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Active-empathic listening scale: a reliability and validity study in nursing students

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Abstract

Background Active-empathic listening is a fundamental component of therapeutic communication. It plays a vital role in providing person-centered care thanks to its multi-dimensional structure encompassing emotional awareness and cognitive engagement. High-quality undergraduate and graduate nursing education facilitates the development of active-empathic listening skills, thereby increasing the effectiveness of patient care.

Objective The aim of this study was to conduct a reliability and validity study of the Turkish version of the Active Empathic Listening Scale (AEELS-TR) and to adapt it to Turkish culture.

Methods The sample of this descriptive, cross-sectional, and methodological-design study consisted of 405 nursing faculty students who voluntarily participated. Data were collected using an online survey method, a descriptive information form, AEELS, and the Communication Skills Scale. The scale's language and content validity were ensured, and Confirmatory Factor Analysis (CFA) models were administered. Item–total correlation analyses and Cronbach's alpha coefficient were calculated to evaluate the reliability of the AEELS-TR.

Results The content validity index value of the Turkish version of the Active Empathetic Listening Scale was 1.00. CFA results showed that the χ^2/SD value indicating excellent fit was 1.78; the comparative fit index and goodness of fit index values were 0.97 and 0.96, respectively. Internal consistency was confirmed with a Cronbach's alpha coefficient of 0.86; test-retest reliability was obtained with a correlation coefficient of $r=0.717$ ($p<0.001$).

Conclusions The findings confirm that the AEELS-TR is a psychometrically robust instrument for evaluating Turkish nursing students' listening competencies and it could be a useful instrument in nursing education.

Keywords Listening, Active listening, Psychometric, Reliability, Validity

Introduction

Active empathic listening (AEL) is a multi-dimensional, nonjudgmental type of listening that extends beyond the verbal message conveyed and includes understanding the inner world of the individual and consciously reflecting this understanding [1–3]. Thus, AEL establishes the basis

of a relationship of trust and deepens interactions [4]. Within this context, AEL is not only a communication skill but also a multi-dimensional skill that encompasses interpersonal communication competence, emotional awareness, and professionalism [1, 5].

AEL was developed by Rogers and Farson in 1957 based on the person-centered approach and essentially goes beyond the words communicated, focusing on the emotions, experience, and self-understanding behind the words from the individual's perspective. This type of interaction not only helps individuals move beyond defense mechanisms but also makes them feel safe and

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reveals their capacity for change and development in a meaningful relationship. Because this relationship is mutual, it initiates a process of mutual transformation through developing self-awareness in both the speaker and listener [1]. Within this context, the value of AEL becomes even more apparent when considering nursing students preparing for their profession, which focuses on each person's uniqueness and involves constant interaction. From this, the communication process reaches into the speaker's inner world to ensure mutual interaction [1].

Nursing students are expected to adopt AEL and effective communication skills throughout their undergraduate education, during which their professional identities are established. The Nursing National Core Education Program (HUÇEP) determines the undergraduate nursing education curriculum in Turkey and describes the ability to communicate effectively as one of the core competencies [6]. AEL is fundamental in this competency, not only as a communication skill but also as a therapeutic tool [7]. In addition, within the scope of interaction theories, Peplau's Theory of Interpersonal Relationships argues that nurses should base their therapeutic relationships with individuals on active listening [8, 9]; however, Wiedenbach emphasizes the importance of empathy in understanding that individuals need help [10]. Considering all the emphases in the literature, it is essential that AEL be evaluated with a valid and reliable tool to transfer theoretical knowledge into practice and assess students' development throughout their education.

Developing AEL skills within the scope of nursing education should not be limited to theoretical education; rather, the acquisition, use, and transfer of these skills to clinical practice should also be addressed using quantitative data. According to Moudatsou et al., AEL is effective in revealing the therapeutic changes in the nurse–patient relationship; however, the lack of education on AEL is a significant obstacle to developing empathic listening skills. McKenna et al. have argued that nursing students generally possess "individual-oriented" AEL skills, which are not evaluated using a structured process and tool [7, 11]. Similarly, Albanesi et al. emphasized that active empathetic listening builds trust and that these skills should be developed in nursing students [12]. Tustonja et al. have reported that AEL stands out as an effective and multi-dimensional interpersonal communication skill in establishing meaningful links and promoting positive development [13]. Despite all these findings, a systematic review conducted by Hardie et al., comprising 24 studies on the development of interpersonal and communication skills in nurse preceptorship training programs between 2000 and 2021, has indicated that there is a significant lack of validated tools and evidence-based training programs aimed at assessing communication skills

in nursing education [14]. Based on all these findings, it is evident that tools for evaluating the listening skills of nursing students must be developed.

