



Efficacy of a Coupler-Based Hearing-Aid Fitting Approach for Experienced Users

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INTRODUCTION

In situ probe microphone real ear aided response (REAR) measurements are the “gold standard” method of verifying real-ear hearing-aid performance (ASHA, 2004; AAA, 2006). Coupler-based fitting approaches that incorporate real-ear-to-coupler difference (RECD) measurements in the fitting have been found to be a viable alternative to in situ REAR measurements (Moodie, Seewald, & Sinclair, 1994; Mueller, 2005; Tharpe, Sladen, Huta, & Rothpletz, 2001). This study focused on determining the efficacy of an alternative fitting model incorporating a coupler-based RECD-fitting approach in experienced users receiving replacement hearing aids.

PURPOSE

The purposes of this study were to determine:

1. if a coupler-based fitting approach provided an accurate match to prescriptive targets, and
2. if an alternative service-delivery model provided similar outcomes as the standard face-to-face fitting model.

PARTICIPANTS

- 3 groups of experienced hearing aid users ($n = 21$ each) receiving replacement hearing aids
 - Standard of care group (SoC)
 - Mean age = 72.2 years ($SD = 6.1$)
 - Experimental coupler-based fitting using average RECDs (EXP-AVG)
 - Mean age = 71.3 years ($SD = 5.9$)
 - Experimental coupler-based fitting using individually-measured RECDs (EXP-M)
 - Mean age = 72.9 years ($SD = 5.0$)

