



# Increasing Efficacy for Nursing Staff via Mastery Training for Hearing Aid Care

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## BACKGROUND

- New hearing aid users must acquire knowledge in order to care and maintain their instruments, but knowledge alone may be insufficient. Self-efficacy is needed to implement knowledge. Mastery experiences are an important component of self-efficacy (Smith et. al, 2006);
- Self-efficacy is also important for those who are involved in the care of another. Consider that in elder-care or assisted-living facilities, daily hearing aid care and maintenance often is delegated to staff members who are not trained regarding hearing loss or hearing aid care and maintenance (Alford et. al, 2010);
- Current research reflects the third phase in ongoing research addressing self-efficacy. Earlier work indicated that training programs increased knowledge but not self-efficacy (Alford et. al, 2010);
- To help target appropriate topics for inclusion in the training program, three facility residents were surveyed regarding hearing aid assistance received from nursing staff.

## RESEARCH QUESTIONS & GOALS

- Can hands on mastery tasks increase self-efficacy for nursing staff regarding hearing aid care, maintenance, and communication strategies through required hands on mastery tasks?
- Can a standalone tool that the facility can implement independently for in-service and training for new employees be an effective training tool?

## TRAINING GUIDE

### Introduction Session

- Myths About Hearing Loss and Hearing Aids
- Communication Strategies
- Assistive Listening Devices