Considering the global importance placed on communication in health care, particularly in mental health and person-centered care, robust tools that assess listening skills are becoming increasingly important [15]. Existing measurement tools used to assess listening skills in Turkey assess only the type and frequency of listening skills [16–18] or focus on empathic resonance [19, 20]. In addition, none of these measurement tools were developed in a sample of nursing students, and none assessed AEL skills. The AEL Scale (AEELS) stands out as a measurement tool that is holistically and theoretically grounded in the components of mental engagement and emotional resonance of the listener [1, 2] and, in this respect, fills an important gap in the literature. Studies on the contributions of AEL skills in nursing students have frequently emphasized the need for a measurement tool and comprehensive program; therefore, the present study was conducted to examine the validity and reliability of the Turkish version of AEELS (AEELS-TR) and aimed to provide an academic evaluation of this scale in undergraduate nursing education.

Materials and methods

Study design and participants

This cross-sectional and methodological study was designed to adapt the AEELS to a Turkish version and verify its psychometric validity. The study population comprised nursing students ($N=750$) enrolled in the Faculty of Nursing at a university in Ankara, Turkey, during the 2022–2023 academic year. The study sample consisted of 416 students aged 18 years or older who voluntarily agreed to participate.

Missing data

During the preliminary screening, the responses of 11 participants were determined to be outliers (e.g., incomplete answers, inaccurate answers, questionnaire filled out without reading); therefore, these data were excluded from the study. Data from 405 participants were included in the final analysis.

The validity and reliability studies recommend a sample size of at least 5 to 10 times the number of participants [21, 22]. Accordingly, 55–110 participants were needed to conduct validity and reliability analyses of the 11-item AEELS. Based on all this criterion, the sample size of this study was considered to be in the adequate [21, 23, 24].

Ethical considerations and participant anonymity

The present study was conducted after receiving the approval of the ethics committee at a university in Ankara, Turkey, where the study was conducted. The

participants were invited to participate in the study through the university's official social media channels. Only individuals who accepted the online informed consent form were able to access the survey. Students were asked to use university-affiliated e-mail addresses during the data collection phase to enhance data reliability. Students' e-mail addresses did not include any name or surname information and were assigned randomly in numerical order, which ensured anonymity in the study. In addition, the researcher had no academic duty or administrative authority in the faculty at the university; therefore, the anonymity of the participants was maintained throughout the process. The study was conducted while observing the principles of voluntariness, confidentiality, and transparency as outlined in the Declaration of Helsinki.

Instruments

Sociodemographic data form

The sociodemographic data form was developed by the researchers based on a literature review [7]. It comprised five questions on the students' sociodemographic characteristics as follows: age, gender, marital status, class of study, and the person with whom they lived.

Active-empathic listening scale

The AELS is used to measure active-empathic listening skills from the listeners' perspectives. Originally developed by Drollinger et al. to assess the listening skills of sales representatives, it was later adapted for use in the general population [2, 25]. It is a 7-point Likert-type self-reporting scale with 11 items scored from 1 (never) to 7 (always). The AELS comprises three subscales to evaluate AEL as follows: sensing (items 1–4), processing (items 5–7), and responding (items 8–11). No item is reverse-scored in the scale. The lowest and the highest scores obtained from the scale are 11 and 77, respectively. Higher scores indicate stronger AEL skills. Cronbach's alpha (α) value of the scale in the study conducted by Drollinger et al. was 0.95 [25]. In the present study, the Cronbach's alpha value of the scale was 0.86.

Communication skills scale

The Communication Skills Scale (CSS) was developed by Owen and Bugay in 2014 to measure communication skills and is used to examine the criterion validity of the AELS in the present study. CSS is a 25-item 5-point Likert-type self-report scale comprising four subscales as follows: communication principles and basic skills (10 items), self-expression (4 items), willingness to communicate (5 items), and effective listening and nonverbal communication (6 items). These are scored between 1 (never) and 5 (always), and no item is reverse-scored in the scale. The lowest and highest scores obtained from the scale are

25 and 125, respectively. High scores indicate high communication skills. Cronbach's alpha internal consistency coefficient of the scale was 0.94 in Owen and Bugay's study [26]; it was 0.89 in the present study.

Translation of AELS into Turkish

The Brislin method was used to ensure language validity after obtaining the necessary permission from Bodie, the developer of AELS. This method involved the following three stages: translation, back translation, and integration [27]. During the translation stage, five academics, who were fluent in both languages, independently translated AELS from English to Turkish. These Turkish translations were compiled by two academics, one of whom was an expert in the field of psychiatric nursing and the other was in the Turkish language. Then, a draft form was created in Turkish after a consensus was reached on the scale items.

In the back-translation stage, two sworn translators, a public health specialist doctor, a psychiatric nurse, and a specialist nurse separately translated the scale back into English. Two authors of the study and two language experts reviewed these translations and assessed the consistency of the scale by comparing the original English form of the scale with the version translated back into English.

During the integration phase, a group of seven experts was formed, consisting of five academics specializing in nursing, a Turkish language expert, and an English language expert. A table containing the Turkish translation and the original English form of the scale was sent to the expert group by e-mail. The experts were asked to evaluate each item in terms of translation, back translation, language equivalence, linguistic appropriateness of scientific expression, and scale scoring within the framework of cultural adaptation [28].

