing the skills also can serve to influence self-efficacy levels through vicarious experience. Many videos are available on the internet, for example, that demonstrate the use of

amplification devices. Finally, self-observation is another self-efficacy enhancing strategy available to influence vicarious experience. Self-observation frequently is used in sports where athletes perform a maneuver, such as a tennis serve, then observe themselves on video recordings to determine the outcome of the maneuver. This strategy also has the potential for use in a clinical setting provided privacy issues are considered.

Verbal Persuasion

When others attempt to influence another's self-efficacy beliefs, verbal persuasion is the approach that is used most often to do so (van de Laar & van der Bijl, 2001). Clinicians often use verbal persuasion while interacting with patients. Clinicians can increase a patient's self-efficacy for performing a skill or behavior by providing positive and evaluative feedback about the patient's performance. The feedback should highlight the patient's abilities during skill execution even when the patient is struggling, rather than pointing out the weaknesses with the execution. If a patient struggles with a skill but improves with effort after repeated attempts, it is important for the clinician to address this improvement (e.g., Bandura, 1997; Smith & West, 2006a). Should patients struggle at home, then they can recall that they were able to perform the skill after effort while in the clinic and may be more motivated to put forth the effort to successfully execute the behavior. Supportive reassurance from the significant other and family members also can promote self-efficacy through verbal persuasion and the clinician should encourage them to do so. Likewise, the patient can provide supportive reassurance to significant others and family members if they are learning new skills as well (e.g., executing communication strategies). Other forms of verbal persuasion also are associated with increased knowledge and, hence, improvements in perceived self-efficacy. Pedagogic materials in the form of handouts, instructional videos, internet sites, and face-to-face classes can serve to increase the patient's and/or significant other's knowledge and self-efficacy related to the AR intervention(s) being adopted.

Physiologic and Affective States

The final set of self-efficacy-enhancing strategies involve promoting self-efficacy through physiologic and affective states. These strategies require clinicians to be a keen observers of the patient's stress-related physical responses (e.g, tension, sighs, etc.) and/or negative emotional reactions (e.g., frustration, nervousness, anxiety, etc.) during training. If clinicians are unsure whether or not patients are experiencing negative physiologic and affective states during training, then simply asking them may provide some insight (e.g., "Do you feel good about inserting the hearing aid into your ear?" or "Now that we have practiced, do you feel comfortable with asking the director to wear the remote mic during the meeting?"). Strategies to enhance self-efficacy focus on (a) understanding the reasons for the negative states and (b) attempting to promote positive states. If a skill is difficult for the patient to adopt or perform, for example, then take a break from it. Redirect the training or counseling to the task that was successful for the patient, and try the difficult skill again later in the session. Another strategy is to ensure ample time is available during the appointment so the patient is not under additional pressure to learn to execute the skill. If that is not possible, then inform the patient that follow-up appointments are provided for the purpose of further practice so that he or she can master the skill and/or provide take-home pedagogic materials to ease any anxiety about mastering these new skills at home. In addition, training in an environment that is conducive to learning, such as one that is comfortable and free of distraction, is calming to patients and promotes positive states. Counseling is an important tool if negatives states are observed. Through counseling, clinicians can explore the reason(s) for the negative state related to the skill acquisition and assist the patient by (re)interpreting them or by providing appropriate support for psychosocial adjustment.

Combining the Self-Efficacy Enhancing Techniques

Maddux and Lewis (1995) suggest that the most effective way to promote self-efficacy is to use all four sources of information in combination. Different individuals draw upon different sources of information to make judgments about their self-efficacy and these may differ within an individual depending on the behavior being learned. Thus, clinician are encouraged to use

self-efficacy-enhancing techniques from all sources of information when teaching patients new skills and behaviors to manage hearing loss in their daily lives. If, however, clinicians can identify the source of information that a particular patient is predominantly using to formulate self-efficacy beliefs regarding the skill being learned, then selecting a corresponding technique may be most effective (see Table 1). Otherwise, clinicians are encouraged to use the self-efficacy promoting techniques from all four sources of information.

Table 1. Self-Efficacy Enhancing Techniques Based on Each Source of Information.