### Hands on Mastery Kit #1

- Hearing Aids 101
- Hearing Aid Batteries
- Hearing Aid Insertion and Removal

### Hands on Mastery Kit #2

- Hearing Aid Care and Maintenance

### Hands on Mastery Kit #3

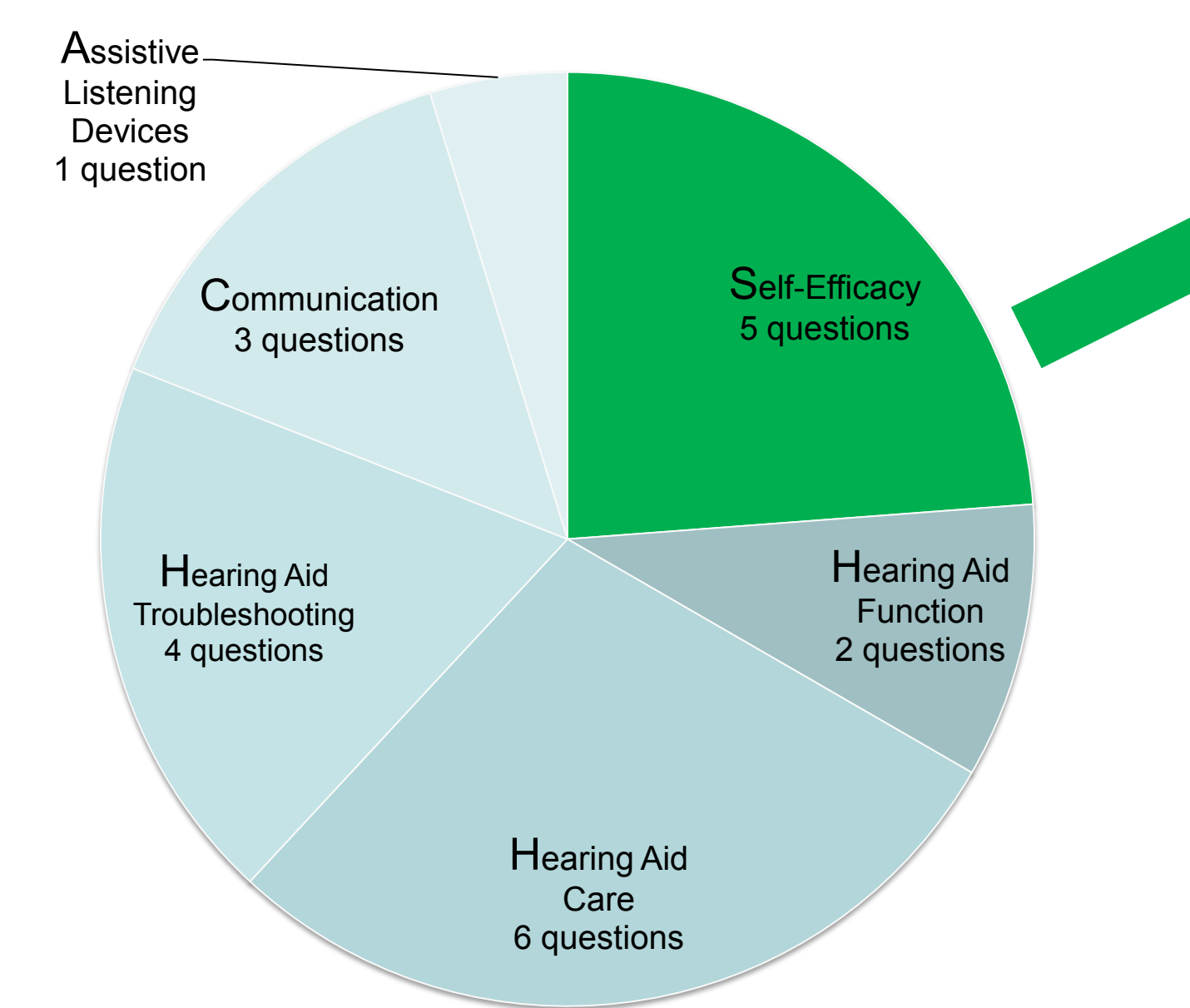
- Listening Check
- Troubleshooting

**Table 1. Components of Training Tool.** "Hearing Loss and Hearing Aid Mastery" is the revised training tool which consists of Introduction Session and 3 Mastery Kits. Mastery Kits include a PowerPoint program, tool kit, and guided instructions, via video, for hands-on activities. (📺 denotes video(s) included).

## METHODS

- N=10; nursing staff at C.C. Young Retirement Community randomly assigned to:
  - Training group (N=5): pre-test, training, post-test in one-week intervals
  - Control group (N=5): pre and post-test, separated by 1 week
- On-site staff member trained to be facilitator of the training program
- Pre and post-test= 21 questions to evaluate change in knowledge and self-efficacy
- Post-test also addressed confidence increase due to training

## ASSESSMENT TOOL



**Figure 1. Question Categories.** Total n=21. Knowledge questions (blue), n=16: 4 true/false, 12 multiple choice. Self-efficacy questions (green), n=5.