Data collection

The data for this study were collected at the Faculty of Nursing of a university in Ankara between May 1 and June 1, 2023. The content validity of AELS was examined using the Davis technique before data collection. An expert opinion form comprising the scale in the original language, the Turkish translation, subscales, scoring method, and explanations about the measurement tools was sent to five faculty members who were experts in their fields through e-mail to evaluate the content validity.

Based on the Davis technique, experts were asked to assess each item of the scale in terms of translation accuracy, back translation, linguistic equivalence, linguistic appropriateness of scientific expression, and cultural adaptation on a 1- to 4-point scale [28]. The content validity index (CVI) for the items ranged from 0.80 to

1.00, indicating that a consensus existed on item clarity and appropriateness. The final Turkish version of the scale was created after ensuring content validity and verifying language equivalence. A pilot study was conducted with 25 students to test the comprehensibility of the scale. The students participating in the pilot study reported that the items were clear and understandable; therefore, no additional adjustments were needed. The students participating in the pilot study were not included in the main sample. The results of the pilot study confirmed that the items were understandable.

Study data were collected online using Google Forms because of the transition to hybrid education following the devastating earthquakes that occurred in Turkey in 2023. An informed consent form containing information about the study was sent to the participants electronically before sharing the data collection forms. Students who read and approved this form were given access to the survey form. The participation in the study was completely voluntary.

The data collection tools were created by the researcher using the Google Forms platform, preserving the form structure and layout. The forms were shared on student social media groups, and the responses were kept confidential, allowing only the researcher to access them. Data reliability was enhanced by requiring participants to use their university e-mail addresses. Only undergraduate nursing students were allowed to participate in the study.

The questionnaire took ~5 min to complete. Considering the recommended 2- to 4-week period to assess test-retest reliability, the data collection forms were administered again to 100 students 3 weeks after the first administration. The two datasets were matched through student numbers.

Data analysis

The study data were statistically analyzed using SPSS 25.0 [29]. AMOS 21.0 was used to create path diagrams [30]. The normality of the data was investigated using the Shapiro-Wilk test. The results of the descriptive statistical analyses were expressed as numbers, means, standard deviations, and percentage distributions. The conformity of the data to the normal distribution was examined using skewness and kurtosis values. The box plot graph for detecting outlier data revealed that 11 participants were identified as outliers and were therefore excluded from the analysis. Finally, the study was continued with 405 participants. The analyses conducted after removing the outlier data revealed that the data reached a normal distribution. During data analysis, two independent groups were compared using the independent-samples *t* test. For cases involving more than two independent groups, one-way analysis of variance was used. Cronbach's alpha reliability coefficient and Pearson's correlation coefficient

were calculated in test-retest analysis for assessing the reliability of the scale. The Hotelling *T*² test was used to analyze the response bias of the scale. The discrimination of the scale items was evaluated by ranking the total scores obtained from the scale from the highest to the lowest, and the lower 27% ($n = 109$) and upper 27% groups were formed. The item discrimination indices were calculated for the differences between these lower and upper groups. The content validity of the scale was evaluated using the CVI. Pearson's correlation coefficient was calculated for criterion validity. The confirmatory factor analysis (CFA) was conducted to assess construct validity. The root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), incremental fit index (IFI), goodness-of-fit index (GFI), non-normed fit index/Tucker-Lewis index (NNFI/TLI), comparative fit index (CFI), adjusted goodness-of-fit index (AGFI), and normed fit index (NFI) were calculated (e.g., RMSEA ≤ 0.08 ; SRMR ≤ 0.08 ; 0.85 \leq CFI, GFI, AGFI; 0.80 \leq IFI, TLI, NFI). A *p* value less than 0.05 indicated a statistically significant difference.

Results

Sociodemographic characteristics of nursing students

The mean age of the 405 participants in the study sample was 21.23 years. Most participants were female (90.1%), single (96.3%), and living with their families (51.9%). The sociodemographic characteristics of the participants are presented in Table 1. The mean total score of the participants was 58.29 ± 7.80 . It was 20.83 ± 3.41 for sensing, 15.06 ± 2.43 for processing, and 22.40 ± 3.37 for the responding subscales. Students who have received training in listening skills have been found to have higher overall AELS average scores compared to students who have not received such training ($t = 3.66$, $p < 0.001$) (Table 1).

Reliability

Item-total score correlations

In correlation-based item analysis, the item-total score correlation coefficient is calculated between each item and the scale total score, excluding that item. Cronbach's alpha value is recommended to be at least ≥ 0.30 in item-total score correlation. When an item has a low correlation with the total score, it indicates that the item does not adequately reflect the characteristic to be measured [21]. In the present study, Cronbach's alpha coefficient and item-total score correlation coefficient were used to test the reliability of the scale. The item-total score correlation coefficients of the items in the scale varied between 0.33 and 0.64. These values indicated that the items had sufficient discriminating power (Table 2).

