**Abstract**

Objective: Individuals who are deaf or hard of hearing (DHH) may find adherence to their hearing devices difficult due to internal experiences related to their hearing loss such as sadness or frustration. The Acceptance and Action Questionnaire-Adult Hearing Loss (AAQ-AHL) is the only measure available to assess psychological inflexibility as it relates to hearing loss. The purpose of this study was to confirm the single latent structure of the AAQ-AHL (through confirmatory factory analysis) and test convergent and discriminant validity.

Design: Cross-sectional

Study Sample: Participants were 146 adults who had diagnosed hearing loss and used a hearing aid.

Results: Results revealed the AAQ-AHL has a single latent structure, correlated to other similar constructs (psychological flexibility and hearing aid efficacy), and not correlated to unrelated constructs (hearing loss severity). These results suggest that the AAQ-AHL is a valid instrument to assess psychological flexibility as it relates to hearing aid use.

Conclusion: Together, the findings imply the AAQ-AHL has strong psychometric properties and justification to use in a clinical setting.

*Keywords*: hearing loss, hearing aids, AAQ, adult, CFA

**Acceptance and Action Questionnaire-Adult Hearing Loss (AAQ-AHL): Validation with Hearing Aid Users**

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**Introduction**

Hearing loss affects close to 432 million adults (World Health Organization, 2021), and its impact on functioning varies. For example, as adults age, social interactions are diminished (Resnick, Fries, & Verbrugge, 1997), reducing the number of relationships with others. Hearing ability can further influence network size given the importance of hearing for developing new relationships (Broese van Groenou, Hoogendijk, & van Tilburg, 2013). Beyond limited socialization, hearing loss brings about social and emotional loneliness along with other psychosocial outcomes among older adults (e.g., depression; Kramer, Kapteyn, Kuik, & Deeg, 2002; Pronk, Deeg, & Kramer, 2013).

Use of hearing devices is considered a primary intervention (Laplante-Lévesque, Hickson, & Worrall, 2010). And although hearing aids have benefits beyond amplifying sound (e.g., improved quality of life; Chisolm et al., 2007), uptake of these devices is low – 4.3% among 50-year old’s and 22.1% among those that are at least 80 years of age (Chien & Lin, 2012). The reasons for low uptake are varied and factors that have been identified include negative attitudes towards hearing loss, difficulties associated with the hearing loss, low hearing loss severity, low self-perceived hearing aid benefits, low hearing aid satisfaction, and little support from significant others (Meyer, Hickson, Lovelock, Lampert, & Khan, 2014; Ng & Loke, 2015; Vestergaard Knudsen, Öberg, Nielsen, Naylor, & Kramer, 2010). Conversely, some factors that contribute to deaf or hard of hearing (DHH) individuals seeking help for their hearing impairment include their perception of hearing aids to be beneficial, self-reported hearing difficulties, and high self-efficacy related to hearing health (Meyer et al., 2014; Nixon, Sarant, Tomlin, & Dowell, 2021; Saunders, Frederick, Silverman, Nielsen, & Laplante-Lévesque, 2016). A further investigation into attitudes towards hearing loss found that acceptance of hearing loss – among people who are DHH – is a contributing factor to hearing aid uptake (Vestergaard Knudsen et al., 2010). Barker and colleagues’ (2017) meta-synthesis argues unwillingness to accept hearing loss is a hindrance to hearing aid uptake and negatively impacts hearing aid adherence. Even when individuals accept their hearing loss and are willing to pursue intervention with amplification, adherence with hearing aid use can be problematic due to several factors (e.g., negative attitude towards hearing aids; Vestergaard Knudsen et al., 2010).