### Self-efficacy Question Categories:

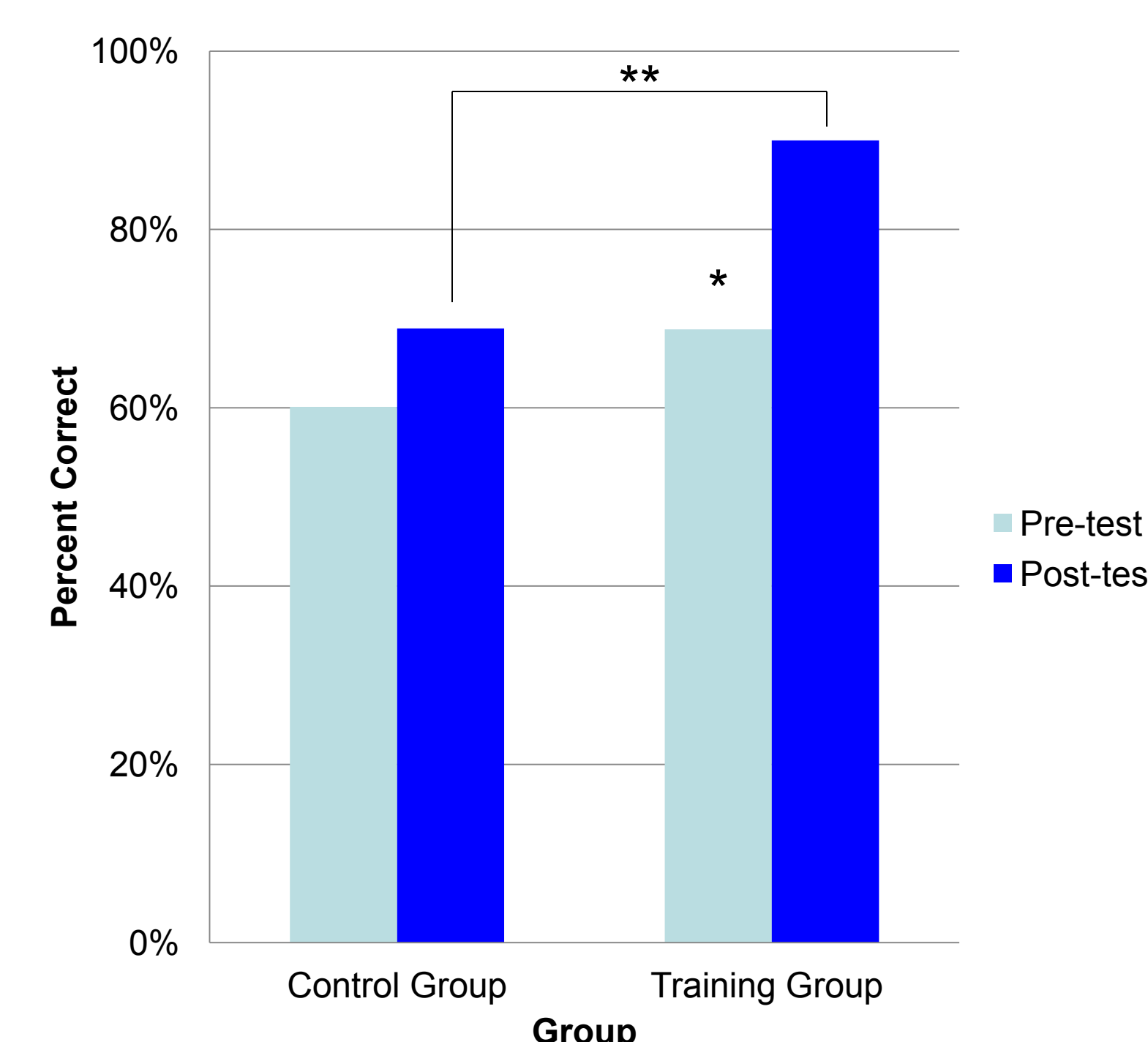
- General hearing aid care
- Cleaning and maintenance
- Changing hearing aid batteries
- Performing a listening check
- Hearing aid troubleshooting