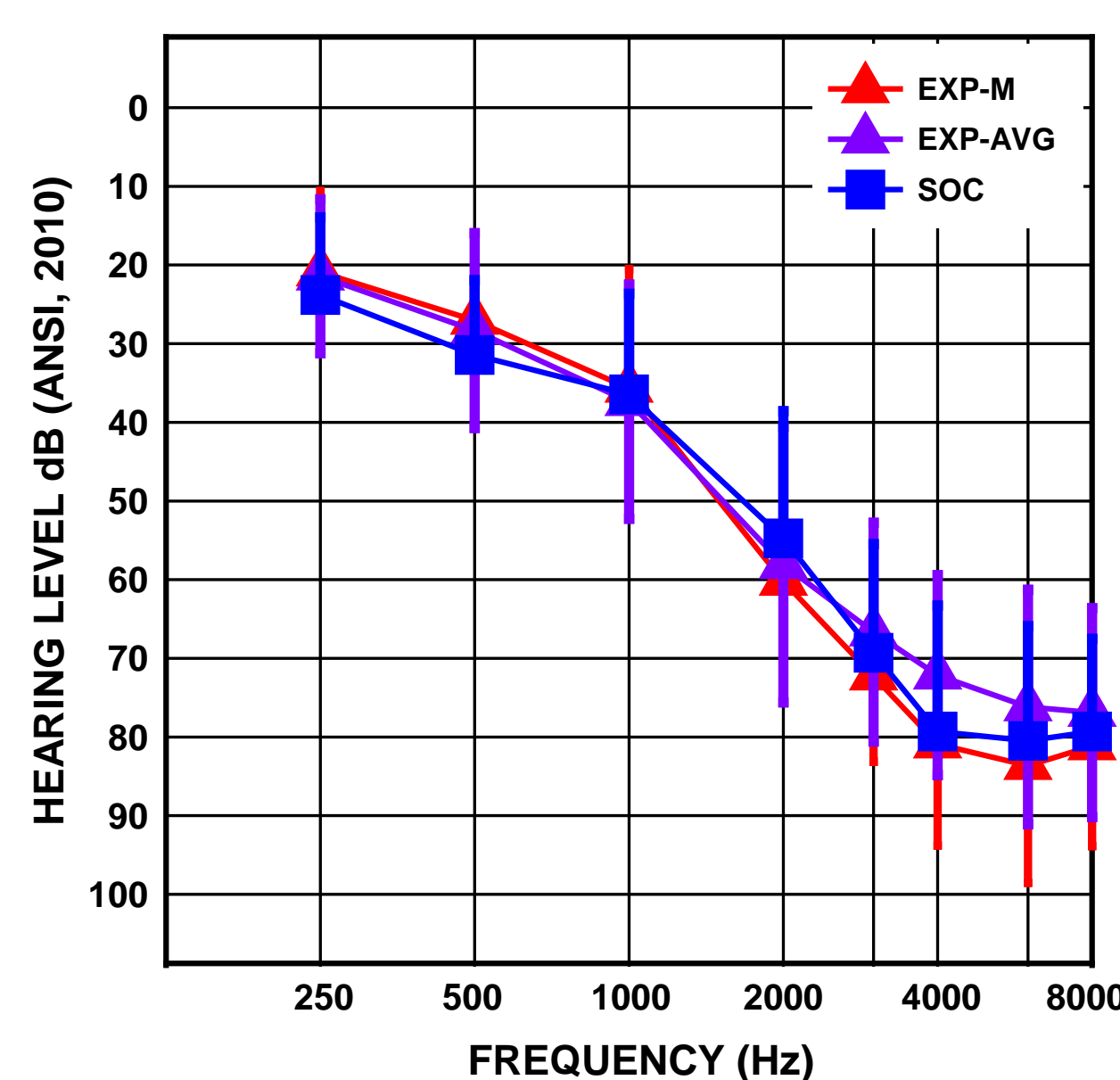
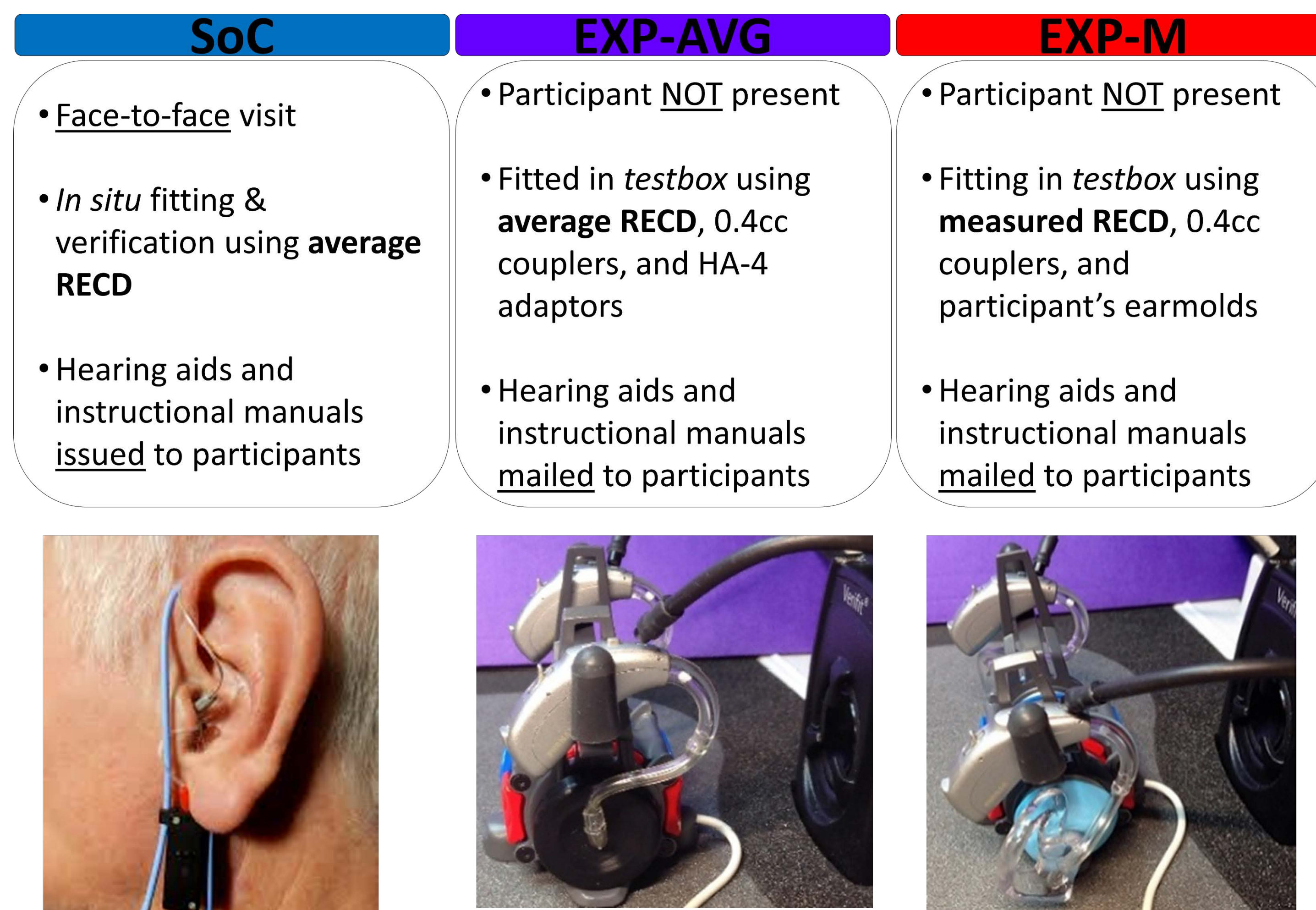