Table 1 Descriptive characteristics of the participants ($n=405$)

Variable	n (%)
Age ($M \pm SD$)	21.23 \pm 2.46
Sex	
Male	40 (9.9)
Female	365 (90.1)
Marital status	
Single	390 (96.3)
Married	15 (3.7)
Number of siblings	
Only child	14 (3.5)
Two	178 (44.0)
Three	140 (34.6)
Four or more	73 (18.0)
Year of study	
1st year	95 (23.5)
2nd year	98 (24.2)
3rd year	122 (30.1)
4th year	90 (22.2)
Chose nursing voluntarily	
By own decision	309 (76.3)
Other's decision	96 (23.7)
Living arrangement	
With family	210 (51.9)
With friends	24 (5.9)
Alone	29 (7.2)
Dormitory	142 (35.1)
Received training in listening skills	
Yes	104 (25.7)
No	301 (74.3)

Internal consistency (Cronbach's alpha)

Internal consistency analysis is conducted to determine how well the scale items align with each other and the extent to which each item measures the intended concept. In this analysis, the Cronbach's alpha coefficient values obtained between 0 and 1 are interpreted as follows: 0.00–0.40 indicates no reliability, 0.40–0.60 indicates low reliability, 0.60–0.80 indicates high reliability, and 0.80–1.00 indicates extremely high reliability. In Likert-type

scales, just like the AELS, Cronbach's alpha coefficient is recommended to be >0.70 [31]. Cronbach's alpha coefficient of the AELS was calculated as 0.86, indicating that the scale was highly dependable. It was observed that there was no increase in the Cronbach's α coefficient when any item was removed from the scale. The findings of the study complied with the values in the original and other versions of the scale (0.82–0.95).

Test-retest reliability

The test-retest analysis is used to determine the invariance—or, in other words, the stability—of a measurement tool over time [32]. Previous studies have indicated that a period of 2–4 weeks is sufficient for retesting, and a sample size of 25–50% is considered sufficient for this analysis [21, 33]. In the test-retest analysis of the AELS, the statistical significance of the difference in total mean scores was examined, and reliability was assessed by calculating the correlation coefficient (r). An reliability coefficient ≥ 0.70 is sufficient r [21].

In this study, the retest was conducted approximately three weeks after the initial application (average 21 days, range 20–23 days) with 100 students, corresponding to 25% of the sample. A significant and highly positive correlation was observed between the scale scores ($r=0.71$; $p<0.01$), which indicated acceptable temporal stability.

Scale response bias

The sociodemographic characteristics of the participants can influence their responses while answering the scale items. Whether the participants' responses to the scale items are equal is measured based on response bias in assessing the reliability of a scale [34]. The tendency of participants to mark all items similarly could suggest that they did not carefully evaluate the measurement and therefore responded with bias. In the present study, the response bias was assessed using Hotelling's T^2 test, and no significant response bias was found ($T^2 = 350.961$, $p < 0.01$).

Table 2 Item analysis results based on Item-Total correlation coefficient of AELS-TR

Item	Scale item	Item-total correlation	Cronbach's alpha if item deleted
1	I am sensitive to what others are not saying.	0.438	0.858
2	I am aware of what others imply but do not say.	0.629	0.848
3	I understand how others feel.	0.555	0.848
4	I listen for more than just the spoken words.	0.586	0.844
5	I assure others that I will remember what they say.	0.337	0.859
6	I summarize points of agreement and disagreement when appropriate.	0.393	0.855
7	I keep track of the points others make.	0.404	0.850
8	I assure others that I am listening by using verbal acknowledgements.	0.627	0.846
9	I assure others that I am receptive to their ideas.	0.649	0.844
10	I ask questions that show my understanding of others' positions.	0.603	0.846
11	I show others that I am listening by my body language (e.g., head nods).	0.609	0.848

Note. Cronbach's $\alpha \geq 0.30$

Validity

Construct validity

The CFA was used to evaluate the construct validity of the AELS for nursing students [28, 35]. Table 3 shows the CFA results and goodness-of-fit indices for the AELS items.

The fit between the model and the data is evaluated through goodness-of-fit indices, and these indices are expected to be at certain levels in CFA. A χ^2/SD value of < 5 is considered an acceptable criterion for model fit [35]. Among the goodness-of-fit indices, values ≥ 0.85 for CFI, GFI, and AGFI are acceptable, whereas values ≥ 0.95 indicate a perfect fit. For RMSEA and standardized root mean square residual (SRMR), the range of 0.05–0.08 indicates acceptable fit and 0.00–0.05 indicates excellent fit [36, 37]. Based on the CFA results obtained in this study, $\chi^2/SD = 1.78$ was found among the GFI of the related scale. This result showed that the χ^2/SD value was < 5 and the model fit the data perfectly. Other statistical indices were also calculated to further evaluate the fit of the model (RMSEA = 0.04, GFI = 0.96, CFI = 0.97). Previous studies recommend examining more than one value to evaluate the fit of the model, and these values indicate that the model fits the data well [35]. All items showed acceptable factor loadings; therefore, the items were retained (see Table 3; Figs. 1 and 2). It was concluded that the Turkish version of the scale was compatible with the theoretical structure of the original English form and had high construct validity ($\chi^2/SD = 1.78$, RMSEA = 0.04, SRMR = 0.03, CFI = 0.97, GFI = 0.96, AGFI = 0.95, IFI = 0.97, TLI = 0.96, NFI = 0.94) (See Table 4).

