

Examining foreign language listening anxiety and its correlates: A meta-analysis

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ABSTRACT: While researchers have focused on examining the relationship between foreign language listening anxiety and its related correlates, most of their findings are largely inconclusive. To solve the problem, this meta-analysis investigates the overall average correlation between foreign language listening anxiety and its four key correlates, including two high-evidence correlates (listening performance and listening strategy) and two low-evidence correlates (motivation and reading anxiety) identified in the literature. For the two high-evidence correlates, a moderator analysis was also conducted to examine the moderating effects of learners' age, foreign language proficiency and language distance. The results obtained a moderate and small negative correlation of listening performance and listening strategy, respectively. The two low-evidence correlates had small and moderate-to-large effect sizes, with motivation being the small and negative correlate, and reading anxiety being the moderate-to-large and positive correlate. Learners' age and foreign language performance were found to be significant moderators.

Key words: foreign language, listening anxiety, meta-analysis, correlate, strategy.

Examinando la ansiedad al escuchar una lengua extranjera y sus correlatos: un meta análisis

RESUMEN: Si bien los investigadores se han centrado en examinar la relación entre la ansiedad al escuchar un idioma extranjero y sus correlatos relacionados, la mayoría de sus hallazgos no son concluyentes. Para resolver el problema, este meta análisis investiga la correlación promedio general entre la ansiedad al escuchar un idioma extranjero y sus cuatro correlatos clave, incluidos dos correlatos de alta evidencia (rendimiento auditivo y estrategia de escucha) y dos correlatos de evidencia baja (motivación y ansiedad de lectura) identificados en la literatura. Para los dos correlatos de alta evidencia, también se realizó un análisis de moderación para examinar los efectos moduladores de la edad de los alumnos, el dominio del idioma extranjero y la distancia lingüística. Los resultados obtuvieron una correlación negativa moderada y pequeña entre el rendimiento auditivo y la estrategia auditiva, respectivamente. Los dos correlatos de baja evidencia tuvieron tamaños de efecto pequeños y de moderados a grandes, siendo la motivación el correlato pequeño y negativo, y la ansiedad de lectura el correlato positivo de moderado a grande. Se descubrió que la edad de los alumnos y el rendimiento en idiomas extranjeros eran moderadores importantes.

Palabras clave: lengua extranjera, ansiedad auditiva, meta análisis, correlación, estrategia.

1. INTRODUCTION

Since “listening comprehension lies at the heart of language learning” (Vandergrift, 2007, p.191), researchers to date have paid much attention to the development of language learners’ foreign or second language listening skills (Vandergrift, 2005, 2007; Vandergrift & Baker, 2015; Vandergrift & Cross, 2017). The findings of their studies have demonstrated that foreign language listening is a purposeful process of deciphering and constructing meaning from aural input involving a number of factors, namely, linguistic factors (first language listening ability, auditory discrimination, phonetic skills, vocabulary sizes, foreign language proficiency and language distance, etc.), metacognitive and affective factors (foreign language learning motivation, listening strategy and anxiety, etc.), among which foreign language listening anxiety has garnered a great deal of attention in this domain (e.g., Bang & Hiver, 2016; Elkhafaifi, 2005; Kim, 2000; Liu, 2016; Kimura, 2017; Polat & Eristi, 2018). Research on foreign language listening anxiety is crucial because a better understanding of the anxiety-related factors and its facilitating or debilitating effects will inform pedagogy.

While researchers have conducted a series of empirical studies to disclose the relationship (viz. directionality and magnitude of effect sizes) between foreign language listening anxiety and several commonly identified and frequently researched correlates, such as listening performance (Bang & Hiver, 2016; Kim, 2000, 2002), listening strategy (Golzadeh & Moiiinvaziri, 2017; Serraj & Noordin, 2013; Valizadeh & Alavinia, 2013), foreign language learning motivation (Bang & Hiver, 2016; Chow, Chiu, & Wong, 2017) and reading anxiety (Capan & Karaca, 2013; Jee, 2018), there is still a lack of comprehensive meta-analyses to quantitatively synthesize the effect sizes among these primary studies. Compared with primary studies, meta-analysis results are more reliable and generalizable, as they are based on results of multiple studies and increased sample sizes (Yanagisawa, Webb, & Uchihara, 2020). To fill a void in this line of research, we attempt to meta-analyze the relationship between foreign language listening anxiety and its commonly researched correlates, viz. listening performance, listening strategy, foreign language learning motivation and reading anxiety. In addition, we also examine the effects of some moderators on the aforementioned correlates to explain the variability in observed correlations. In short, this meta-analysis aims to (a) more reliably generalize findings of previous listening anxiety research while (b) dealing with the variability of the frequently investigated correlates that might moderate the effect sizes.