A factor that is often not assessed in clinical practice is the contribution of internal barriers (e.g., thoughts, emotions) that hinder hearing aid uptake and adherence. In fact, one study found that audiologists did not always address clients’ psychosocial concerns about hearing aids and would, instead, continue informational discussion on hearing aids (Ekberg, Grenness, & Hickson, 2014). Some of the internal barriers reported by individuals who use hearing aids include ageism, vanity, and negative self-perceptions (e.g., feeling disabled) as stigmas they have experienced (Wallhagen, 2010). Internal barriers such as these can interfere with wearing hearing aids and impede a person’s ability to receive the positive benefits of amplification. More specifically, thoughts, feelings, sensations, or emotions related to hearing loss and engagement in hearing healthcare intervention can prove to be problematic for individuals who are DHH and interfere with their ability to effectively engage in the intervention process.

The influence of a person’s thoughts and feelings on their behavior and mental processes are areas commonly studied and addressed in psychology and are applicable to the work of audiologists. Psychological flexibility is a key process of change that has been found to influence a myriad of psychological issues. Psychological flexibility can be described as the ability to see internal experiences for what they are and allow them to be present, while moving in meaningful life directions (Hayes & Strosahl, 2005). When individuals struggle with their ability to respond adaptively to difficult thoughts and emotions, this is called psychological inflexibility. For instance, a person who is unwilling to be present with their own inner experiences would likely modify their behavior to avoid said inner experiences and develop unhealthy habits in the process. This can result in increased avoidance and anxiety. Understanding psychological inflexibility among people who are DHH can aid in targeting potential internal barriers to increase acceptance, hearing aid uptake, and adherence.

Albeit novel, two studies have shown psychological inflexibility to predict different aspects of well-being (e.g., psychological distress, functional impairment) among DHH adults (Muñoz et al., 2021; Whicker et al., 2020). Additionally, the ability to be flexible with one’s internal experiences has been shown to play a vital role in health-related behavioral outcomes. Those who are flexible and accepting of their individual inner experiences, for example, are more likely to adhere to their specific health related self-management behaviors (DeGaetano, Wolanin, Marks, & Eastin, 2016; Kamody et al., 2018). Psychological inflexibility may be a factor to address for the lack of acceptance that is prevalent among people who are DHH and are hesitant to obtain or use hearing aids. For instance, if DHH individuals are unable to withstand the thoughts, feelings, emotions, or sensations that come with hearing loss, then they would be less likely to obtain or use a hearing aid. Stigma related to hearing loss or hearing aids influencing the decision to use hearing aids – and/or accept their hearing loss – is an exemplar of an individual’s inflexibility to be present with their inner experiences that may shape poor uptake and acceptance (Barker et al., 2017).

Measurement of psychological inflexibility is often conducted with a validated variant of the Acceptance and Action Questionnaire (e.g., Bond et al., 2011). These variants come in the form of different languages (e.g., Spanish; Mairal, 2004) or are disorder specific (Tinnitus Acceptance Questionnaire; Westin, Hayes, & Andersson, 2008). Assessing psychological inflexibility among people who are DHH is in its infancy, but a valid questionnaire has been developed by Ong and colleagues (Acceptance and Action Questionnaire-Adult Hearing Loss [AAQ-AHL]; 2019). An exploratory factor analysis was conducted to show a single-factor solution with excellent internal consistency among all 12-items (Ong et al., 2019). The AAQ-AHL also showed excellent convergent and discriminant validity (see Methods for scoring details on the AAQ-AHL).

However, Ong and colleagues’ (2019) sample was composed of mostly older (*M* = 50.9), white (91.7%), at least college educated (83.7%) adults with a diagnosed permanent hearing loss. Exploring this with individuals who are DHH and use hearing aids could help determine usability within a clinical setting. Additionally, the original AAQ-AHL showed significant correlations to psychological factors, such as emotional wellbeing, but did not test convergent validity with other psychological inflexibility measures (Ong et al., 2019). Testing the degree to which the AAQ-AHL measures psychological inflexibility would assist in determining the questionnaires overall accuracy. Finally, building from the exploratory factor analysis results conducted by Ong and others (2019) – by confirming a single latent factor – would bolster the validity and reliability of the measure.