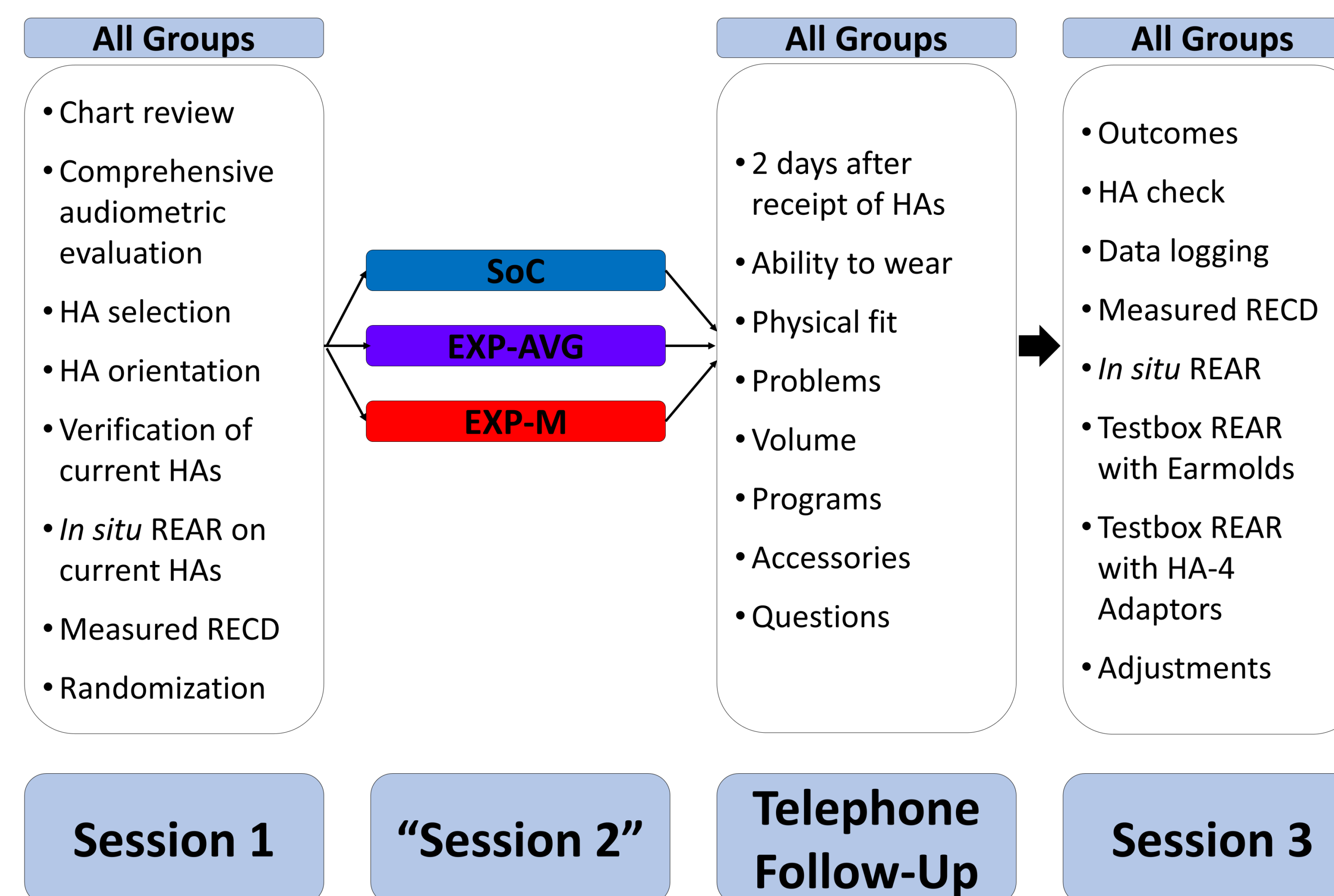
Figure 1. Mean audiogram of the participants in each group.