Criterion validity

The moderate level, positive, and significant correlation between AELS and CSS ($r = 0.67$; $p < 0.001$) supported the criterion validity of AELS-TR. In addition, significant correlations, generally of moderate magnitude, were

found between the subscales of the AELS-TR and the subscales of the CSS ($r = 0.35$ – 0.63 , $p < 0.001$).

Discussion

AEL is a fundamental communication skill for nurses in establishing effective therapeutic relationships owing to its nonjudgmental nature and ability to foster trust. This skill enhances interaction and quality in person-centered care by facilitating the understanding of both verbal and emotional content. Because communication is based on mutual understanding, bonding, and sincerity in Turkish culture, reflection and empathetic resonance are important [38]; therefore, acquiring this skill is critically important for nursing students to establish effective and therapeutic communication [7]. Despite the significance of these skills, a measurement tool that can assess AEL skills of nursing students in Turkey is lacking [16–18]; therefore, the present study aimed to adapt AELS into Turkish for nursing students and evaluate its psychometric properties.

In the present study, the mean total AELS score was 58.29 ± 7.80 , and the mean scores of the subscales were 20.83 ± 3.41 for sensing, 15.06 ± 2.43 for processing, and 22.40 ± 3.37 for responding. The lowest average score among the subscales was in the “processing” subscale, and this finding is consistent with similar studies in the literature [7, 12]. The processing dimension involves complex cognitive skills, such as understanding the meaning of the message conveyed, interpreting underlying implications, evaluating within context, and remembering [2, 25]. In this study, it is thought that the fact that 74.3% of the students had not previously received any training in listening skills contributed to their low scores on the processing dimension. In addition, the fact that students who receive training in listening skills achieve higher scores demonstrates the importance of integration of education modules focusing on AEL skills into nursing education programs aimed at developing empathetic communication.

The distribution of participants in the study was 90.1% female, which aligns with the demographic structure of nursing faculties in Turkey [39, 40]. Although the distribution ratio is consistent for Turkish context, the low representation of male students may have limited the validity of the scale. Similarly, in the Italian AELS adaptation study by Albanesi et al. (2024), the gender distribution of the sample was also similar and was not considered a limitation [12]. Similar gender distribution ratios have also been reported in other adaptation studies [41]. However, considering that the female-dominated distribution may positively influence active empathetic listening skills due to gender roles, it is recommended that further studies be conducted on populations with a balanced gender distribution.

Table 3 Standardized factor loadings of the AELS-TR obtained from CFA

Item	Factor	Factor Loading (λ)
AELS 1	Sensing	0.51
AELS 2	Sensing	0.72
AELS 3	Sensing	0.68
AELS 4	Sensing	0.74
AELS 5	Processing	0.47
AELS 6	Processing	0.56
AELS 7	Processing	0.63
AELS 8	Responding	0.71
AELS 9	Responding	0.76
AELS 10	Responding	0.71
AELS 11	Responding	0.69

