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ORIGINAL ARTICLE

Filipino Translation, Cross-Cultural Adaptation and Validation of the American Orthopaedic Foot and Ankle Society's (AOFAS) Ankle-Hindfoot Scale

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ABSTRACT

Background. Injuries about the foot and ankle account for a significant number of injuries that may lead to substantial functional impairment and disability. A standardized method of outcome assessment is necessary to evaluate and monitor patients' progress. One commonly used evaluation system is the American Orthopaedic Foot and Ankle Society (AOFAS) Ankle and hindfoot scale. The purpose of this study was to translate the AOFAS Ankle-Hindfoot scale into Filipino and establish its cultural adaptation and validity.

Methodology.: This was a single-center cross-sectional study that included patients with ankle and hindfoot conditions who took part in the evaluation of the proposed Filipino translation of the Ankle-Hindfoot Scale, following the guidelines set by the AOFAS. Construct validity and test-retest reliability were analyzed using intra-class correlation coefficients; internal consistency was analyzed with Cronbach's alpha. A Rasch principal components analysis was also used to test for reliability and construct validity.

Results. Cronbach's alpha was measured at 0.98 in terms of function, while the item separation index showed good internal consistency of the construct. Rasch analysis confirmed that the construct is a multidimensional metric. Intra-class correlation using Pearson's coefficient was significant at 0.8779 (p <0.05), showing good test-retest reliability, while convergent validity confirmed a strong positive correlation between the overall AOFAS score and the health perception domain of the Medical Outcomes Study Questionnaire Short Form-36 (SF-36 v2) (Tagalog) (Pearson = 0.647).

Conclusions. The Filipino translation of the AOFAS Ankle-Hindfoot Scale was successfully translated and culturally adapted to Filipino patients, with good internal consistency. We have likewise demonstrated a good correlation against a general health outcome measure (SF-36 v2) in terms of change in health perception and role limitation (physical).

Keywords. AOFAS, ankle and hindfoot, validation, cultural adaptation, Filipino

INTRODUCTION

Injuries about the foot and ankle account for a significant number of injuries that may lead to functional impairment and disability. Foot and ankle pain represents a substantial community burden among middle-to-older age individuals, being present in approximately one out of five individuals. Among the younger population, particularly athletes, 25% of reported injuries over a 6.5-year period occur around the foot and ankle.[1] Treatment is better evaluated using standardized outcome measures, as evidenced in scientific literature, which allows the health care professional to quantify disability and monitor the progress of treatment in a patient, and/or for public researchers to evaluate the outcome of different health services.

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The American Orthopaedic Foot and Ankle Society (AOFAS) survey was developed in 1994 by Kitaoka's group for clinicians to assess outcome measures for patients with foot and ankle dysfunctions,[2] and at present is one of the most widely used outcome measures by clinicians. Originally in the English language, it explores both subjective and objective experiences of pain, alignment, and function, intended to be completed collaboratively by both the clinician and the patient. The AOFAS has different versions assigned to the four different regions of the foot and ankle, namely: the ankle-hindfoot, midfoot, metatarsophalangeal (MTP)-interphalangeal (IP) for the hallux, and MTP-IP separately for the lesser toes. This evaluation tool is subdivided into three categories: pain, functional aspects, and alignment. The total score consists of 100 points, with a higher score indicating a more favorable clinical status.[2] Since its inception, this assessment tool has been one of the most widely used by orthopedists due to its ease of application and its replicability. There have since emerged several versions of this scoring system in other languages: Persian, Turkish, Italian, Dutch, German, Arabic, and Portuguese, with some studies limiting their translation to the Ankle-Hindfoot score.[3] The need to translate and culturally adapt this questionnaire emerged from the need to maintain the content validity of the instrument. As outlined by Guillemin et al., cross-cultural adaptation is required in the setting when the source questionnaire will be used in another country with another language, wherein there exists a culture change that may influence the participant's response. Cross-cultural adaptation therefore ensures that the psychometric properties of the construct are retained to reach semantic, experiential, and conceptual equivalence.[4] Currently, there has been no version of the AOFAS survey in the Filipino language for any of the versions. The high rate of injuries and pathologies centering on the ankle and hindfoot in daily activities, sports, and the like, led us to a particular interest in developing a Filipino translation of the Ankle-Hindfoot scale.