METHODS

Fitting Approach



Overview of Study Procedures



RESULTS

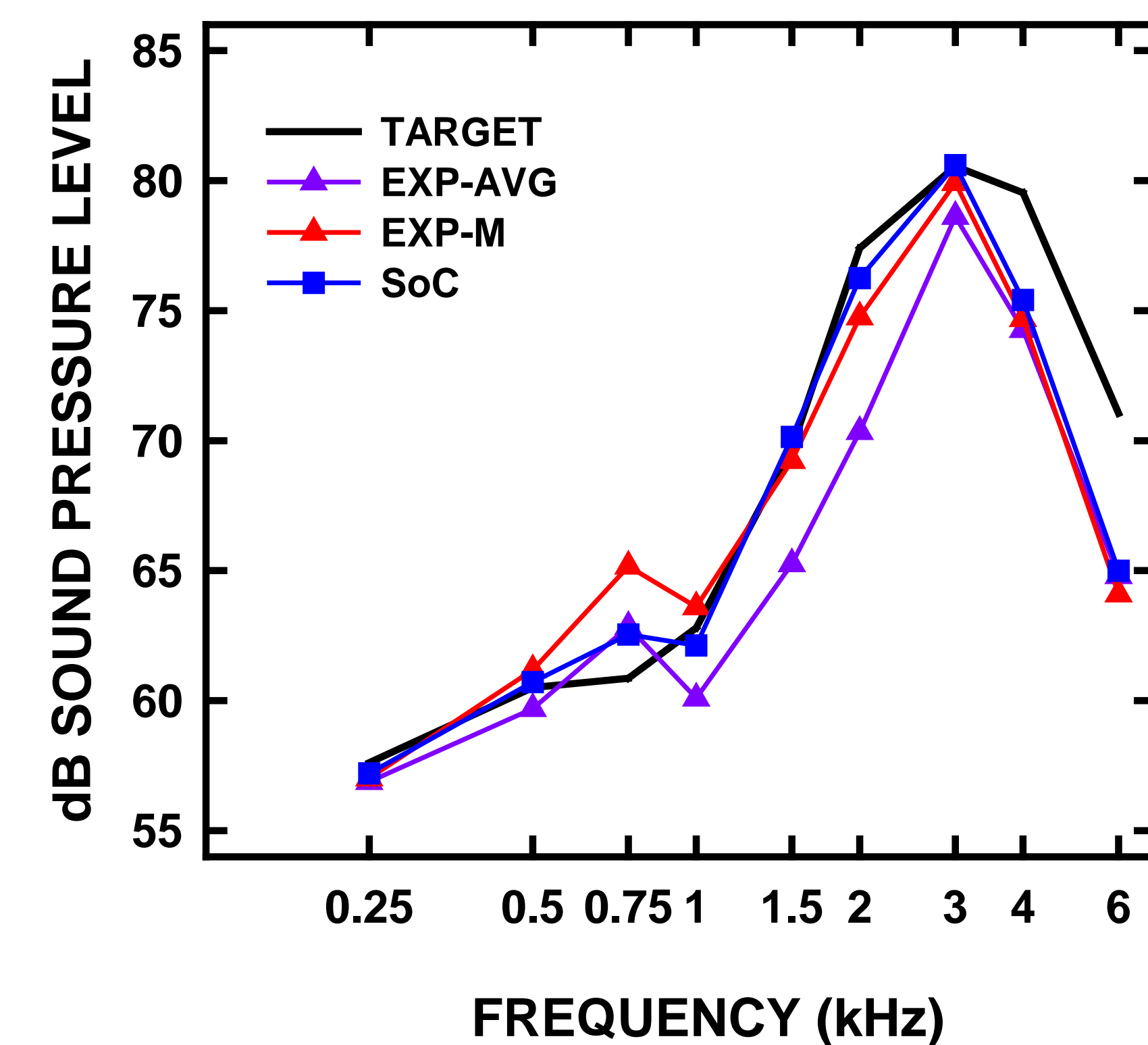


Figure 2. Mean output for each fitting (Visit 2) compared to 65 dB SPL targets. Results showed a main effect of group, frequency, and group by frequency interaction. $n = 42$ ears per group.