Note. λ =Standardized factor loading

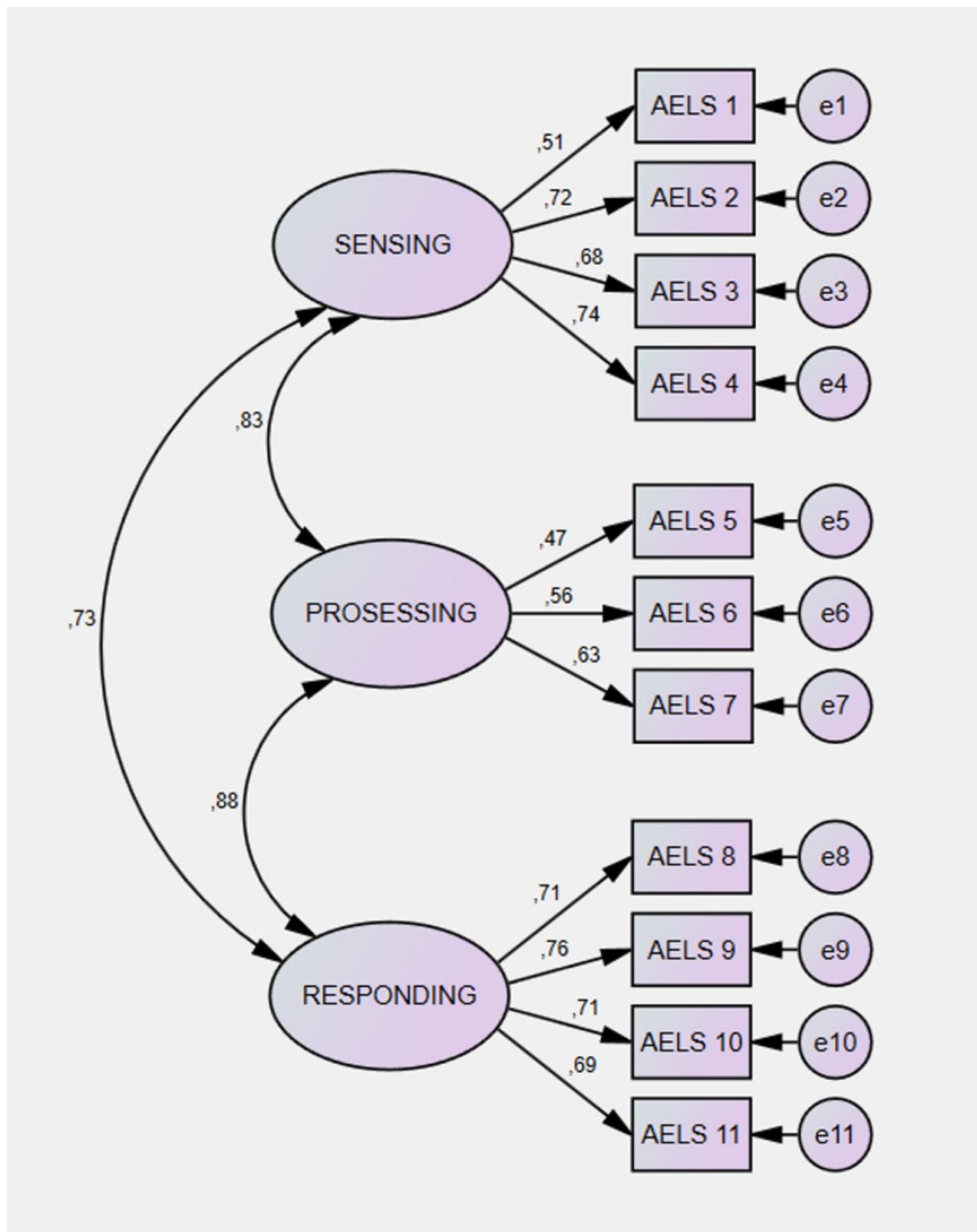


Fig. 1 Standardized item loadings and factor correlations from CFA of the AEELS-TR ($n=405, p < 0.001$)