This study was developed to establish the validity, cultural adaptability, and internal consistency of a Filipino translation of the AOFAS Ankle-Hindfoot scale.

METHODOLOGY

Translation process

Translation of the AOFAS questionnaire was done following the guidelines set by the American Association of Orthopedic Surgeons. Permission to translate the AOFAS Ankle-Hindfoot scale into Filipino was sought and subsequently granted by the research division of the American Orthopaedic Foot and Ankle Society Research Committee after correspondence.

Forward translation (English to Filipino) was done by two native Filipino speakers who are fluent in the English language. The first translator was knowledgeable on the AOFAS (AOFAS T1) while the second translator had no prior experience to produce a version (AOFAS T2) that could be generally understood by the general population. Upon consultation with linguist experts from the Sentro of Wikang Filipino, both translations were compared, discussed, and then synthesized to resolve any discrepancy and labeled as AOFAS T1-2. It was agreed early on to retain the English terminologies in the anatomical and joint movements portion of the scale.

Backward translation (Filipino to English) of the questionnaire to the original language was then performed by another set of people to check the validity of the translated version and compare it to the original AOFAS version. Two back translations were done by two bilingual persons with English as their mother tongue and likewise had no medical background and were blinded to the purposes of the study.

An expert committee comprising the investigators, a language professional, and the forward and backward translation team consolidated all versions and components of the questionnaire to develop a pre-final version in terms of semantic, idiomatic, experiential, and conceptual equivalence. The anatomical and joint movement portion of the questionnaire (AOFAS physician part) was not translated into Filipino terms as there were no equivalent translations, and doing so may have caused an error in its application. No pre-testing was done.

Study design

This was a cross-sectional study that included patients with established diagnoses of ankle and hindfoot conditions, which were confirmed via imaging and clinical examination. A list of patients was selected from the Institute of Orthopedics and Sports Medicine patient census (for both private and social service cases) and screened for eligibility. The study covered patients who had a diagnosis of a single ankle and hindfoot pathology from Jan 1, 2018, to Dec 31, 2019.

Inclusion criteria for the study were: (1) 18 years of age and above with a good comprehension of the Filipino language, (2) patients with an existing single ankle and hindfoot pathology as confirmed by an orthopedist who could answer the administered AOFAS Ankle and Hindfoot scale questionnaire. Exclusion criteria were: (1) patients who had coexisting injuries, such as polytrauma; (2) patients with cognitive impairment; and (3) patients who were nonambulatory at the time of the survey.

Data collection and outcomes

The list of patients was retrieved from the existing census of the institution, with priority for the social service patients who fit the eligibility criteria, followed by the list of private patients. Data collected included patient demographics, diagnosis, operative details if any, and additional contact details from the electronic hospital records. Patients who were administered the questionnaires were contacted via a telephone call and video consult, after giving verbal and signed consent (sent electronically by the principal investigator). The first 30 patients who responded were included in the study. The same subset of patients was also made to answer the Tagalog

version of the Medical Outcomes Study Questionnaire Short Form-36 (SF-36) v2, the score of which was used to check for construct validity.

Intra-interviewer reproducibility was checked by contacting the same patients within 7–14 days to obtain a new assessment using the Filipino AOFAS Ankle-Hindfoot scale.

The internal consistency of the questionnaire was assessed using Cronbach's alpha using a 95% confidence interval. A good value of the alpha was set at 0.7 to 0.95.[5] A Rasch Principal Components Analysis (item reliability index, person separation, and reliability index) was also employed to further check the reliability of the instrument.[6]

Test-retest reliability and intra-interviewer reproducibility were determined by obtaining the intra-class correlation (ICC) and Pearson's correlation coefficient, with the level of significance set at 5%. Koo and Li outlined the interpretation of the ICC with a coefficient of <0.50 as poor, 0.50–0.75 as moderate, 0.75–0.90 as good, and above 0.90 as excellent.[7]

To establish construct validity, we correlated the results against a widely accepted and commonly used general health outcome tool, in the form of a validated SF-36 questionnaire, for which a Filipino version is also available.[8]

Statistical analysis

WINSTEPS® Rasch Analysis and Rasch Measurement software and R statistical software were used for data analysis for the previously mentioned outcome measures. The Rasch analysis is a statistical model-based latent trait psychometric technique that allows examination of the fit between the rating scale data and the prescriptive Rasch statistical model.