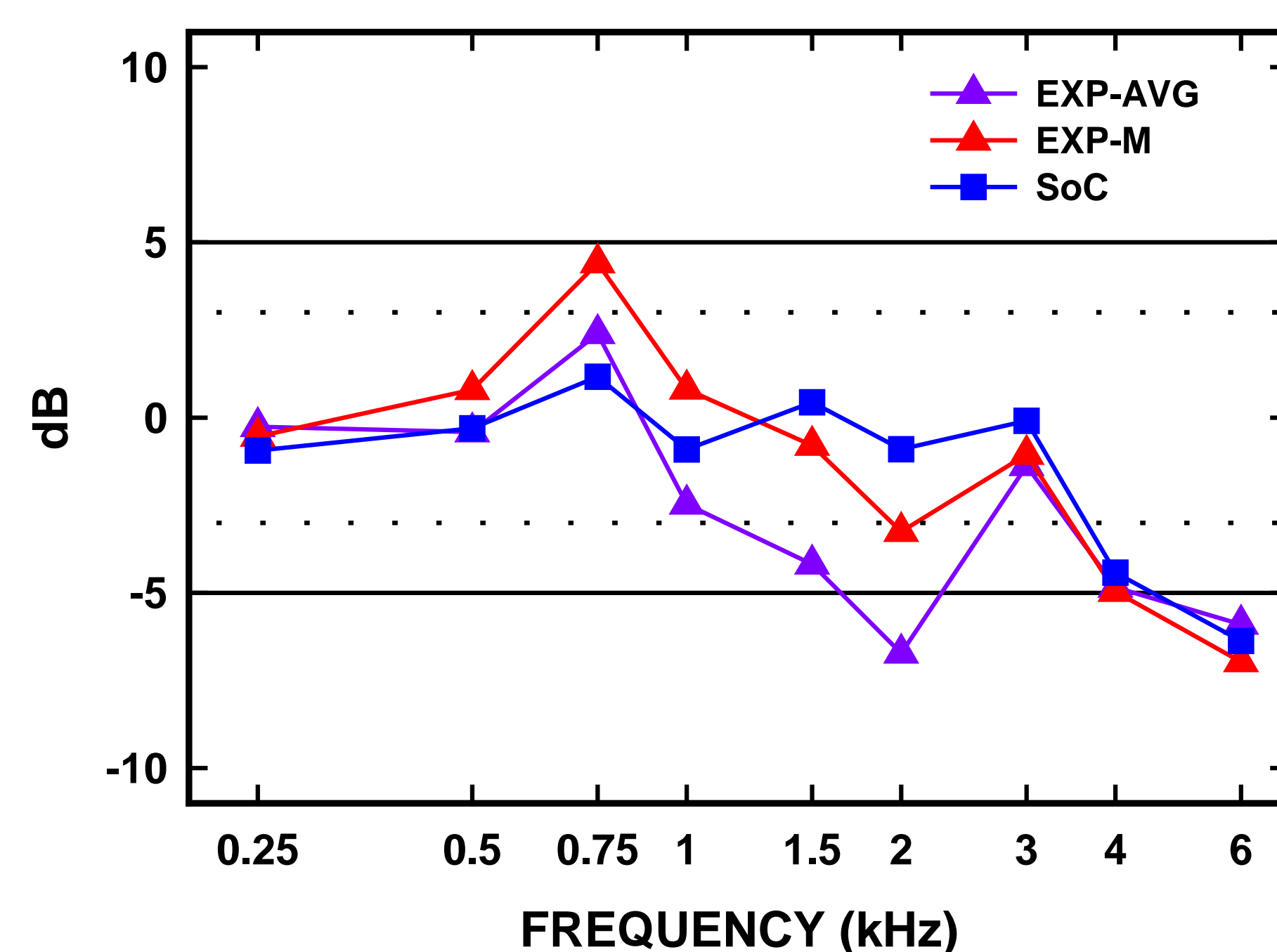


Figure 3. Mean deviation (in dB) from the 65 dB SPL targets as a function of group. Results showed a main effect of group, frequency, and group by frequency interaction. $n = 42$ ears per group