Thus, the aim of this study, was to evaluate the factor structure, convergent validity, and discriminant validity among adults who use hearing aids to further validate the AAQ-AHL. Through confirmatory factor analysis (CFA), it was predicted that the AAQ-AHL is constructed of one latent variable. Secondly, it was predicted that the AAQ-AHL will have significant correlations with other related measures of psychological inflexibility and hearing aid efficacy to determine convergent validity. Finally, it was predicted, for discriminant validity, the AAQ-AHL will not have significant correlations with gender and hearing loss severity.

**Methods**

***Participants and Procedures***

Study procedures were approved by the Utah State University institutional review board. Cross-sectional data from the current study were collected between November 2020 through May 2021. Participants were recruited throughout the United States by contacting city chapters of the Hearing Loss Association of America via Facebook. In addition, digital flyers were posted on other hearing aid and DHH community pages on Facebook and Reddit. Interested participants were guided to a public link that first prompted them with the study consent, screening questions, and finally the study questionnaires. To be eligible, participants self-reported (a) being 18 years or older, (b) being diagnosed with hearing loss through formal testing, and (c) that they use a hearing aid. After completion of the online study instruments, participants had the option to participate in a raffle for one of ten $20 Amazon electronic gift cards. Winners of the raffle were compensated once data collection was completed.

***Measures***

*Acceptance and Action Questionnaire-Adult Hearing Loss* (AAQ-AHL; Ong et al., 2019) measures psychological inflexibility as it relates to hearing loss for adults (e.g., “frustration with hearing loss does not interfere with my goals”). The 12-item questionnaire uses a 7-point rating scale ranging from 0 *never true* through 6 *always true*. Scores are calculated from the sum of all items with reverse scoring for items 1, 2, 5, and 6 (i.e., item score of 0 should be assigned a 6). Higher scores indicate greater psychological inflexibility towards internal experiences related to hearing loss. Internal reliability for this measure among the sample was high (α = 0.86). See supplementary document 1 for a copy of the measure.

*Acceptance and Action Questionnaire-II* (AAQ-II; Bond et al., 2011) is a 7-item measure designed to measure psychological inflexibility (e.g., “My painful experiences and memories make it difficult for me to live a life that I would value”). Items are rated on a 7-point scale ranging from 1 *never true* to 7 *always true*. Higher scores indicate greater psychological inflexibility. Internal reliability for this measure among the sample was high (α = 0.89).

*Measure of Audiologic Rehabilitation Self-Efficacy for Hearing Aids* (MARS-HA; West & Smith, 2007) is a 24-item, self-report questionnaire designed to evaluate hearing aid self-efficacy. The MARS-HA includes 4 subscales: aided listening, basic handling, adjustment, and advanced hearing. Each item is rated on a scale from 0 to 100, 10-unit interval scale. Zero on the scale represents *no certainty in one’s capability* and 100 represents *complete certainty*. Internal reliability for this measure among the sample was high (α = 0.90).

*International Outcome Inventory for Hearing Aids* (IOI-HA; R. Cox et al., 2000; R. M. Cox & Alexander, 2002) is a 7-item, self-report questionnaire. Each item on the measure is designed to assess different aspects of effectiveness of hearing aid treatments (e.g., “Over the past two weeks, with your present hearing aid(s), how much have your hearing difficulties affected the things you can do?”). Participants can select one of five responses for each item with each item having a unique set of responses, but all responses do range from worst outcome on the left to best outcome on the right. Internal reliability for this questionnaire among the sample was high (α = 0.86).

*Multidimensional Psychological Flexibility Inventory-Inflexibility* (MPFI-Inflexibility; Rolffs, Rogge, & Wilson, 2018) original 60-item version is a self-report measure designed to evaluate psychological flexibility and inflexibility. The current study used the 30-item version to measure only psychological inflexibility that are composed of 6 subscales (experiential avoidance, lack of contact with the present moment, self as content, fusion, lack of contact with values, and inaction). Each item is rated on a 6-point scale ranging from 1 *never true* to 6 *always true*. Internal reliability for this measure among this sample was very high (α = 0.95).