2. LITERATURE REVIEW

2.1. Foreign language listening anxiety

Foreign language listening anxiety is defined as the “fear of misunderstanding what language learners listen to and being embarrassed by interpreting the message wrongly” (Serraj & Noordin, 2013, p.3). Language learners who are anxious about their listening comprehension might experience the lack of confidence and worry over foreign language listening tasks (Kim, 2002), or even “failure to recognize spoken foreign language words” (Bekleyen, 2009, p.664).

More recently, although a growing body of studies (Elkhafaifi, 2005; Kim, 2000, 2002; Kimura, 2008, 2017; Polat & Eristi, 2018; Zhang, 2013) has been done, little consensus regarding the factor structures of foreign language listening anxiety has been reached. For instance, Kim (2000, 2002) constructed a 33-item scale and argued that two factors are involved, viz. worry over foreign language listening and a lack of self-confidence in listening. Elkhafaifi (2005) found that foreign language listening anxiety is independent from language learning anxiety. On the basis of a survey of 452 Japanese learners, Kimura (2008) noted that three factors are included in listening anxiety, i.e., emotionality, worry and anticipatory fear. Likewise, Zhang (2013) obtained a three-factor scale, viz. listening anxiety, self-belief and foreign language listening decoding skills. It is evident to observe that the factor structures of foreign language listening anxiety might vary from study to study, which might be partly attributed to different participants involved in each study.

Apart from the above focus on factor structures of anxiety, researchers have shifted their attention to identifying its key related correlates (e.g., Bang & Hiver, 2016; Cheng, 2005; Chow et al., 2017; Xu & Huang, 2018). It should be noted that correlate here refers to the correlational associations of variables identified in the literature. For instance, after a detailed perusal of the literature, Jeon and Yamashita (2014) identified ten correlates of second language reading comprehension. More specifically, the high-evidence correlates refer to those correlates that have been most frequently investigated (with over 10 effect sizes), while the low-evidence correlates (with 3–9 effect sizes) are less frequently investigated by foreign language researchers. Likewise, Elahi Shirvan and colleagues (2019) also identified three most frequently examined high-evidence correlates of willingness to communicate. Drawing on the insights from this line of inquiry, we attempted to identify the potential correlates of foreign language listening anxiety from the bulk of research, based on Jeon and Yamashita's (2014) binary division of “high-evidence correlates” and “low-evidence correlates”.

2.2. Related correlates of foreign language listening anxiety

In this study, four key correlates that included two high-evidence correlates (listening performance and listening strategy) and two low-evidence correlates (motivation and reading anxiety) were identified from the literature. Moreover, informed by Jeon and Yamashita (2014), moderator analyses of low-evidence correlates were not carried out this time due to insufficient data for calculation. As such, moderators that could affect the variability of high-evidence correlates were also reviewed in this section.

2.2.1. High-evidence correlates and moderators

Listening performance and moderators. Informed by the prior meta-analysis studies that consider both language test scores and self-perceived performance as language performance (e.g., Botes, Dewaele, & Greiff, 2020; Teimouri, Goetze, & Plonsky, 2019), the operational definition of foreign language listening performance (for the sake of simplicity called *listening performance* hereafter) included standardized listening test (Bang & Hiver, 2016),

listening course grade (Elkhafaifi, 2005) and self-perceived listening performance (Karakuş Tayşi, 2019). For instance, Bekleyen (2009) showed a significantly negative and moderate correlation between listening performance and listening anxiety. Xu and Huang (2018) found a small and negative effect size. This discrepancy might be explained by a number of moderators, such as learners' age, foreign language proficiency and language distance, as suggested in the existing meta-analytic studies of foreign language reading comprehension (Jeon & Yamashita, 2014; Lervåg & Lervåg, 2011; Zhang & Zhang, 2020). Thus, the present study reports the averaged correlations between listening performance and foreign language listening anxiety. The moderating effects of age, foreign language proficiency and language distance are also considered.

Listening strategy and moderators. Foreign language listening strategy (*listening strategy* hereafter) refers to the metacognitive “techniques and approaches that students take” to facilitate listening comprehension (Liu, 2016, p.648). The relationship between foreign language listening anxiety and listening strategy has caught the attention of many researchers (Golzadeh & Moiiinvaziri, 2017; Serraj & Noordin, 2013; Valizadeh & Alavinia, 2013). For instance, Golzadeh and Moiiinvaziri (2017) found that effect size between listening anxiety and listening strategy is small and negative. However, Li (2014) argued that listening anxiety is significantly and moderately correlated with listening strategy. The discrepancy might be accounted for by the potential moderators, such as learners' age, foreign language proficiency and language distance (Jeon & Yamashita, 2014; Zhang, 2019; Zhang & Zhang, 2020). Thus, this study reports the averaged correlations between listening strategy and foreign language listening anxiety. The moderating effects of age, foreign language proficiency and language distance are calculated as well.

