

Evaluating temperament, specifically depressive mood, can help clinicians provide quality care and appropriate referrals for adolescent cochlear implant users.

Do adolescents with cochlear implants report higher levels of depression than peers with typical hearing?

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INTRODUCTION

- Adolescence marks a challenging period of growth with accompanying physical, emotional, and psychological changes.^{1,2}
- The additional complexity of a chronic disability such as hearing loss may increase the risk of developing depression during this already difficult life phase.³
- Adolescents who are deaf and hard of hearing report higher rates of depression compared to age-mates with typical hearing (TH),⁴⁻⁷ but few studies explicitly focus on ratings of depression in adolescent cochlear implant (CI) users.³
- This study aimed to determine (a) the effect of auditory status (CI vs. TH) on rates of depressive mood; and (b) demographic variables associated with higher depressive mood in adolescents (9-19 years).

METHODS

PARTICIPANTS (n = 197)

Table 1. Demographic Characteristics

| Variable | CI (n=126) | TH (n=71) |
|----------------------------------|----------------|------------|
| Sex - Percent female (%) | 55% | 44% |
| Mean chronologic age, years | 12.6 (2.6) | 12.4 (2.5) |
| Mean age of first CI fit, years | n=93 3.0 (2.3) | - |
| Mean age of second CI fit, years | n=48 6.2 (3.0) | - |
| Mean duration of CI use, years | n=94 9.8 (3.0) | - |

Note. Device configuration includes bilateral CIs (n=99), unilateral CI (n=11), and bimodal (n=12) arrangements.

PROCEDURE AND MATERIALS

- Participants completed the *Early Adolescent Temperament Questionnaire-Revised (EATQ-R)*,⁸ a self-report measure of temperament (e.g., affiliation, frustration, shyness) and behavior domains (e.g., depressive mood) rated on a five-point scale.
- A between-subjects Analysis of Variance was used to estimate group differences (CI vs TH) in depressive mood ($\alpha=.05$).
- Pearson correlations were used to examine relationships among depressive mood, demographic and audiologic characteristics, and temperament domains ($\alpha=.05$).

RESULTS

- Mean ratings of depressive mood did not significantly differ for the CI ($M=2.4$) and TH ($M=2.3$) groups (Fig. 1), with 1% per group reporting scores >4 , $F = 1.72$, $p >.05$.