***Analysis***

All analyses were conducted in the R statistical environment (R Core Team, 2020). Confirmatory factor analysis (CFA) in conjunction with convergent and discriminant validity analyses were conducted using the ‘lavaan’ package (Rosseel, 2012).

Descriptive statistics were calculated for the sample, including the distribution of gender, race, hearing status, communication modality, education, and income. The core analyses were CFA models. The CFA modeling tested the fit of a unidimensional model for the 12-item AAQ-AHL measure proposed by Ong et al. (2019), with varying loadings but no correlated residuals among the items. Based on model fit, a second model was produced, again with all 12 items loaded onto a single latent factor, but also included correlated residuals between items 1, 2, 5, and 6, as indicated by modification indices and item features. Estimation was done using robust maximum likelihood to adjust for the non-normality of some of the items. Goodness-of-fit was assessed via relative/normed chi-square value (/df; 5 regarded as acceptable), root mean square error of approximation (RMSEA; .08 is regarded as an acceptable fit) and it’s corresponding confidence interval, standardized root mean square residual (SRMR, .08 is regarded as acceptable), and comparative fit index (CFI; ≤ .95 is representitive of good fit; Hooper, Coughlan, & Mullen, 2008).

Using the structure of this final model of the latent factor, we determined the degree to which the AAQ-AHL measures psychological inflexibility in relation to hearing loss by assessing convergent validity. Specifically, structural equation modeling was used to analyze the relationship between the AAQ-AHL measure and other related construct measures (i.e., AAQ-II, MPFI, MARS-HA, and IOI-HA). In addition, discriminant validity was tested by assessing the relationship between AAQ-AHL and two factors that likely should not vary with AAQ-AHL —gender and hearing loss severity.

**Results**

***Participants***

There were 146 adults recruited for this study who use hearing aids. Participants were recruited across the United States online. While we received 1,408 submissions, a majority (n = 1,152) of these were from “bots.” Because all 1,152 were sequentially submitted with less than a minute of each other in a short timeframe (20 hours) – and provided similar suspicious emails – after posting an ad for the survey on Facebook, they were deemed bots. Others were excluded (n = 110) due to being indelible or careless responding (i.e., spending 2 seconds or less per item; Huang, Curran, Keeney, Poposki, & DeShon, 2012). Participants were mostly female (77%), while 22% of the sample identified as male and 1% (2 participants) identified as “other” (i.e., trans-male, non-binary). Participants who identified as white made up a majority of the sample (71%), with 20% who identified as Native American, American Indian, Alaska Native, and/or Indigenous were second most, and six participants preferred not to disclose their race. A little under a tenth of the sample (8%) stated they had mild hearing loss. The remaining sample was split between moderate (41%), severe (27%), profound (18%), and five participants were unsure about their hearing loss severity. The four participants that marked “other” all detailed having different hearing loss severity between their right and left ear. A little less than a third (29%) of the sample identified as having unilateral hearing loss and 71% identified as having bilateral hearing loss. Twenty-six participants disclosed using hearing aids for less than a year (*M* = 5.8 months). Most participants disclosed using hearing aids for more than a year (n = 120; *M* = 15.1 years). A full breakdown of the participant demographics can be found in Table 1.

***Confirmatory Factor Analysis***

The first unidimensional model had poor model fit (/df = 3.24, p < .001; RMSEA = .124, 90% CI [.11 - .14]; SRMR = .1; CFI = .73). All items had significant standarized loadings ranging from .32 to .73 (*p’s* < .05). To assess possible reasons for the poor model fit, modification indices were examined. Of the ten largest modification indices, five were indicating the need for allowing correlated residuals for items that were concerning the execution of personal duties (e.g., goals, responsibilities, life) while living with negative inner experiences related to hearing loss. These five included items 1 (“I am leading a full life, despite my frustration with hearing loss”), 2 (“my life is going well, despite negative thoughts and feelings about my hearing loss”), 5 (“frustration with hearing loss does not interfere with my goals), and 6 (“despite negative thoughts and feelings about my hearing loss, I can still take care of my responsibilities”). Importantly, these items were reverse coded and may have information in common that they do not share with the other items. The modification indices for these proposed parameters ranged from 39.6 to 10.6.