2.2.2. Low-evidence correlates

Motivation. Foreign language learning motivation (*motivation* hereafter) refers to “the individual's attitudes, desires, and effort to learn” a foreign language (Gardner, Tremblay, & Masgoret, 1997, p.345). Some researchers (Chow et al., 2017) have found that motivation and listening anxiety are closely related to each other, while others (Bang & Hiver, 2016) obtained a low and nonsignificant effect size. As such, the relationship between motivation and listening anxiety is yet to be clarified.

Reading anxiety. Foreign language reading anxiety (*reading anxiety* hereafter) is defined as “the feelings of frustration and apprehension one experiences” when individual fails to comprehend a second or foreign language text (Capan & Karaca, 2013, p.1362). Considering that both foreign language reading and listening anxiety are related to the receptive skills by nature, the relationship between them draws much attention from researchers (Capan & Karaca, 2013; Jee, 2018; Pae, 2013). While findings of these studies have deepened our understanding of the listening anxiety-reading anxiety correlation, a more reliable and generalizable meta-analytic study based on the aggregated results of multiple studies and increased sample sizes is still needed.

2.3. The present study

In recent years, researchers have used meta-analytic methods to investigate issues regarding foreign language anxiety (e.g., Botes et al., 2020; Teimouri et al., 2019; Zhang, 2019). For instance, Teimouri et al. (2019) meta-analyzed a sample of 97 effect sizes and found a moderate and negative correlation between foreign language anxiety and language performance ($r = -0.360$). A moderator analysis was also conducted, including types of language achievement, educational level and types of anxiety as potential moderators. Similarly, Zhang's (2019) meta-analysis revealed the moderate and negative correlation between foreign language anxiety and language performance ($r = -0.340$). Apart from the moderators mentioned in Teimouri et al. (2019), language distance was also found to be a significant moderator for the language anxiety–language performance correlation. In a more recent study, Botes and colleagues' (2020) meta-analysis indicated a moderate and negative correlation between classroom anxiety and all types of academic performance.

While meta-analysis findings of these meta-analytic studies might shed some light on our understanding of foreign language anxiety in general, several issues remain open for debate. First, although these studies investigated the correlates of foreign language anxiety, little is known about the correlates of skill-specific anxiety, foreign language listening anxiety in particular, since both “appear to represent empirically distinguishable constructs” and listening anxiety only explained 56% of the variance of language anxiety (Elkhafafi, 2005). Second, it is also evident that meta-analyses of foreign language anxiety reflect a surge of productivity in the promising area, warranting a fresh look at skill-specific anxiety (Pae, 2013), viz. foreign language listening anxiety. Third and more importantly, these studies only examined one correlate of language anxiety (i.e., language performance), and little attention has been paid to other well-identified correlates, let alone listening anxiety in particular and some important moderators for the high-evidence correlates, including age, foreign language proficiency and language distance.

To this end, two research purposes should be achieved. First, a meta-analysis was conducted, which explored the relationship between foreign language listening anxiety and the four correlates, i.e., listening performance, listening strategy, foreign language learning motivation and reading anxiety. Furthermore, since it would be premature to adopt moderator analyses for the low-evidence correlates, only moderating effects of age, foreign language proficiency and language distance on the high-evidence correlates were conducted. Consequently, three research questions are to be addressed as follows.

Research question 1 (RQ1): What is the relationship between foreign language listening anxiety and two high-evidence correlates (listening performance and listening strategy)?

Research question 2 (RQ2): How do age, foreign language proficiency and language distance moderate the relationship between listening anxiety and its two high-evidence correlates (listening performance and listening strategy)?

Research question 3 (RQ3): What is the relationship between foreign language listening anxiety and two low-evidence correlates (motivation and reading anxiety)?

3. METHOD

3.1. Literature search and inclusion criteria

The currently available literature of listening anxiety in foreign or second language learning was searched. In doing so, several electronic online databases (e.g., Web of Science, ScienceDirect, Springer, ProQuest, Wiley, ERIC, Chinese CNKI) and search engines (Google Scholar and Chinese Baidu Scholar) were retrieved with a combination of the following key words: *listening anxiety*, *listening apprehension*, *second language (L2)*, *foreign language*, *metacognition*, *metacognitive awareness*, *strategy*, *motivation*, *listening score*, *listening grade*, *listening proficiency* and *listening achievement*. Moreover, backward and forward citation searches based on the seminal articles (Elkhafaifi, 2005; Kim, 2000), along with “snowballing technique” (Biernacki & Waldorf, 1981) by scanning references in the identified articles (e.g., Kimura, 2008, 2017; Polat & Eristi, 2018) were carried out. To further avoid the insufficient search of a significant portion of the relevant literature in the first-round, multiple search strategies for each correlates of listening anxiety were also conducted. See Figure 1 for a detailed searching and screening procedures.