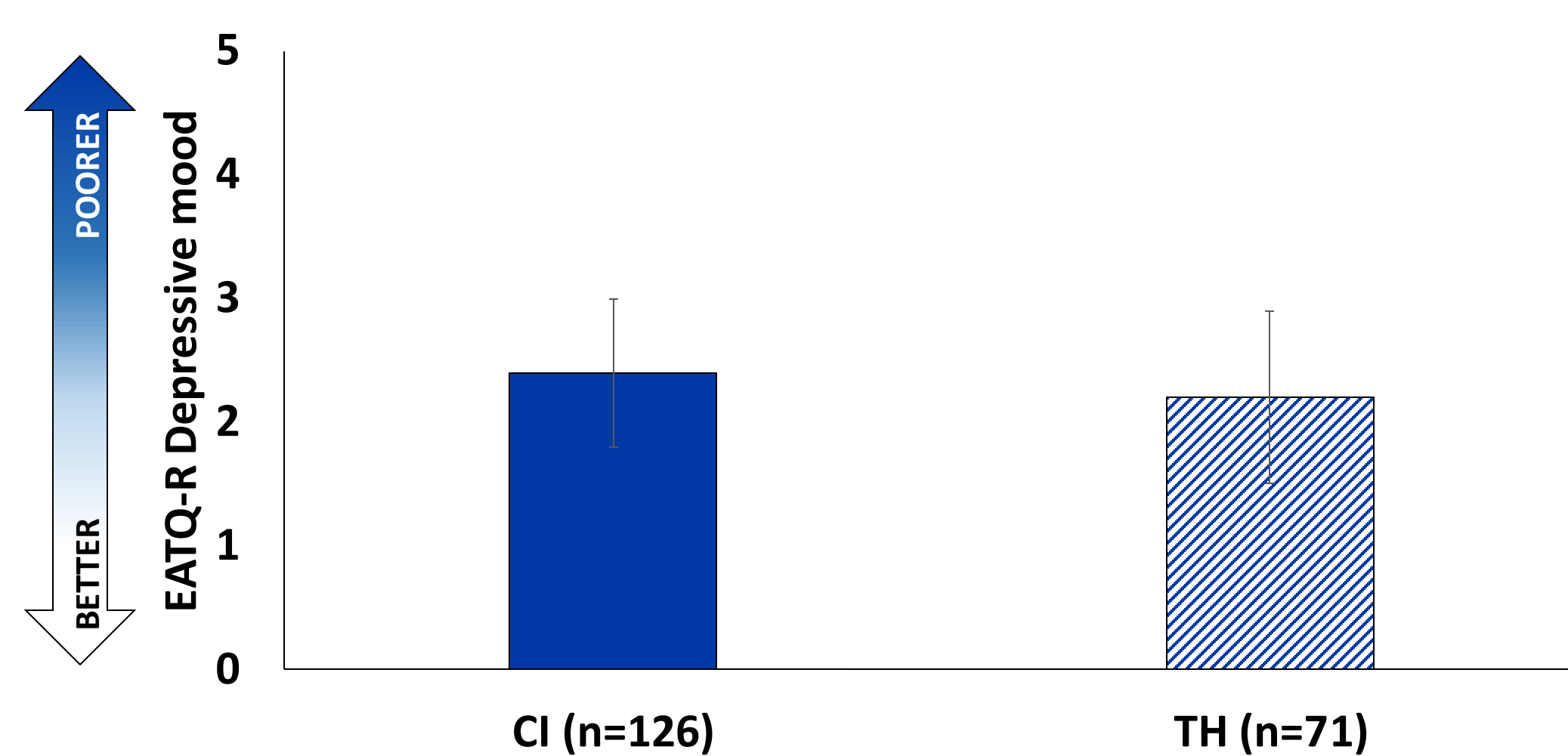
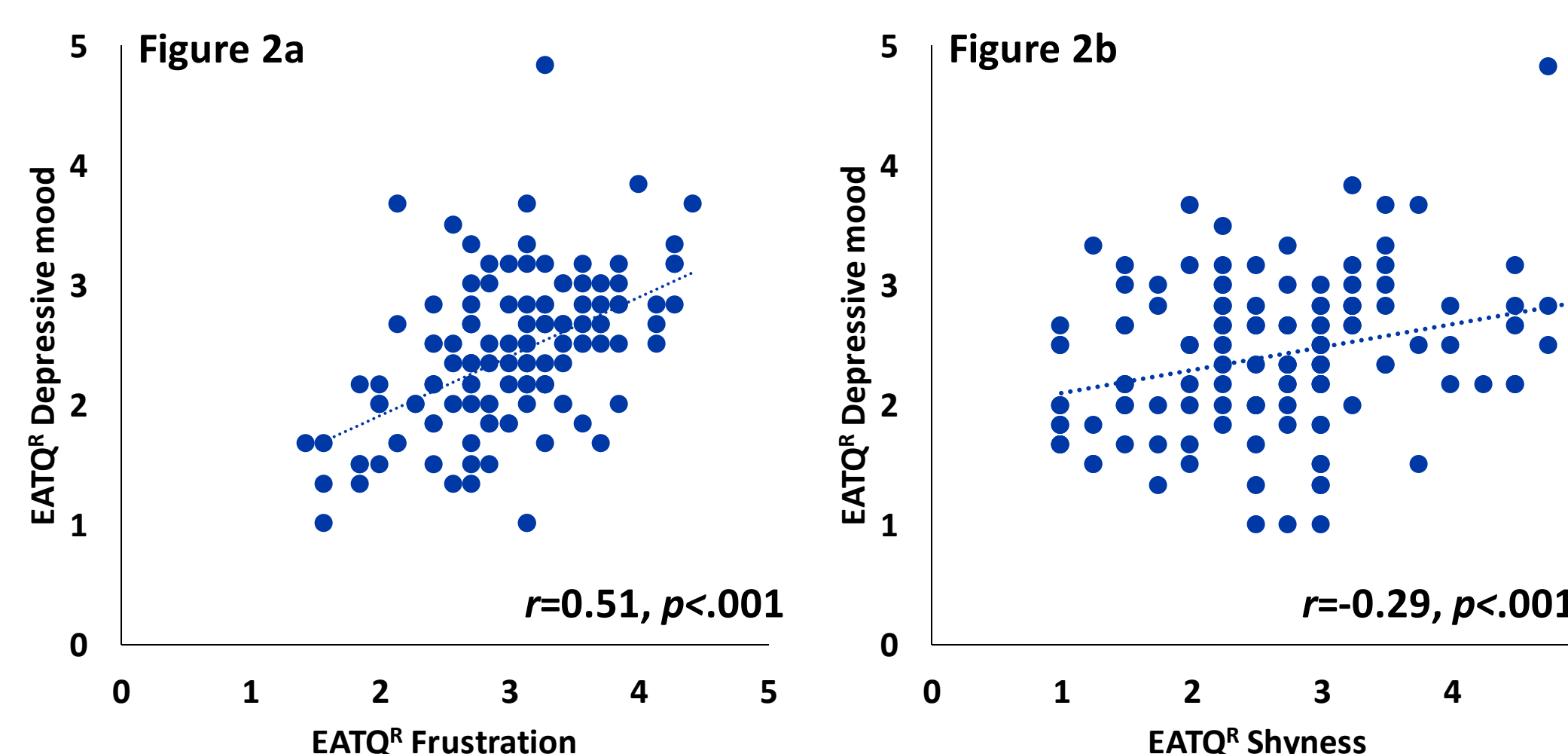
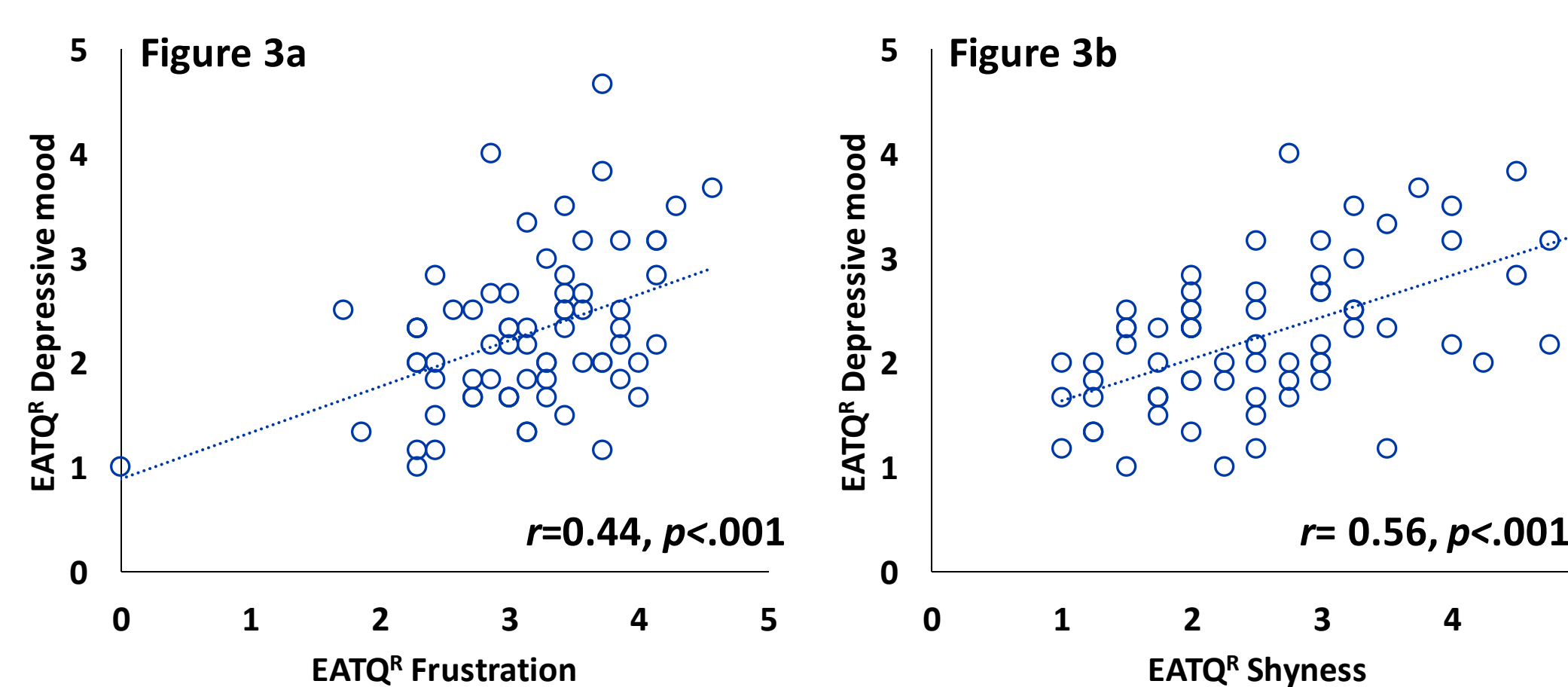