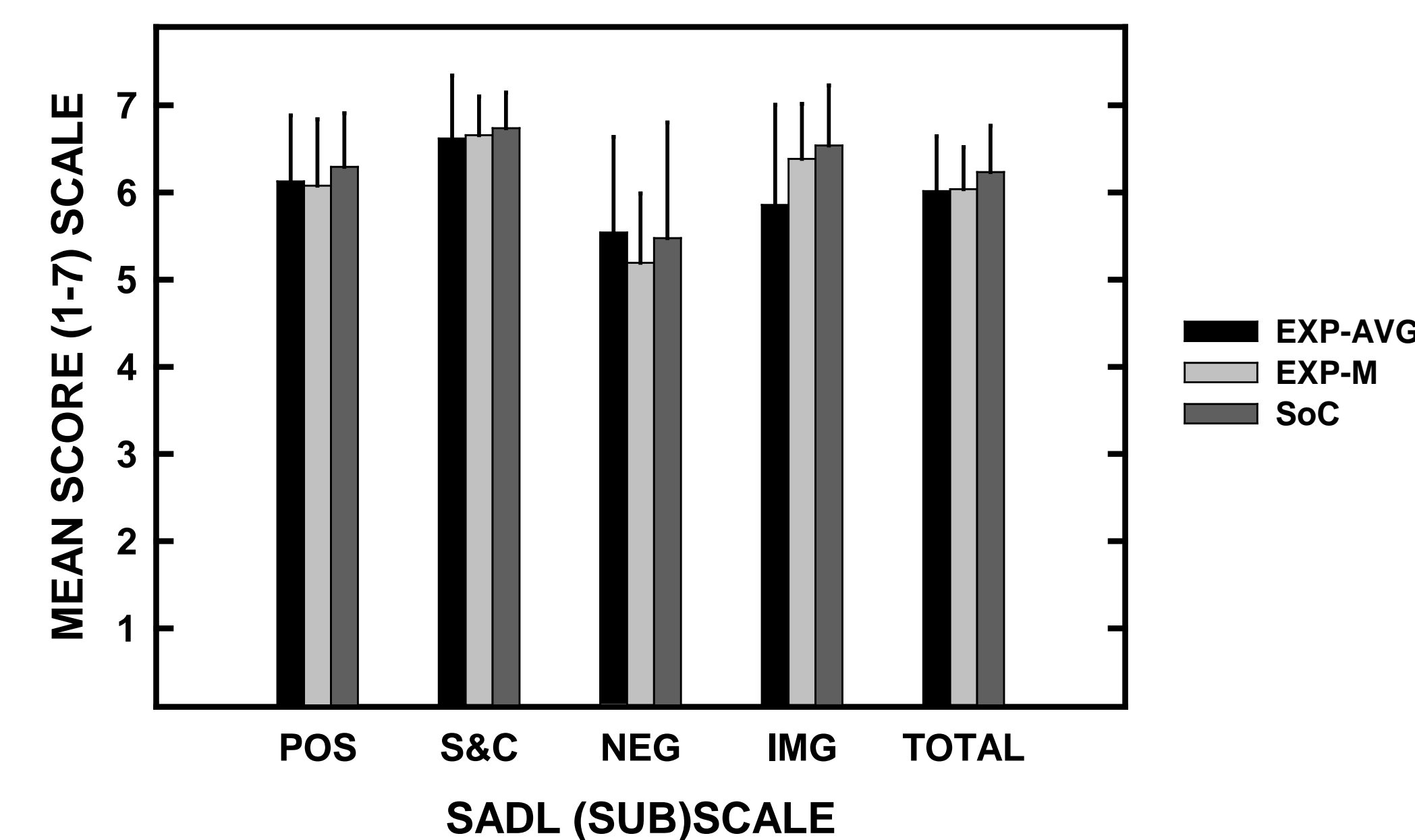


Figure 4. Mean scores on the Satisfaction with Amplification in Daily Life (SADL) measure. Results revealed a main effect of subscale, but no main effect of group or group by subscale interaction.