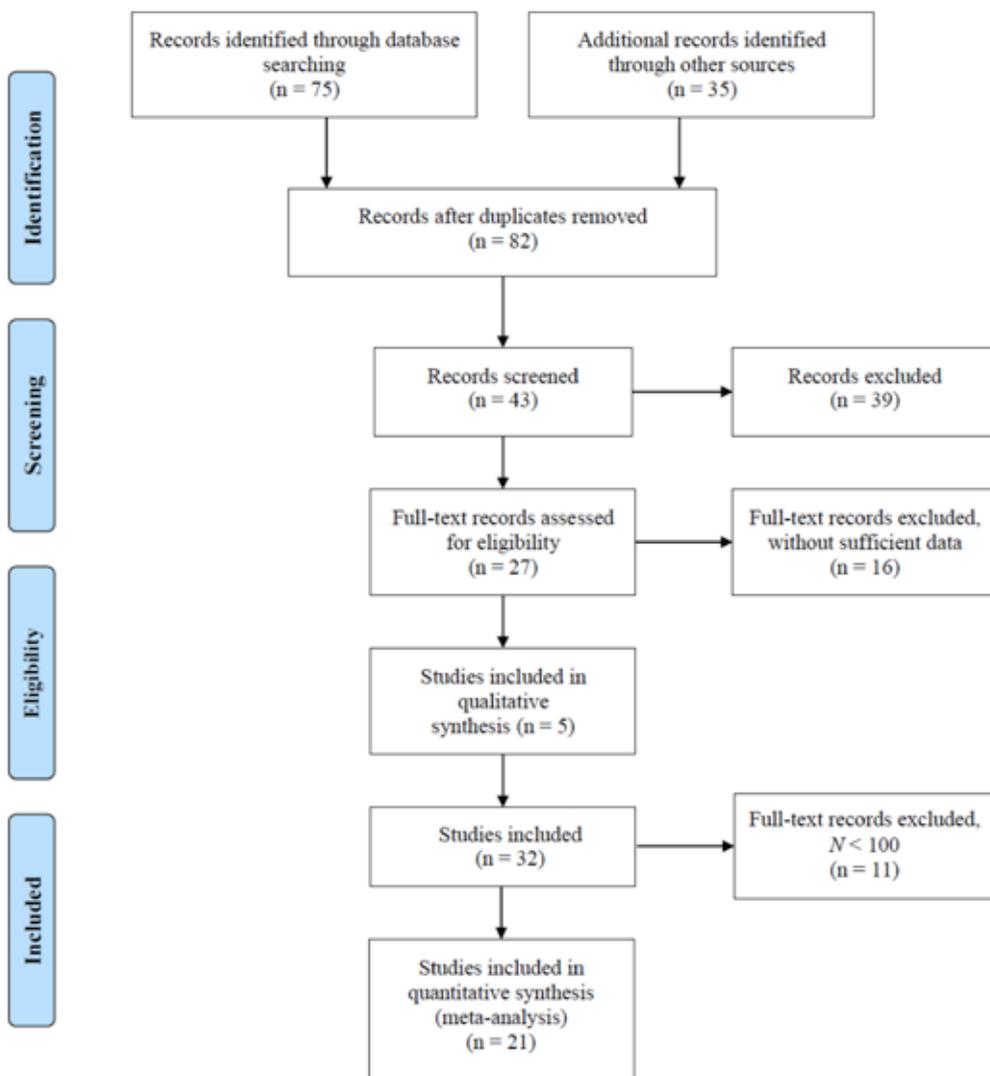


Figure 1. Flow diagram for the search and inclusion of studies

The inclusion and exclusion criteria were diagrammed as follows:

(1) The study should investigate the correlation between second or foreign language listening anxiety and several frequently examined correlates from the literature, i.e., listening performance, motivation, listening strategy and reading anxiety. Studies irrelevant and with rather small number of effect sizes ($k < 3$, Li, 2021) were excluded from the literature pool, which resulted in a total of 43 studies.

(2) For a study to be included, it should contain the sufficient statistics (e.g., sample sizes, directionality and correlation) for data calculation or transformation of aggregated overall effect sizes. 27 full-text records with sufficient statistics for calculation were included.

(3) As reported before, a further backward and forward citation searches, snow-balling search from the existing studies (e.g., Bang & Hiver, 2016; Liu, 2016; Kimura, 2008, 2017; Polat & Eristi, 2018) on the section of literature review, together with the multiple retrievals yielded another five journal articles. The unpublished materials (e.g., master's or doctoral dissertations) and published journal articles were searched and screened from the databases, which resulted in $k = 32$ primary studies eligible for data analysis.

(4) As suggested by Tabachnick and Fidell (2019), a N to k ratio of 5 to 1 is a bare minimum requirement for the statistical analysis, where N is the number of sample sizes and k is the number of effect sizes. As such, we further introduced another inclusion requirement for studies to have a certain N -size. Specifically, we would consider $N = 100$ as a minimum inclusion baseline, which yielded 11 primary studies of small sample sizes ($N < 100$) excluded. As a result, the unpublished and published articles consisted of 21 selected primary studies, including one doctoral dissertation (Kim, 2000), three master's dissertations (Gao, 2008; Hu, 2010; Kilic, 2007) and 17 published journal articles.