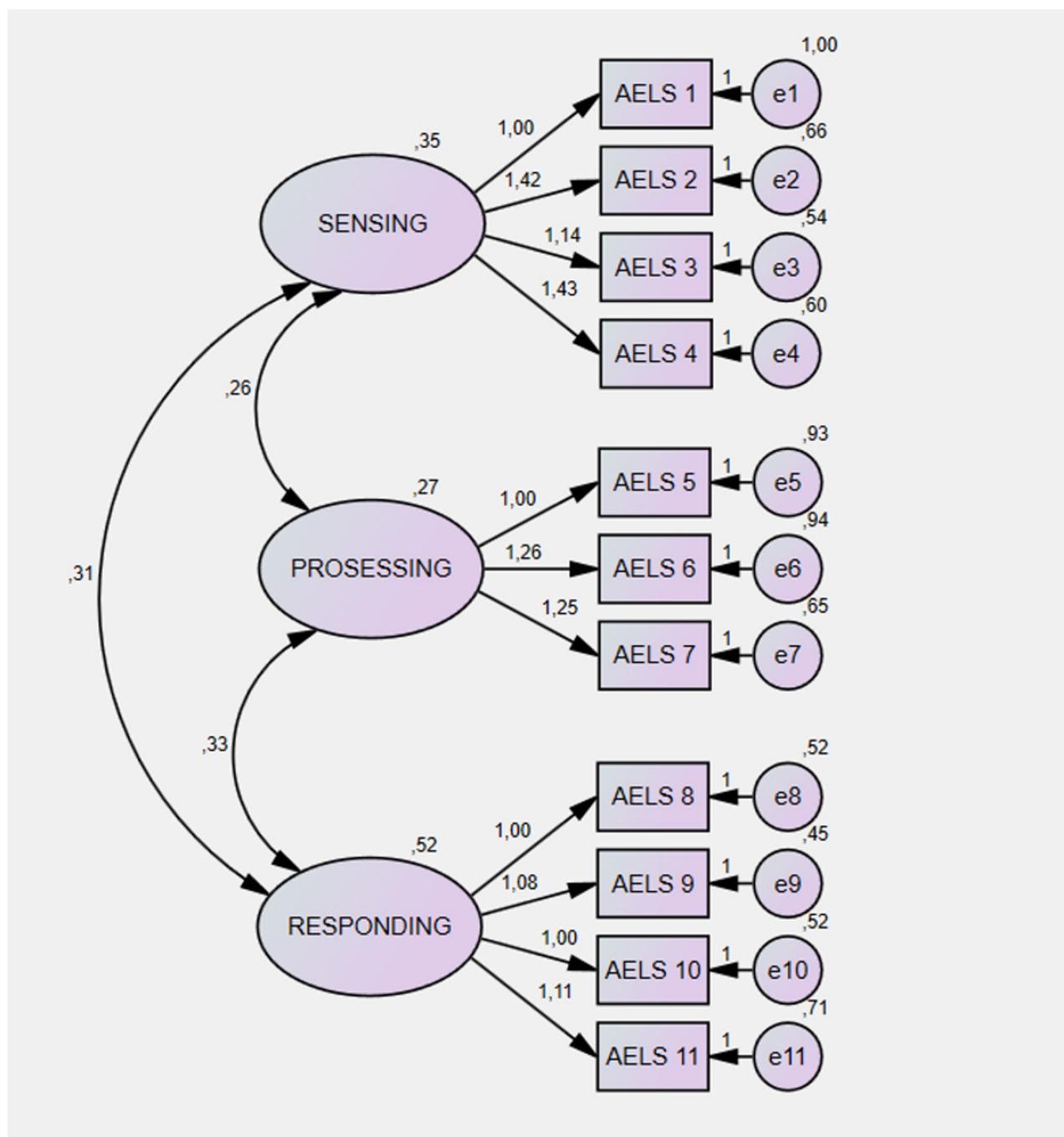


Fig. 2 Unstandardized item loadings and factor correlations from CFA of the AEELS-TR

The study was conducted in a nursing faculty accredited at the national level, which admits students from culturally diverse regions of Turkey. This ensures that the curriculum of the faculty is standardized and consistent with that of many other national nursing faculties. Furthermore, the inclusion of students from all academic years enhances the representativeness of the AEELS-TR in terms of broader validity. However, since the data collection phase coincided with the implementation of hybrid

education following the 2023 earthquake in Turkey, opportunities for multi-center data collection were limited. Therefore, testing the AEELS-TR in different institutions is recommended to strengthen its external validity.

In this study, the reliability of the AEELS was evaluated using item-total score correlation analysis, Cronbach's alpha reliability coefficient, item analysis based on lower-upper group averages, test-retest reliability, and response bias analyses for the scale.

Table 4 CFA model fit indices for the AELS-TR

Index	Good fit criteria	Acceptable fit criteria	Model value
χ^2			73.248
df			41
p			0.001
χ^2/df	$0 \leq \chi^2/df \leq 3$	$3 \leq \chi^2/df \leq 5$	1.787
RMSEA	$0.00 \leq RMSEA \leq 0.05$	$0.05 \leq RMSEA \leq 0.08$	0.044 (90% CI: 0.027–0.060)
SRMR	$0.00 \leq SRMR \leq 0.05$	$0.05 \leq SRMR \leq 0.08$	0.033
CFI	$0.95 \leq CFI$	$0.85 \leq CFI$	0.977
GFI	$0.90 \leq GFI$	$0.85 \leq GFI$	0.969
AGFI	$0.90 \leq AGFI$	$0.85 \leq AGFI$	0.950
IFI	$0.90 \leq IFI \leq 1.00$	$0.80 \leq IFI$	0.977
TLI	$0.90 \leq TLI$	$0.80 \leq TLI$	0.969
NFI	$0.90 \leq NFI$	$0.80 \leq NFI$	0.949

Note. χ^2 =Chi-squared; df=Degrees of Freedom; RMSEA=Root Mean Square Error of Approximation; SRMR=Standardized Root Mean Square Residual; CFI=Comparative Fit Index; GFI=Goodness of Fit Index; AGFI=Adjusted Goodness of Fit Index; IFI=Incremental Fit Index; NFI (TLI)=Non-Normed Fit Index

In this study, the item-total correlation coefficients ranged from 0.33 to 0.64. When items close to the cutoff value were removed, no significant increase in the overall reliability of the scale was observed. Therefore, all items were assessed as having sufficient discriminative power, and the original structure was preserved. The findings on internal consistency and test-retest reliability ($\alpha = 0.86$; $r = 0.71$) are consistent with the original and translated versions of the scale, supporting the stability and internal consistency of the AELS-TR [2, 42–44]. The Hotelling T^2 test revealed that no response bias was present.

Validity refers to the extent to which the variable to be measured is determined in all aspects and to what extent it is separated from other variables [33]. The scales are developed based on the language and cultural context of the society in which they will be used, and therefore it is necessary to adapt AELS to the Turkish language and culture for nursing students [45, 46]. Within this context, the adaptation of AELS for nursing students started with ensuring language validity and then continued with the evaluation of content validity.

Content validity refers to the extent to which the scale and its items represent the conceptual structure being measured [47]. The content validity index (CVI) of the items was calculated based on expert opinion. Scales with a CVI value of ≥ 0.80 are considered acceptable in terms of content validity [32]. In the present study, the CVI values of each item in the scale were >0.80 ; therefore, it was concluded that the scale items accurately and holistically reflected the variable they aimed to measure.