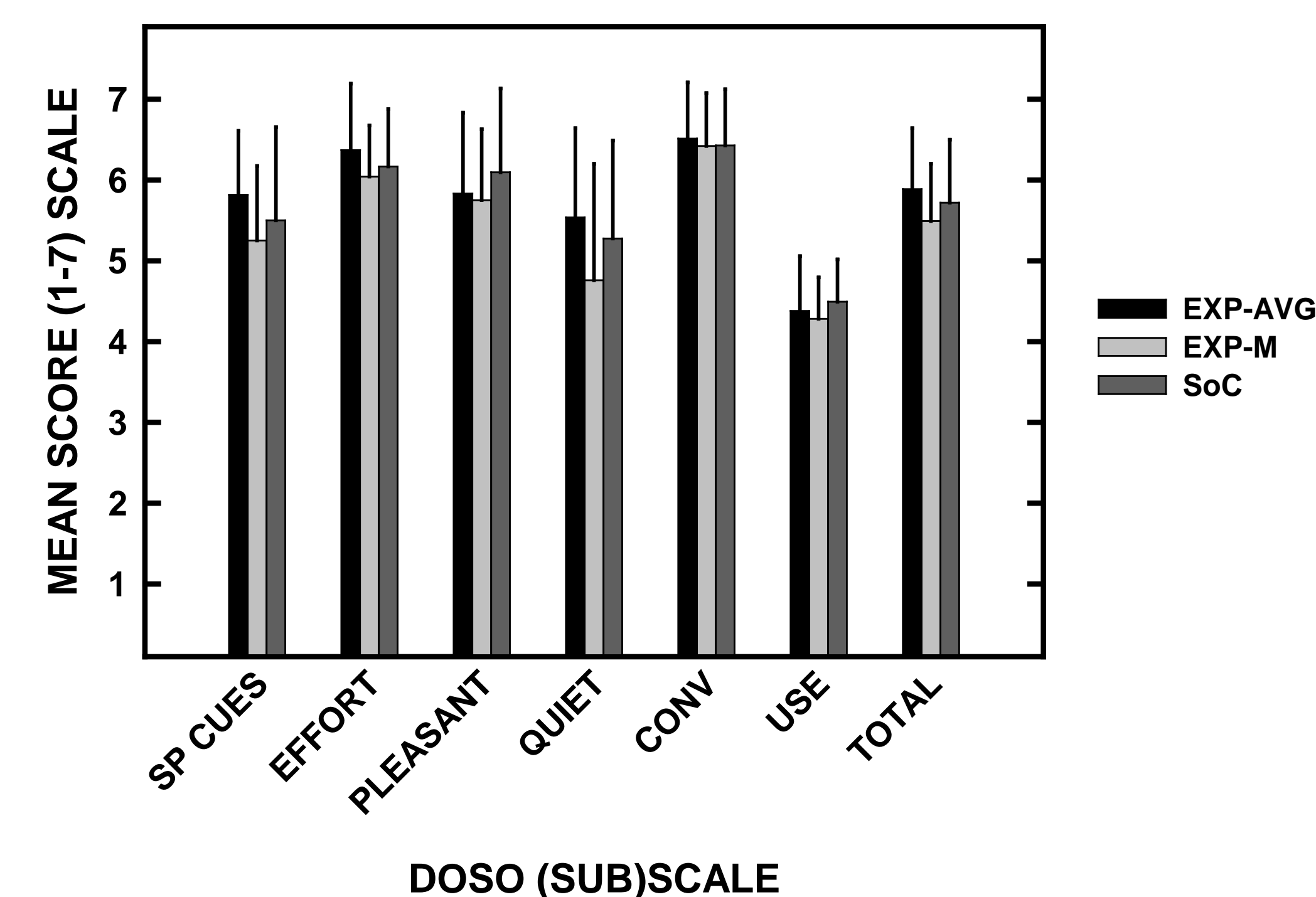


Figure 5. Mean scores on the Device Oriented Subjective Outcomes (DOSO) measure. Results revealed a main effect of subscale, but no main effect of group or group by subscale interaction.

SUMMARY/CONCLUSIONS

- In situ REAR fitting approach provided a good match to prescriptive targets in the SoC group
- In situ REARs of the EXP-M fitting approach revealed they were an overall good fit to prescriptive targets except at 750 Hz
- In situ REARs of the EXP-AVG fitting approach revealed they were an overall good fit to prescriptive targets except at 1500 and 2000 Hz
- Similar self-report outcomes on the SADL and DOSO across groups
- Preliminary findings suggest that an alternative hearing aid fitting approach using individually-measured RECDs might be viable for issuing replacement amplification for select patients.

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Support for this project was provided by the VA Rehabilitation Research and Development (Grant C-1985P). The content of this poster does not represent the views of the United States government or the Department of Veterans Affairs. Dr. Smith is now affiliated with Duke University and VA.

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