3.2 Variables coded for each study

According to Wilson (2019, p.154), a coding scheme should “capture the pertinent information suitable for meta-analysis”. The code scheme is presented in Table 1.

After the code scheme was developed, coding procedures were observed to ensure the methodological quality (e.g., Valentine, 2019) as follows: First, given the recommended practice for data dependencies (Plonsky & Oswald, 2014), multiple effect sizes reported in a single publication involved different participants were coded separately to ensure the reliability of the analyses (Plonsky & Oswald, 2014; Zhang, 2019). Second, two coders negotiated with each other to ensure the consistent understanding of each subtypes and the operational definitions (see Table 1); Third, two coders independently coded the items from the primary literature, and the discrepancies were resolved by consensus through discussions, along with any necessary reviews to the coding scheme (Li, 2022).

Table 1. Coding scheme

TYPES	SUBTYPES	OPERATIONAL DEFINITIONS	REFERENCES
<i>Correlates</i>			
Listening performance	Listening grade/score, perceived listening performance	Learners' standardized TOEFL/IELTS/CET-4 listening test score, listening course grade and self-perceived listening performance.	Bang & Hiver (2016)
Listening strategy	Listening strategy use, listening strategies, listening strategy awareness	Learners' use of metacognitive listening strategy.	Liu (2016); Vandergrift (2005)
Motivation	Language intrinsic motivation	Learners' intrinsic motivation of foreign language learning.	Bang & Hiver (2016)
Reading anxiety	Perceived reading anxiety	Learners' self-perceived listening anxiety.	Jee (2018)
<i>Moderators</i>			
Age	Child	Learners who were at or below grade six (or age 12).	Jeon & Yamashita (2014)
	Adolescent/Adult	Learners who were at or older than grade seven (13 or older).	
Foreign language proficiency	Low	Studies that reported foreign language beginners.	Zhang (2019)
	Intermediate	Studies that reported intermediate learners.	
	High	Studies that reported senior language learners.	
Language distance	Near	Indo-European L1 and Indo-European L2.	Lervåg & Lervåg (2011)
	Distant	Indo-European L1 and non-Indo-European L2 or Non-Indo-European L1 and Indo-European L2.	

3.3 Calculation and analysis of the effect sizes

Correlation coefficients along with sample sizes obtained from the primary studies were first converted to Fisher's z to calculate the aggregated correlation coefficients, confidence interval and standard error. The results were then converted back to correlation coefficients (Borenstein et al., 2005, 2009; Zhang, 2019). It is noteworthy that the meta-analysis was not performed for variables with small number of effect sizes ($k < 3$, Li, 2021), and interpretations of the magnitude of an effect size were based on Plonsky and Oswald (2014): 0.25, .40, and .60 for small, medium, and large effects, respectively.

In the meta-analytic process, random effect model would be used (Jeon & Yamashita, 2014, p.178). Moreover, a moderator analysis was conducted when between-study heterogeneity of the effect sizes was found, including age, foreign language proficiency and language distance. A between-study Q test was executed to ensure whether the moderators played a role in the between-study heterogeneity with two indexes, i.e., Q test and I^2 (the ratio of true heterogeneity to total observed variation). Specifically, the Q test "compares the observed errors to the expected sampling errors to determine whether variation in effect sizes is attributable to between-study differences", while the I^2 test "estimates the proportion of dispersion that is due to true heterogeneity" (Zhang, 2019, p.6).

4. RESULTS

A total of 50 effect sizes were aggregated from the 21 selected primary studies with 17620 participants involved ($M \pm SD = 352.400 \pm 334.661$, range = 105–1160). In what follows we first reported the main effect analysis results of two high-evidence correlates, for which 15 and 25 effect sizes could be aggregated, followed by the moderator analysis results. Then we reported the main effect analysis results of two low-evidence correlates.

4.1 Results of high-evidence correlates and moderator analysis

4.1.1 Foreign language listening anxiety and listening performance

Fifteen effect sizes comprising a total of 3340 participants ($M \pm SD = 222.667 \pm 70.660$, range = 135–402) examined the correlation between foreign language listening anxiety and listening performance.

As shown in Table 2, the overall mean correlation of foreign language listening anxiety and listening performance was moderate, $r = -0.439$, 95% CI [-0.517, -0.354] and significant, $z(14) = -9.149$, $p < 0.001$. Results did not indicate any publication bias, $N_{fs} = 2671 > N_{observed} = 15$, $p < 0.001$.