As such, for model 2, correlated residuals were allowed between items 1 and 2, 1 and 5, 1 and 6, 2 and 6, and 5 and 6. This new model provided a better fit (/df = 2.14, p < .001; RMSEA = .09, 90% CI [.07 - .11]; SRMR = .07; CFI = .88) with all standardized loadings (.24 - .76) having a significant p-value (*p’s* < .01). With this structure, the internal reliability was high, with the composite reliability equal to .86. These results represent an acceptable fit, thereby suggesting that the measure (and this measurement model) are appropriate to use among DHH individuals who use hearing aids. These results further suggest that the items load well with a single latent factor, thus supporting unidimensionality. Results and the structure of this measurement model is shown in Figure 1. This final CFA model was then used for the convergent and discriminant validity.

***Convergent and Discriminant Validity***

To determine the convergent validity of the AAQ-AHL, structural equation models were

built with other measures of psychological inflexbility (AAQ-II and MPFI-Inflexibility) and

hearing aid efficacy measures (IOI-HA and MARS-HA). As hypothesized, the AAQ-AHL was

associated with each measure except the MPFI-Inflexibility. The AAQ-AHL was significantly

associated with the AAQ-II (p < .001) but not the MPFI-Inflexiblity (p = .051), with each showing standardized coefficients of .71. The AAQ-AHL was significantly (*p’s* < .005) associated with MARS-HA and IOI-HA, with standardized coefficients of -.47 and -.43, respectively. These results demonstrate that the AAQ-AHL is closely associated with psychological inflexibility and hearing aid efficacy. The structural equation model included both gender and hearing aid severity to test for discriminant validity. In opposition with our prediction, gender was significantly (*p* = .03) associated with the AAQ-AHL. However, hearing loss severity was not significantly (*p* = .40) linked to the AAQ-AHL which was consistent with our prediction. That is, outcomes on the AAQ-AHL are significantly related to gender but not hearing loss severity. Results of this model are shown in Table 2.

**Discussion**

The current study used CFA to test the single latent structure of the AAQ-AHL among adults who are DHH and use a hearing aid. Additional analysis explored the precision to which the measure covers psychological inflexibility as it relates to hearing loss among adults and the degree to which the measure doesn’t equate to other unrelated constructs. The psychometric properties of the AAQ-AHL indicated a single latent factor structure, along with significant convergent and discriminant validity findings. The AAQ-II and other hearing aid efficacy measures were significantly related to the AAQ-AHL, while hearing loss severity was not significantly related to the AAQ-AHL; these results were expected. Gender and MPFI-Inflexibility having significant and non-significant correlations, respectively, to the AAQ-AHL were the only outcomes that were not in line with our prediction.

Considering Ong and colleagues (2019) used exploratory factor analysis – determining constructs within a set of measured variables – in the initial creation of the AAQ-AHL, the primary objective of this study was to confirm the previous findings of a single latent structure. Two models were used to confirm a single latent structure that was explored in the initial creation of the measure (Ong et al., 2019). Residuals between items 1, 2, 5, and 6 being present was one difference between our results and those of Ong and colleagues (2019). This could be primarily due to the sample used. Ong and colleagues (2019) used exploratory factor analysis among adults with a diagnosed hearing loss in either ear, while the use of a hearing aid was an additional inclusion criterion used for the current study. No data were offered on the percentage of sampled adults who use hearing aids from Ong and colleagues (2019). Use of a hearing aid can assist in quality of life (Chisolm et al., 2007), thus the differences in sample specificity could explain why the residuals were all concerning the execution of personal duties (e.g., goals, responsibilities, life) while living with negative inner experiences related to hearing loss. Having a greater understanding of the AAQ-AHL by confirming the observed variables being related to the underlying construct among a particular sample only build on the results provided by Ong and colleagues (2019). Accordingly, this measure is suitable to utilize among people who were diagnosed with hearing loss and use a hearing aid.