Mastery Experience	Vicarious Experience	Verbal Persuasion	Physiologic/Affective States
Practice	Clinician model	Positive feedback	Determine reason for negative state
Repetition	Peer model	Constructive feedback	Supportive counseling
Parse skills into smaller subsets	Group setting	Feedback on effort	Take breaks
Role play	Cognitive rehearsal	Feedback on improvement	Redirect to simpler tasks
Real-world practice	Instructional videos	Supportive talk from significant others	Allow plenty of time
Set realistic goals	Self-observation	Pedagogic materials	Calm environment

Conclusion

Patients and their significant others must adopt new skills and behaviors to manage hearing loss effectively in their real-world environments. Self-efficacy plays an important role in audiologic rehabilitation because a patient's self-efficacy influences decision-making, motivation, effort, and resilience in adopting and maintaining the skills and behaviors learned to manage hearing loss. In addition, greater self-efficacy has been shown to be related to better treatment outcomes. Self-efficacy theory provides a framework for clinicians to incorporate during audiologic rehabilitation intervention. By promoting self-efficacy through the clinical techniques described here, clinicians will add value to their rehabilitation services and will better help patients achieve their individual goals to live well with hearing loss.

References.

- Aalto, A. M., Uutela, A., & Aro, A. R. (1997). Health related quality of life among insulin-dependent diabetics: Disease-related and psychosocial correlates. *Patient Education and Counseling, 30*, 215–225.
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Bandura, A. (1978). The self-system in reciprocal determinism. *American Psychologist, 33*, 344–358.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1995). *Self-efficacy in changing societies*. Cambridge, England: Cambridge University Press.
- Bandura, A. (1997). *Self efficacy: The exercise of control*. New York, NY: W. H. Freeman and Company.
- Bandura, A. (2004). Health promotion by social cognitive means. *Health, Education & Behavior, 31*, 143–164.
- Bradshaw, A., Katzer, L., Horwath, C. C., Gray, A., O'Brien, S., Joyce, J., & Jabs, J. (2004). A randomized trial of three non-dieting programs for overweight women. *Asia Pacific Journal of Clinical Nutrition, 13*(Suppl.), 43.