### Self-efficacy questions targeted skills in mastery kits via visual analog scale:

1 2 3 4 5 6 7 8 9 10  
Not at Completely  
all comfortable confident

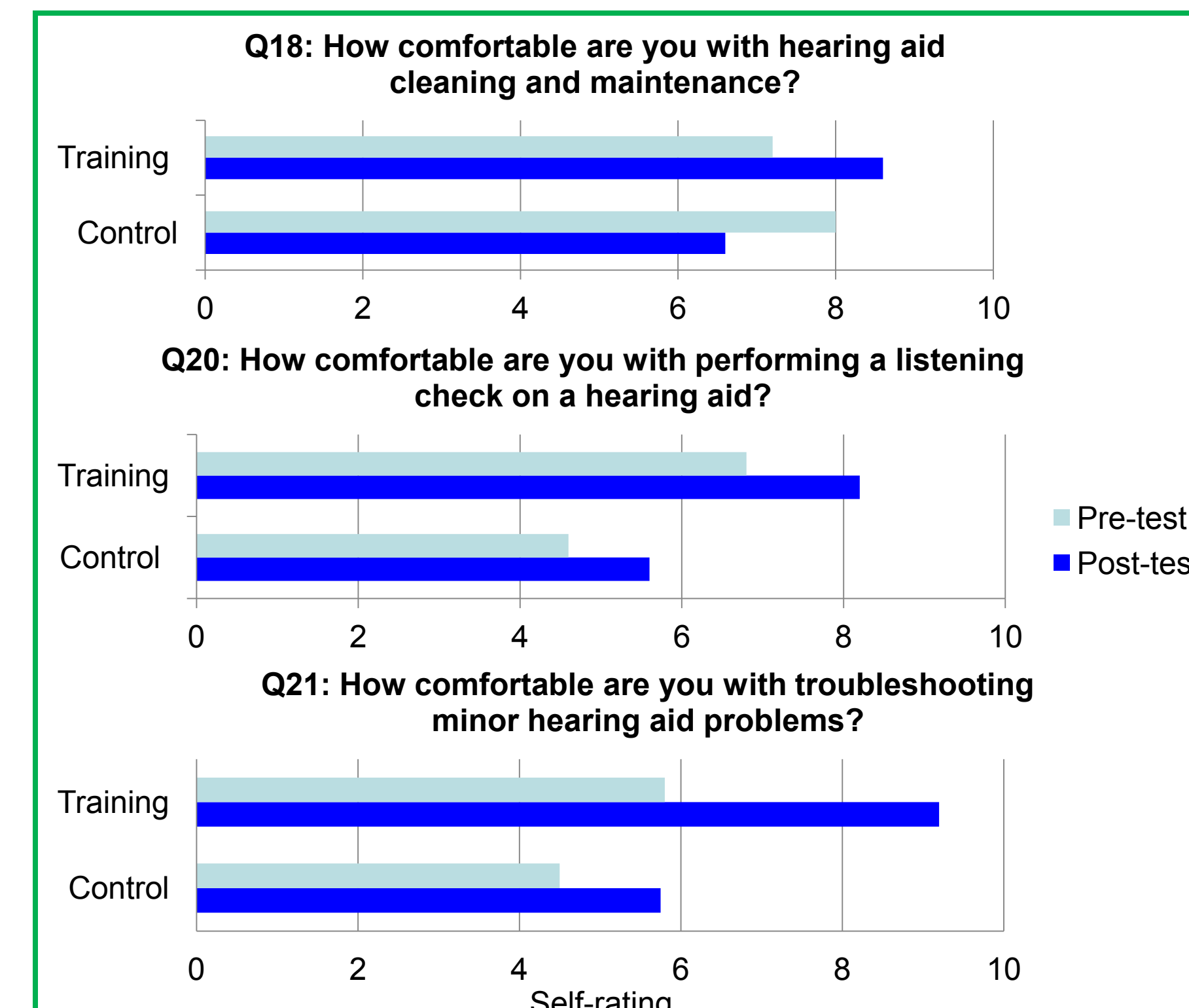
## RESULTS

### KNOWLEDGE



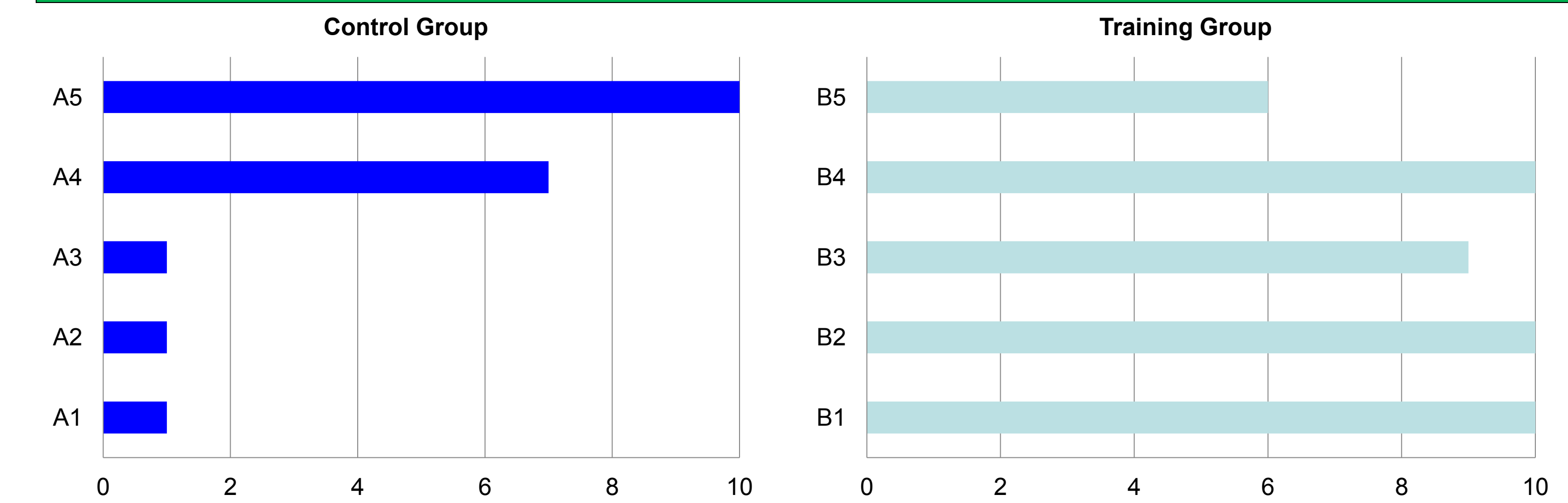
**Figure 2. Average Score for Knowledge Questions.** Significant increase from pre to post-test score for training group ( $t=3.6$ ,  $p=.007$ ,  $d=2.3$ ). Pre-test scores for training and control groups comparable ( $p>.05$ ). Post-test scores for training group significantly better than scores for control group ( $t=2.5$ ,  $p=.038$ ,  $d=1.7$ ). (\* denotes statistical significance  $p<.01$ , \*\* denotes statistical significance,  $p<.05$ ).

### SELF-EFFICACY



**Figure 3. Group Averages for Selected Self-Efficacy Questions.** Average self-ratings shown for 3 of 5 self-efficacy questions. Rating scale 1-10: 1 being not comfortable with task and 10 being completely confident. Pre-test and post-test scores for training and control groups comparable ( $p>.05$ ). Within group comparison approached significance for question 21 ( $t=2.3$ ,  $p=.05$ ).

## CONFIDENCE INCREASE



**Figure 4. Participants' self-reported change in confidence following training.** Rating scale 1 – 10: 1 = no change in confidence; 10 = significant change in confidence in response to the question, "How much more confident are you that you can assist residents in all aspects of the care and maintenance of their hearing aids after the training?" Individual results show that 3 of the 5 control group members rated themselves 5 or below, whereas all 5 training group members rated themselves a 6 or higher. Average data shows that the training group rated themselves 5 points higher than the control group in confidence, and outcomes approached statistical significance ( $t=2.44$ ,  $p=.06$ ); a strong effect size was found between groups for confidence ratings ( $d=1.67$ ).

## CONCLUSIONS

- Knowledge increased for the training group but not for the control group;