Face validity is used to assess the clarity, appropriateness, and comprehensibility of the words and expressions in the scale items [33]. The face validity of the AELS was assessed by three individuals who are researchers,

consultants, and experts in the field of psychiatric nursing. As a result, the scale items were deemed clear, comprehensible, and appropriate; therefore, face validity was established.

Construct validity is assessed to determine the extent to which a measurement tool accurately captures characteristics such as behaviors, attitudes, and concepts that are not directly observable and are difficult to quantify [35]. In the present study, only CFA was conducted to assess the construct validity of the scale. A three-factor structure was defined in the original form of the scale [2], which was confirmed in the adaptation studies in Japan [43], China [42], and Greece [44]. Moreover, the sample size of the study met the minimum number of participants required for CFA [21, 22]. Based on the analysis results, the GFI values were $\chi^2/SD = 1.78$, RMSEA = 0.04, SRMR = 0.03, CFI = 0.97, GFI = 0.96. These results showed that the model provided an excellent fit to the data [35]. Although some goodness-of-fit indices (e.g., CFI = 0.97, GFI = 0.96) indicate an excellent level of fit, it is thought that the homogeneous sample structure may have contributed to this. All items have acceptable factor loadings, and it was decided that no items need to be removed from the scale.

The present study found a statistically significant, positive, and moderate correlation between AELS and CSS ($r = 0.67$; $p < 0.001$). The moderate and significant correlations between the “active listening” and “self-expression” subscales of the CSS and the “sensing” and “responding” subscales of the AELS-TR demonstrate a theoretically justifiable relationship between the two instruments [26]. However, the weaker correlations observed with the “processing” subscale suggest that the CSS may not fully capture the cognitive depth measured by the AELS. Nevertheless, the theoretical and conceptual consistency among the instruments supports the appropriateness of using CSS for criterion validity, consistent with previous study findings [42, 43].

The validity and reliability test results of AELS-TR for Turkish cultural appropriateness demonstrate the scale’s compatibility with international communication standards. In addition, similar results obtained in adaptation studies conducted in different cultural contexts increase the cross-cultural validity of AEL [42–44]. However, it is recommended that AELS-TR be retested in different clinical settings and professional nursing branches to increase its generalizability.

Limitations of the study

This study had some limitations. First, the present study was conducted in a single center and only at one faculty, thus hindering the generalizability of the results obtained and the establishment of a cause–effect relationship. The results obtained could not be directly generalized

to nursing students or other health disciplines in various countries; they were limited to the sample group participating in this study. Second, severe earthquakes occurred in the southeast of Turkey during the data collection process, and the university students switched to hybrid education; consequently, the data could not be collected face to face. This situation led to risks such as self-selection bias and response fatigue; however, during the data collection process, students were invited to participate in the study through official social media groups without any guidance, and participation was entirely voluntary. The participants' informed consent was obtained online. The support of the participants for data collection by participating in the study, even during this extraordinary period, can be considered a factor that strengthens the reliability of the study data. The gender distribution of the sample was unbalanced (see Discussion section), which may limit the generalizability of the results across genders.

Conclusions and recommendations

This study revealed that AELS-TR is a valid and dependable measurement tool for assessing AEL skills in the context of interpersonal communication in nursing students. Based on the study results, AELS-TR retained its original three-factor structure and demonstrated high internal consistency and construct validity. The findings emphasized the importance of linguistic and cultural adaptation in the validity studies of measurement tools. AELS-TR should be integrated into theoretical nursing courses; developments in active teaching techniques, such as simulation applications; should be monitored, and it should be used in the creation of individualized education programs. In addition, future studies should test the psychometric properties of the scale using different samples, especially in other groups of healthcare professionals, aiming to increase the generalizability of the results.

Abbreviations

AEL	Active empathic listening
AELS	Active-Empathic Listening Scale
AELS-TR	Active-Empathic Listening Scale Turkish Version
CSS	Communication Skills Scale
CFA	Confirmatory factor analysis

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12912-025-04122-5>.

Supplementary Material 1

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Author contributions

Handan Özçilnak Ünver: Conceptualization, Methodology, Software, Investigation, Data curation, Writing – original draft, Project administration. Çiğdem Yüksel: Conceptualization, Investigation, Data curation, Writing – review & editing, Project administration. All authors meet the authorship criteria according to the guidelines of the International Committee of Medical Journal Editors, and all authors agree with the manuscript.

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Data availability

The datasets generated and/or analyzed during the current study are not publicly available due to ethical considerations and confidentiality agreements but are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

This study protocol was approved by the University of Health Sciences GÜLHANE Scientific Research Ethics Committee (Number: 46418926 Decision No: 2022-200). In addition, written permission was obtained from the Dean's Office of the Faculty of Nursing, GÜLHANE Campus, University of Health Sciences (Number: E-66181794-100-109320). The study was conducted in accordance with the principles of the Declaration of Helsinki. Before the study, participants were informed online about the purpose, scope and confidentiality principles of the study and digital informed consent was obtained from those who voluntarily agreed to participate. All participants understood and signed the informed consent and their privacy was kept strictly confidential. Clinical trial number: not applicable.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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