- Brody, B. L., Williams, R. A., Thomas, R. G., Kaplan, R. M., Chu, R. M., & Brown, S. I. (1999). Age-related macular degeneration: A randomized clinical trial of a self-management intervention. *Annals of Behavioral Medicine, 21*, 322–329.
- Focht, B. C., Rejeski, W. J., Ambrosius, W. T., Katula, J. A., & Messier, S. P. (2005). Exercise, self-efficacy, and mobility performance in overweight and obese older adults with knee osteoarthritis. *Arthritis and Rheumatism, 53*, 659–665.
- Grenness, C., Hickson, L., Laplante-Lévesque, A., & Davidson, B. (2014a). Patient-centred care: A literature review for rehabilitation audiologists. *International Journal of Audiology, 53* (Suppl. 1), 60–67.
- Grenness, C., Hickson, L., Laplante-Lévesque, A., & Davidson, B. (2014b). Patient-centred audiological rehabilitation: Perspectives of older adults who own hearing aids. *International Journal of Audiology, 53* (Suppl. 1), 68–75.
- Horowitz, A., Reinhardt, J. P., & Kennedy, G. J. (2005). Major and subthreshold depression among older adults seeking vision rehabilitation services. *American Journal of Geriatric Psychiatry, 13*, 180–187.
- Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC: National Academies Press.
- Jennings, M. B. (2006). *Factors that influence outcomes from aural rehabilitation of older adults: The role of perceived self-efficacy*. ProQuest.
- Kricos, P. B. (2000). The influence of nonaudiological variables on audiological rehabilitation outcomes. *Ear and Hearing, 21*, 7S–14S.
- Lorig, K., Ritter, P. L., & Plant, K. (2005). A disease-specific self-help program compared with a generalized chronic disease self-help program for arthritis patients. *Arthritis and Rheumatism, 53*, 950–957.
- Maddux, J. E., & Lewis, J. (1995). Self-efficacy and adjustment: Basic principles and issues. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, adjustment: Theory, research, and application* (pp. 37–68). New York, NY: Plenum Press.
- Marks, R., Allegrante, J. P., & Lorig, K. (2005). A review and synthesis of research evidence for self-efficacy-enhancing interventions for reducing chronic disability: Implications for health education practice (Part II). *Health Promotion Practice, 6*, 148–156.
- Meyer, C., Hickson, L., & Fletcher, A. (2014). Identifying factors and facilitators to optimal hearing aid self-efficacy. *International Journal of Audiology, 53* (Suppl. 1), 28–37.
- Meyer, C., Hickson, L., Lovelock, K., Lampert, M., & Khan, A. (2014). An investigation of factors that influence help-seeking for hearing impairment in older adults. *International Journal of Audiology, 53* (Suppl. 1), 3–17.
- Ni, H., Nauman, D., Burgess, D., Wise, K., Crispell, K., & Hershberger, R. E. (1999). Factors influencing knowledge of and adherence to self-care among patients with heart failure. *Archives of Internal Medicine, 159*, 1613–1619.
- Pajares, F. (2002). *Overview of social cognitive theory and of self-efficacy*. Retrieved from <http://www.emory.edu/education/mfp/eff.html>
- Pariser, D., & O'Hanlon, A. (2005). Effects of telephone intervention on arthritis self-efficacy, depression, pain, and fatigue in older adults with arthritis. *Journal of Geriatric Physical Therapy, 28*, 67–73.
- Rogers, L. Q., Shah, P., Dunnington, G., Greive, A., Shanmugham, A., Dawson, B., & Courneya, K. S. (2005). Social cognitive theory and physical activity during breast cancer treatment. *Oncology Nursing Forum, 32*, 807–815.
- Schwarzer, R., & Fuchs, R. (1995). *Self-efficacy and health behaviors*. Retrieved from <http://www.fu-berlin.de/gesund/publicat/conner9.htm>
- Shortridge-Baggett, L. M. (2001). Self-efficacy: Measurement and intervention in nursing. *Scholarly Inquiry for Nursing Practice: An International Journal, 15*, 183–188.
- Smith, S. L. (2014). Self-efficacy theory in audiological rehabilitation. In J. J. Montano & J. B. Spitzer (Eds.), *Adult audiological rehabilitation* (pp. 219–232). San Diego, CA: Plural.
- Smith, S. L., & West, R. L. (2006a). The application of self-efficacy principles to audiological rehabilitation: A tutorial. *American Journal of Audiology, 15*, 46–56.
- Smith, S. L., & West, R. L. (2006b). Hearing aid self-efficacy of new and experienced hearing aid users. *Seminars in Hearing, 27*, 325–329.

- Talbot, F., Nouwen, A., Gingras, J., Gosselin, M., & Audet, J. (1997). The assessment of diabetes-related cognitive and social factors: The multidimensional diabetes questionnaire. *Journal of Behavioral Medicine*, *20*, 291–312.
- Tinetti, M. E., Richman, D., & Powell, L. (1990). Falls efficacy as a measure of fear of falling. *Journal of Gerontology*, *45*, P239–243.
- van der Bijl, J. J., & Shortridge-Baggett, L. M. (2001). The theory and measurement of the self-efficacy construct. *Scholarly Inquiry for Nursing Practice: An International Journal*, *15*, 189–207.
- van de Laar, K. E. W., & van der Bijl, J. J. (2001). Strategies enhancing self-efficacy in diabetes education: A review. *Scholarly Inquiry for Nursing Practice: An International Journal*, *15*, 235–248.
- Weinstein, B. E. (2000). *Geriatric audiology*. New York, NY: Thieme Medical Publishing.
- West, R. L., & Smith, S. L. (2007). Development of a hearing aid self-efficacy questionnaire. *International Journal of Audiology*, *46*, 759–771.
- Winkleby, M. A., Flora, J. A., & Kraemer, H. C. (1994). A community-based heart disease intervention: Predictors of Change. *American Journal of Public Health*, *84*, 767–772.
- Wood, R. E., & Bandura, A. (1989). Social cognitive theory of organizational management. *Academy of Management Review*, *14*, 361–384.