Regarding convergent validity, significant correlations to the AAQ-II, IOI-HA, and MARS-HA were expected. Correlations with the AAQ-II is in line with other disorder specific AAQ variants (e.g., Acceptance and Action Questionnaire for Trichotillomania; Houghton et al., 2014) and expand on Ong and colleagues’ (2019) results. The p-value for the correlations to the MPFI-Inflexibility were not expected to be non-significant (p = .051). This may be due to the MPFI-Inflexibility covering all constructs related to psychological inflexibility (i.e., experiential avoidance, lack of content with present moment, self as content, fusion, lack of content with values, and inaction), while the AAQ-II covers experiential avoidance and items from the AAQ-AHL are primarily concerned with avoiding thoughts and feelings related to hearing loss (e.g., *I struggle to get things done because of my frustration with hearing loss*). Moreover, while it is tempting to lean into a positive outcome due to a reported p-value near .05, a larger sample size could clarify the correlation between the constructs measured on the AAQ-AHL and MPFI-Inflexibility.

As expected, non-significant correlations were found with hearing loss severity. The parent article of the AAQ-AHL (Ong et al., 2019) only explored and found discriminant validity as it relates to physical functioning. Adding to the precision – in the form of understanding what the AAQ-AHL should not measure – assists in the overall validation of the questionnaire. Finding significant correlations to gender were not expected. As there could be numerous reasons for this outcome, one main factor could be due to the underrepresented male population within the sample. The smaller male sub-sample would mean smaller variations in answer responses would give bigger weight in the variance and thus give an unfair representation of male responses compared to female responses.

Like all studies, this one has limitations. One of the limitations includes the narrow diversity that was prominent among the study sample. A majority of the sample identified as white (71%), female (77%), or having bilateral hearing loss (71%). Determining reliability and validity of the AAQ-AHL among other genders and races is important, but it is also vital to explore these psychometric properties among those who have a unilateral hearing loss and those who use other types of amplification. Finally, this study only examined convergent validity as it relates to other psychological inflexibility measures rather than general and specific distress. While the AAQ-AHL is not designed to illuminate psychopathology among adults with hearing loss, significant correlations to other psychological distress measures would offer stronger convergent validity since higher levels of psychological inflexibility are related to other forms of psychological distress (e.g., anxiety) – similar to the AAQ-II (Bond et al., 2011). Meaning, correlations to other related forms of distress constructs would offer additional insight to other factors (e.g., anxiety) prominent among those who are inflexible to their inner experiences (e.g., thoughts, feelings) related to their hearing loss. Future studies should explore additional psychometric properties (e.g., predictive validity, test-retest reliability) among a more diverse population and use measures that range from general to specific distress.

Overall, the AAQ-AHL shows strong psychometric properties by confirming a single latent structure and providing evidence for convergent and discriminant validity. This further indicates the utility of this measure in a clinical setting and expand on the overall validation of the AAQ-AHL. Clinicians would have a better understanding of when psychological inflexibility is interfering with engagement in the intervention process without the need to investigate other psychosocial factors (e.g., anxiety) that could be influencing the client to not use their hearing aids. In addition, it would allow audiologists to talk with clients about their thoughts and feelings in a meaningful way and refer to treatment outside the scope of audiologic practice when needed. For example, clients with higher scores on the AAQ-AHL would be an indicator for the audiologist to offer additional resources (e.g., a therapist) to their client.