The heterogeneity in correlations between studies was significant and large, $Q(26) = 120.507$, $p < 0.001$, $I^2 = 88.382$, suggesting the need to conduct moderator analyses. In Table 3, while a series of moderator analyses in terms of age [$Q(1) = 0.744$, $p = 0.388$] and language distance [$Q(1) = 0.531$, $p = 0.466$] did not yield significant results, moderating effect of foreign language proficiency on the listening anxiety–listening performance correlation was found to be significant, $Q(2) = 30.430$, $p < 0.001$. A post-hoc comparison analysis was further implemented to track the source of the moderating effect. For the high proficiency learners, the listening anxiety–listening performance correlation was $r = -0.700$, which was statistically higher than that of the low [$Q(1) = 29.202$, $p < 0.001$] and intermediate pro-

ficiency learners [$Q(1) = 20.298, p < 0.001$]. The listening anxiety–listening performance correlation for the low proficiency learners ($r = -0.484$) was also statistically higher than that of the intermediate proficiency learners ($r = -0.473$), $Q(1) = 4.296, p = 0.038$, suggesting that the listening anxiety–listening performance correlation may change as a function of foreign language proficiency by following a “U-shaped curve”. That is, while the listening anxiety–listening performance correlation for the high proficiency learners was the highest ($r = -0.700$), the intermediate proficiency learners was the lowest ($r = -0.473$), and the low proficiency learners was in between ($r = -0.484$).

Table 2. Effect sizes and publication bias test for the high-evidence correlates

CORRELATES	r [95% CI]	N_{js}	$N_{observed}$	$N_{trimmed}$
Listening performance	-0.439 [-0.517, -0.354]	2671	15	0
Listening strategy	-0.203 [-0.274, -0.131]	2704	25	0

Note. N_{js} = number of missing studies that would bring $p > 0.05$; $N_{observed}$ = number of observed studies; $N_{trimmed}$ = number of trimmed studies.

Table 3. Moderator analysis for the correlation between foreign language listening anxiety and listening performance

MODERATORS	k	r [95% CI]	I^2	HETEROGENITY		
				Q	df	p
Age	15	-0.468 [-0.515, -0.419]		0.744	1	0.388
Child	3	-0.480 [-0.532, -0.424]	0.000			
Adolescent/ Adult	12	-0.429 [-0.527, -0.320]	90.408			
FL proficiency	27	-0.493 [-0.534, -0.451]		30.430	2	0.000
High	1	-0.700 [-0.760, -0.628]	0.000			
Intermediate	10	-0.473 [-0.571, -0.361]	84.494			
Low	4	-0.484 [-0.531, -0.434]	0.000			
Language distance	15	-0.456 [-0.521, -0.385]		0.531	1	0.466
Distant	13	-0.429 [-0.516, -0.334]	89.310			
Similar	2	-0.503 [-0.653, -0.315]	79.306			

Note. FL = foreign language.

4.1.2 Foreign language listening anxiety and listening strategy

A total of twenty-five effect sizes comprising 11620 participants ($M \pm SD = 464.800 \pm 439.881$, range = 105–1160) examined the correlation between foreign language listening anxiety and listening strategy.

As apparent in Table 2, the overall mean correlation of foreign language listening anxiety and listening strategy was small, $r = -0.203$, 95% CI [-0.274, -0.131] and significant, $z(24) = -5.404$, $p = 0.000$. Results did not indicate any publication bias, $N_{fs} = 2704 > N_{observed} = 25$, $p < 0.001$.

The heterogeneity in correlations between studies was significant and large, $Q(24) = 363.409$, $p < 0.001$, $I^2 = 93.396$, suggesting the need to conduct moderator analyses. Table 4 indicates age was a significant moderator. The listening anxiety–listening strategy correlation of children demonstrated more negative than that of adolescents and adults. Simultaneously, moderator analyses of foreign language proficiency [$Q(2) = 2.099$, $p = 0.350$] and language distance [$Q(1) = 0.010$, $p = 0.920$] did not yield a significant moderating effect on the listening anxiety-listening strategy correlation.

Table 4. Moderator analysis for the correlation between foreign language listening anxiety and listening strategy

MODERATORS	<i>k</i>	<i>r</i> [95% CI]	<i>I</i> ²	HETEROGENITY		
				<i>Q</i>	<i>df</i>	<i>p</i>
<i>Age</i>	25	-0.266 [-0.266, -0.311]		6.236	1	0.013
Child	4	-0.306 [-0.360, -0.251]	9.742			
Adolescent/ Adult	21	-0.182 [-0.263, -0.099]	94.257			
<i>FL proficiency</i>	25	-0.222 [-0.282, -0.159]		2.099	2	0.350
High	8	-0.237 [-0.304, -0.168]	90.424			
Intermediate	9	-0.261 [-0.467, -0.029]	95.556			
Low	8	-0.105 [-0.274, 0.072]	92.839			

<i>Language distance</i>	25	-0.204 [-0.271, -0.135]	0.010	1	0.920
Distant	24	-0.203 [-0.275, -0.128]	93.671		
Similar	1	-0.213 [-0.389, -0.022]	0.000		

Note. FL = foreign language.

4.2. Results of low-evidence correlates

Two low-evidence correlates that had a small number of effect sizes (ranging from 3–7: motivation and reading anxiety) were calculated, presenting some concerns for the low power of calculation. No matter whether the between-study results indexed from Q test and I^2 were significant or not, moderator analyses could not be performed due to insufficient statistic information for aggregation (Jeon & Yamashita, 2014). The overall mean correlation results are summarized in Table 5.