Descriptive statistics were used to summarize the clinical and demographic data of the study participants. Frequency was utilized for nominal variables, while the median was employed for data with a range, and the mean, along with its standard deviation and coefficient of variation, was utilized for quantitative variables. The level of significance was set at a p <0.05.

RESULTS

We analyzed a total of 30 patients who had an existing diagnosis of ankle and/or hindfoot conditions. The mean age was 45 years old with a range of 21 to 75 years old, with a higher percentage of female participants (Table 1). Fifty-three percent of the patients had attended high school while the rest held a college degree. The diagnosis of plantar fasciitis comprised the greatest number of respondents, followed by patients who sustained isolated lateral malleolus fractures (Table 2). The mean overall score for the AOFAS Ankle-Hindfoot scale was 87.96 (range: 67-100), with an SD of 7.499 (Table 3) while the summary of the corresponding SF-36 v2 subscale scores are likewise seen in Table 4.

Table 1. Sociodemographic and clinical characteristics of patients included in validation and translation process of AOFAS scale for ankle and hindfoot

	Median (Range); Frequency (%)
Age (years)	47.5 (21–75)
Sex	
Male	11 (36.6%)
Female	19 (63.33%)
Educational attainment	
College graduate	14 (46.67%)
High school graduate	16 (53.33%)

Table 2. Distribution of diagnoses

Diagnosis	Frequency (%)
Achilles tear	1 (3.33)
Achilles tendinitis	5 (16.67)
Post-traumatic arthritis	1 (3.33)
Malunion, bimalleolar ankle	2 (6.67)
Bimalleolar fracture	2 (6.67)
ATFL sprain	4 (13.3)
Lateral malleolus fracture	6 (20)
Plantar fasciitis	8 (26.67)
Trimalleolar fracture	1 (3.33)
Grand Total	30 (100)

Table 3. Distribution of scores based on AOFAS Ankle-Hindfoot Scale

Statistics	Mean	Median	SD	Min	Max
Pain	32.333	30	5.040	20	40
Function					
Restraints in activities	8.300	7	1.512	7	10
Maximum walking distance	4.133	4	0.973	2	5
Walking surface	4.400	5	0.932	3	5
Gait abnormality	7.733	8	1.015	4	8
Sagittal mobility	7.467	8	2.030	0	8
Hindfoot mobility	5.600	6	1.522	0	6
Stability	8.000	8	0	8	8
Alignment	10.000	10	0	10	10
Overall	87.967	89	7.499	67	100

Table 4. Distribution of scores based on SF-36 v2 (Tagalog)

Statistics	Mean	Median	SD	Min	Max
Physical function	78.833	80	7.953	55	90
Social function	73.200	78	23.116	11	100
Mental health	86.267	88	12.236	36	100
Pain	78.667	78	14.587	33	100
Change in health	64.167	62.5	18.198	25	100
Role limitation – physical	76.667	75	28.567	0	100
Role limitation – mental	88.933	100	26.705	0	100
Energy/vitality	77.667	80	9.803	55	100
Health perception	79.700	82.5	15.733	35	100

Table 5. Reliability using Cronbach's alpha of AOFAS Ankle-Hindfoot Scale

Item	Size	Sign	Correlation	Item-test correlation	Item-rest covariance	Cronbach's alpha
Pain	30	+	0.6043	0.319	2.1714	0.6691
Restraints in activities	30	+	0.3324	0.2385	2.8868	0.6667
Maximum walking distance	30	+	0.3928	0.3358	2.9090	0.6647
Walking surface	30	+	0.7271	0.6957	2.6942	0.6424
Gait abnormality	30	+	0.6331	0.5899	2.7270	0.6464
Sagittal mobility	30	+	0.6331	0.5409	2.4153	0.6211
Hindfoot mobility	30	+	0.6331	0.5661	2.5589	0.6321
Overall	30	+	1	1	0.4588	0.3997
Test Scale					**2.3527**	**0.6693**

Table 6. Reliability using Rasch Model for the AOFAS Ankle-Hindfoot Scale

Dimension	Cronbach's alpha		Persons	Item
All	0.6693	Separation	1.46	7.10
		Reliability	0.68	0.98

The questionnaires were administered via videoconference. Each item of the questionnaire was read and explained to the patient and their corresponding response was recorded. Due to the nature of the format, it took more time to gather the responses. The clinician-reported items were also challenging to document through videoconference.