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|  |  |  |  |
| --- | --- | --- | --- |
| Table 1. Participant Demographics | |  |  |
| Age *M* (SD) | | *46.9* | (16.5) |
| n = 146 |  | n | % |
| Gender |  |  |  |
| Female | | 112 | 77 |
| Male | | 32 | 22 |
| Other | | 2 | 1 |
| Race Identification | |  |  |
| Native American\* | | 30 | 20 |
| Asian | | 2 | 1 |
| Black | | 3 | 2 |
| White | | 103 | 71 |
| Latinx/Hispanic (non-white) | | 1 | 1 |
| Multiracial | | 1 | 1 |
| Prefer not to answer | | 6 | 4 |
| Hearing Loss Laterality | |  |  |
| Bilateral | | 104 | 71 |
| Unilateral | | 42 | 29 |
| Hearing Aid Use | |  |  |
| Bilateral | | 98 | 67 |
| Unilateral | | 48 | 33 |
| Hearing Loss Severity | |  |  |
| Mild | | 12 | 8 |
| Moderate | | 60 | 41 |
| Severe | | 39 | 27 |
| Profound | | 26 | 18 |
| I am not sure | | 5 | 3 |
| Other | | 4 | 3 |
| Primary Way of Communicating | |  |  |
| Spoken Language | | 133 | 91 |
| Sign Language | | 13 | 9 |
| Other Diagnosed Conditions | |  |  |
| Yes | | 42 | 29 |
| No | | 104 | 71 |
| Education Level | |  |  |
| Less than 7th grade | | 1 | 1 |
| Junior high/middle school | | 3 | 2 |
| Partial high school | | 2 | 2 |
| High school graduate | | 12 | 8 |
| Partial college | | 34 | 23 |
| College degree | | 47 | 32 |
| Graduate degree | | 47 | 32 |
| Family Income | |  |  |
| Less than $20,000 | | 11 | 8 |
| $20,000 - $40,000 | | 40 | 27 |
| $40,000 - 80,000 | | 47 | 32 |
| more than $80,000 | | 48 | 33 |
| \*Includes American Indian, Alaska Native, and Indigenous | | | |
|  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table 2. Convergent and Discriminant Validity Table | | | | | |
|  |  | β | SE | *z* | *p* |
|  |  |  |  |  |  |
| AAQ-II | |  |  |  |  |
|  | AAQ-AHL | 0.71 | 0.17 | 5.23 | <.001 |
| MPFI-Inflexibility | |  |  |  |  |
|  | AAQ-AHL | 0.71 | 0.13 | 1.95 | 0.051 |
| MARS-HA | |  |  |  |  |
|  | AAQ-AHL | -0.47 | 2.02 | -3.52 | <.001 |
| IOI-HA | |  |  |  |  |
|  | AAQ-AHL | -0.43 | 0.1 | -3.05 | 0.002 |
| Hearing Loss Severity | |  |  |  |  |
|  | AAQ-AHL | -0.07 | 0.13 | -0.79 | 0.43 |
| Gender | |  |  |  |  |
|  | AAQ-AHL | -0.22 | 0.06 | -2.18 | 0.029 |
| *Note.* AAQ-II=Acceptance and Action Questionnaire II; AAQ-AHL = Acceptance and Action Questionnaire Adult Hearing Loss; MPFI=Multidimensional Psychological Flexibility Inventory-Inflexibility; MARS-HA = Measure of Audiologic Rehabilitation Self-Efficacy for Hearing Aids; IOI-HA = International Outcome Inventory – Hearing Aids | | | | | |
|  |
|  |

Figure 1. The second unidimensional model of the AAQ-AHL using confirmatory factor analysis. The circle represents the latent variable (AAQ-AHL). The straight arrows are standardized factor loadings for their respective items. The rectangles represent each item in the AAQ-AHL (e.g., Item 1 = first item of the AAQ-AHL). The e’s are error terms, and the bowed arrows between the error terms show correlations between error terms that were allowed to covary.

Diagram

Description automatically generated