- Confidence ratings were high (>6) for all trained participants but were low (<5) for 3 of 5 in the control group. Although results approached statistical difference between groups regarding confidence, the effect size was large. There is support that hands on mastery increases confidence. The small n was affected by one control group participant with high self-rating;
- Self-efficacy is difficult to measure:
  - People don't know what they don't know, thus may overestimate skills on pre-test or if not had hands on mastery component;
- Benefit to facility: reduction in number of lost hearing aids; reported high value of training; continued implementation of program. Investigation ongoing.

## FUTURE DIRECTIONS

- Incorporate larger number of participants;
- Long-term measures to evaluate retention of knowledge and confidence;
- Investigate using control group having knowledge component but no hands on mastery to better understand contribution of mastery;
- Evaluate self-efficacy via one-on-one demonstration;
- Expand to other facilities with residents more varied across SES.

## REFERENCES

- Alford, J., Geheber, L., Miller, J., and Cokely, C. (2010). *Building self-efficacy for daily care of elder patients with hearing loss*. Poster session presented at the annual meeting of the Academy of Rehabilitative Audiology, San Francisco, CA.
- Smith, S.L., and West, R.L. (2006). The application of self-efficacy principles to audiology rehabilitation: a tutorial. *American Journal of Audiology*, 15, 46-56.

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