



Personality and Acceptable Noise Levels: What's the connection?



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Introduction:

- Acceptable noise levels (ANLs) are a well-established test for measuring an individual's tolerance for background noise. Individuals who are willing to put up with higher levels of competing noise yield lower ANLs.^{3,4}
- Previous studies have examined the relationship between scores on the Myers-Briggs Type Indicator and the Big Five Inventory and ANL. Results showed a correlation between low ANL and the openness personality dimension of the Big Five Inventory. High ANL and the conscientious personality dimension were also correlated.³
- No previous study has assessed a possible correlation between ANL and the NEO Five Factor Inventory (NEO-FFI), which assesses a significantly larger amount of personality facets.

It was hypothesized that several NEO-FFI personality facets would be correlated to ANL.

Method:

- Fifty-five adults (46 females and 9 males) with normal hearing were recruited for the study.
 - Mean age for the participants was 21 years (*SD* 2 years).
 - Each participant had PTA (500 Hz – 4000 Hz) of 20 dB or better.
- Each participant underwent traditional ANL testing. This included establishing Most Comfortable Levels (MCL) and Background Noise Levels (BNL). The average BNL was subtracted from the average MCL, and this was considered the individual's ANL.
- Each participant completed the NEO-FFI. Each participant was graded along 5 personality domains and 30 personality facets. Participants were blind to which personality domains or facets each question addressed.

NEO-FFI Personality Domains and Facets

Neuroticism (N)	Anxiety, Angry Hostility, Depression, Self-Consciousness, Impulsiveness, Vulnerability
Extroversion (E)	Warmth, Gregariousness, Assertiveness, Activity, Excitement-Seeking, Positive Emotions
Openness (O)	Fantasy, Aesthetics, Feelings, Actions, Ideas, Values
Agreeableness (A)	Trust, Straightforwardness, Altruism, Compliance, Modesty, Tender-Mindedness
Conscientiousness (C)	Competence, Order, Dutifulness, Achievement-Striving, Self-Discipline, Deliberation

NEO-FFI Facets Significantly Correlated to ANL

ANL	Impulsiveness (N5)	Actions (O4)	Straightforwardness (A2)	Order (C2)
	0.281 p=0.037	0.347 p=0.009	-0.028 p=0.006	-0.293 p=0.030

Results:

- No significant correlations were found between the five domains of the NEO-FFI and ANL.
- Correlations were run among the 30 personality facets of the NEO-FFI and ANL.
 - Significant positive correlations were found between ANL and the facets of Impulsiveness (N5) and Actions (O4).
 - Significant negative correlations were found between ANL and the facets of Straightforwardness (A2) and Order (C2).
- A regression analysis found that the facets of Straightforwardness (A2) and Actions (O4) contributed to 26% of the variance found in ANL, $R^2 = .26$, (adjusted = .23) $F(2,52) = 9.06$, $p < .004$.
- The facets did not significantly contribute significantly to the prediction model
 - Order (C2), $\Delta f = 0.77$, $p = .385$
 - Impulsiveness (N5), $\Delta f = 0.60$, $p = .442$

Discussion:

- Results of the current study support the hypothesis that aspects of the patient's personality, as measured by the NEO-FFI, may influence an individual's ANL and willingness to tolerate background noise.
- If the relationship between certain personality facets and ANL hold true for individuals of all ages and sexes with hearing loss, audiologists may apply knowledge of their patients' personality to aspects of hearing aid fitting and counseling.
- Implementation of directional microphones and digital noise reduction have been previously established as features which lower ANL.^{1, 5}
 - The audiologist may choose to implement more aggressive noise reduction or narrower directionality with patients who display personality facets related to higher ANL. These patients may also need more time dedicated to counseling regarding realistic hearing aid expectations.
 - The audiologist may choose to implement less noise reduction or broader directionality with patients who display personality facets related to lower ANL.

References:

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