Figure 1 shows mean ratings of depressive mood, as measured on the EATQ-R, by the CI and TH groups. A higher score reflects more depressive mood.

- Higher depressive mood significantly correlated with greater frustration and greater shyness ($p<.001$) in both the CI group (Figs. 2a and 2b) and the TH group (Figs. 3a and 3b), but not with any demographic or audiologic factors.



Figures 2a and 2b show significant Pearson correlations between self-reported depressive mood and frustration and shyness, respectively, in the CI group.



Figures 3a and 3b show significant Pearson correlations between depressive mood and frustration and shyness, respectively, in the TH group.

DISCUSSION

- Long term adolescent CI users self-rated levels of depressive mood like age-mates with TH.
- The lack of a significant group difference aligns with previous work in CI users³ but diverges from other studies of adolescents who are DHH,⁴⁻⁷ which may reflect additional support CI users receive versus hearing aid users or the instrument used (e.g., EATQ-R versus clinical depression scale such as the *Patient Health Questionnaire*).
- Adolescents who reported higher ratings of depressive mood also reported higher rates frustration and shyness across groups.
- Including temperament metrics may enhance interpretation of clinical measures of mental well-being in adolescent CI recipients.
- Professionals should pay close attention to warning signs of poorer well-being and make appropriate referrals to trained mental health professionals to foster a higher quality of life in CI users.

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