Table 5. Mean correlations and publication bias between foreign language listening anxiety and its low-evidence correlates

CORRELATES	k	r [95% CI]	Q	I^2	N_{fs}	$N_{observed}$
Motivation	7	-0.185 [-0.301, -0.063]	49.770***	87.945	126	7
Reading anxiety	3	0.527 [0.303, 0.695]	19.104***	89.526	145	3

Note. *** $p < 0.001$; N_{fs} = number of missing studies that would bring $p > 0.05$; $N_{observed}$ = number of observed studies.

For the two low-evidence correlates, seven effect sizes comprising 2106 participants ($M \pm SD = 300.857 \pm 2.100$, range = 300–306) examined the listening anxiety–motivation correlation, and the other three effect sizes comprising 554 participants ($M \pm SD = 184.667 \pm 73.713$, range = 110–285) examined the listening anxiety–reading anxiety correlation.

As apparent in Table 5, the overall mean correlation of foreign language listening anxiety and motivation was small, $r = -0.185$, 95% CI [-0.301, -0.063] and significant, $z(6) = -2.958$, $p = 0.003$. Results did not indicate any publication bias, $N_{fs} = 126 > N_{observed} = 7$, $p < 0.001$.

On the other hand, the overall mean correlation of foreign language listening anxiety and reading anxiety was moderate-to-large, $r = 0.527$, 95% CI [0.303, 0.659] and significant, $z(2) = 4.225$, $p < 0.001$. Results did not indicate any publication bias, $N_{fs} = 145 > N_{observed} = 3$, $p < 0.001$.

5. DISCUSSION

The current meta-analysis attempted to investigate the relationship between foreign language listening anxiety and two high-evidence correlates (listening performance and listening strategy) along with two low-evidence correlates (motivation and reading anxiety). For such a purpose, a sample of 50 effect sizes from the 21 selected primary studies with a total of 17620 participants to calculate the aggregated correlation. The results of three RQs were discussed in the remainder of this section.

Regarding RQ1, listening performance and listening strategy were negatively correlated with foreign language listening anxiety, suggesting that learners with higher listening anxiety are likely to perform much worse in listening performance (e.g., listening grade, proficiency and comprehension, etc.), and the learners with lower listening anxiety tend to have a higher preference for the listening strategies use, mirroring a handful of studies highlighting the debilitating effects of foreign language listening anxiety on listening performance (e.g., Elkhafaifi, 2005; Field, 2019; Kim, 2000, 2002; Polat & Eristi, 2018). It is also reasonable to understand that learners who suffer from listening anxiety would result from poor listening proficiency and a lack of strategic competence with which to resolve listening comprehension problems, such as quickly forgetting what is heard, failure to recognize what is heard, failure to understand the intended message, neglecting the information when deciphering meaning and failure to retrieve meaning from the mental lexicon (e.g., Field, 2019; Goh, 2000).

RQ2 was concerned with the moderating effects of age, foreign language proficiency and language distance to track the sources of heterogeneity of the high-evidence correlates (i.e., listening performance and listening strategy). Moderator analysis results indicated that age and foreign language proficiency, rather than language distance, have significant moderating effects on the listening anxiety–listening strategy and listening anxiety–listening performance correlations, respectively. Specifically, for age, the listening anxiety–listening strategy correlation of children demonstrated more negative than that of adolescents and adults, resonating the earlier meta-analytic research (Lervåg & Lervåg, 2011), which could be explained by the different frequency of metacognitive strategies use in listening comprehension. In other words, there are good reasons to believe that adolescents and adults would be more skilled at using metacognitive strategies compared with the young children (Kuo, 2013). For foreign language proficiency, the listening anxiety–listening performance correlation may change as a function of foreign language proficiency by following a “U-shaped curve”. In other words, while the listening anxiety–listening performance correlation for the high proficiency learners was the highest, the intermediate proficiency learners was the lowest, and the low proficiency learners was in between. This result is, however, inconsistent with Zhang (2019, p.12), who asserted “the consistent language anxiety–language performance correlations among different proficiency groups”. One possible reason for the disparity might be “the distinctiveness of the two constructs”: listening anxiety vs. language anxiety (Elkhafaifi, 2005, p.214), warranting a future study in this regard. Although the current study has found initial evidence of a moderator effect of foreign language proficiency, the result should be interpreted with caution, as there is only one effect size involved for the high proficiency level (see Table 3). Aside from the aforementioned moderators, the nonsignificant results of other moderators also deserve discussion. The nonsignificant moderating effect of language distance on the listening anxiety–listening performance and listening anxiety–listening strategy correlation might reveal

the limited role of language distance played in foreign language listening comprehension, that is, despite the difference in language distance, learners' listening performance and strategies use still behaved in a similar way, because listening comprehension, as a receptive skill like reading comprehension, might involve less cognitive resources compared to the productive skills. This null result is in accordance with the prior studies (Jeon & Yamashita, 2014; Lervåg & Lervåg, 2011) that meta-analyzed issues of reading comprehension.

RQ3 dealt with the relative strengths of association between foreign language listening anxiety and low-evidence correlates (i.e., motivation and reading anxiety). To answer the question, the two low-evidence correlates were found to have small and moderate-to-large effect sizes, with motivation being the small and negative correlate, and reading anxiety being the moderate-to-large and positive correlate. More specifically, the small and negative correlation between foreign language listening anxiety and motivation suggests that learners who suffer from listening anxiety tend to be less intrinsically motivated in listening comprehension (Bang & Hiver, 2016; Chow et al., 2017). And the moderate-to-large and positive correlation between foreign language listening anxiety and reading anxiety suggests that the higher an individual's listening anxiety, the higher an individual's reading anxiety, which can be explained by the fact that both are receptive skills by nature (Capan & Karaca, 2013; Jee, 2018; Pae, 2013). However, it should also be noted that there are significant differences between these two receptive skills, such as little time for processing in listening comprehension and (usually) much more time in reading comprehension, which may warrant future study.

6. IMPLICATIONS

The practical implications are also inferred as follows. First, as the debilitating effects of foreign language listening anxiety have been found in respect to language learners' listening performance, listening strategy and motivation, instructors should be aware of the sources of learners' listening anxiety (Bekleyen, 2009). One solution for instructors is to make use of learners' feedback by asking them to express their fears and try to engage them in relaxation listening practices or activities (Russell, 2020). In doing so, instructors could also collect language learners' voices regarding how to alleviate listening anxiety when preparing listening materials and the pedagogical activities. For instance, according to the sensory-modalities view, instructors can take full advantage of the multimedia listening materials involving the combined visual and auditory inputs with a learner-centered approach when instructing listening comprehension (Mayer, 2009). Another solution is to make input comprehensible, that is, instructors should understand what their target learners (children vs. adolescents and adults) are, what learners' language proficiency levels (low, intermediate and high) are, what learners already know and what they really need in order to motivate them with some listening instructional adjustments (Vogely, 1998). Second, instructors should teach explicit listening strategies that are beneficial for learners to decrease listening anxiety and increase listening performance and motivation (Elkhafafi, 2005). For instance, instructors could ask them to keep a listening diary and share their common feelings of nervousness or anxiety with other learners in the class (Elkhafafi, 2005; Goh, 1998). Importantly, to raise learners' awareness about listening strategies, instructors could train them to "develop greater meta-cognitive knowledge about learning to listen" by means of adopting guessing, notetaking

and other monitoring strategies (Goh, 1998, p.144). Third, foreign language learners themselves should also be sensitive to the use of various cognitive and metacognitive listening strategies, as the active use of listening strategies may reduce listening anxiety and facilitate listening comprehension. For instance, learners should use the cognitive strategies, such as “inferencing, elaboration, prediction, contextualization and reconstruction” (Goh, 1998, p.141). Simultaneously, they should use such metacognitive listening strategies as planning, monitoring, evaluating and problem-solving, etc. to manage their listening activities (Bang & Hiver, 2016; Goh, 1998).

7. CONCLUSION AND LIMITATIONS

This study reported the correlations of foreign language listening anxiety and two high-evidence (listening performance and listening strategy) and two low-evidence correlates (motivation and reading anxiety) identified in the existing literature. Moreover, a series of moderator analyses were executed to examine the moderating effects of age, foreign language proficiency and language distance for the high-evidence correlates. It can be concluded that moderate and small negative correlations of listening performance and listening strategy were found; for the low-evidence correlates, motivation is the small and negative correlate, and reading anxiety is the moderate-to-large and positive correlate. When it comes to the moderator analysis results, learners’ age and foreign language performance were found to be significant moderators.

There are some limitations to be addressed though. First, another equally important correlate that was not included in this study was vocabulary knowledge (Teng & Chen, 2013). In fact, vocabulary knowledge was initially included as a correlate, but it was discarded for the final analysis due to insufficient information to calculate effect sizes (Jeon & Yamashita, 2014). It is hoped that future research will consider the relationship between vocabulary knowledge and listening anxiety. Second, as our reviewer had critically commented, arguing that “due to the multi-faceted nature of correlates, further attempt should take into account cognitive, linguistic and affective correlates in the study of listening comprehension to provide a more comprehensive picture. Experimental designs along with meta-analysis can also be used to provide further information on potential contributors to listening performance”. Third, some other potential moderators (language learners’ demographic information, e.g., gender, working memory and social economic status, etc.) were not identified in the literature. It should be noted that these moderators might also play a significant moderating role in the relationship between foreign language listening anxiety and its correlates. Researchers should include more potential moderators with sufficient information for calculation in the future.

8. REFERENCES

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