Internal consistency, reliability, and construct validity

Internal consistency for the nine-item scale was computed to have a Cronbach alpha of 0.6693 (acceptable is at least 0.7) (Table 5). Rasch component analysis was made to also check for internal consistency with a computed item separation index of 0.98 (Table 6). A separate analysis was also done to check for reliability based on the dimension of Function (Table 7) alone and was found to have a good Cronbach's alpha value of 0.814. Rasch analysis was used to further analyze the overall low Cronbach alpha. Taking all questionnaire items together, the index of raw variance was found to be 81.9% but with noted unexplained variance above the ideal value of 2 (Eigenvalue: 4.62) (Table 8). Point Measure Correlation indices were all positive which indicates that all questionnaire items pointed towards the same construct (Figure 1).

Test and retest reliability were determined to be at 0.8779 (95% CI: 0.7596 - 0.94, p <0.001) for both ICC and Pearson's correlation coefficient (Table 9).

Construct validity measured by obtaining Pearson's correlation coefficient a showed a strong positive correlation between the overall AOFAS score and the health perception domain of the SF-36 v2 (Tagalog) (Pearson = 0.647, p = 0.0001, 95% CI: 0.3661–0.8138), a moderate positive correlation between AOFAS scale and the domains of social function (Pearson

Table 7. Reliability using Cronbach's alpha for the Function dimension of the AOFAS Ankle-Hindfoot Scale

Item	Size	Sign	Correlation	Item-test correlation	Item-test covariance	Cronbach's alpha
Restraints in activities	30	+	0.5335	0.3157	0.9646	0.8439
Maximum walking distance	30	+	0.4282	0.2822	1.0646	0.834
Walking surface	30	+	0.6501	0.5456	0.9432	0.7976
Gait abnormality	30	+	0.9126	0.8762	0.7674	0.7411
Sagittal mobility	30	+	0.9126	0.8146	0.5209	0.7289
Hindfoot mobility	30	+	0.9126	0.8496	0.6184	0.7151
Test Scale					**0.8132**	**0.814**

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTMEASUR-AL CORR.	PTMEASUR-AL EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	Item
13	240	30	-2.15	.33	.65	-.97	.25	-2.88	.00	.60	93.3	72.2	I0013
3	124	30	2.48	.17	1.07	.32	1.55	1.68	.48	.72	53.3	40.2	I0003
1	234	30	-1.54	.30	2.46	2.67	2.84	3.11	.53	.66	.0	74.1	I0001
5	132	30	2.25	.17	.69	-1.15	.86	-.41	.71	.73	70.0	39.8	I0005
7	232	30	-1.37	.29	.49	-1.43	.22	-2.68	.87	.67	93.3	73.3	I0007
9	224	30	-.80	.24	3.17	4.36	1.85	2.01	.87	.67	73.3	60.3	I0009
11	168	30	1.14	.17	.46	-2.56	.35	-3.29	.87	.68	73.3	40.6	I0011
MEAN	193.4	30.0	.00	.24	1.28	.2	1.13	-.4			65.2	57.2	
P.SD	47.0	.0	1.77	.06	1.00	2.3	.92	2.5			29.6	15.3	

Figure 1. Point measure correlation index.

Table 8. Standardized Residual Variance in Eigenvalue Units

Dimension	Eigenvalue	Observed
All		
Raw variance explained by measures	31.7657	81.9%
Unexplained variance in 1st contrast	4.62	14.6%

= 0.4975, p = 0.0052), energy/vitality (Pearson = 0.4891 p = 0.0061), and role limitation (physical) (Pearson = 0.4188, p = 0.0213) (Table 10).

DISCUSSION

The original AOFAS questionnaire is in the English language, and while our familiarization with English allows us to understand and converse in it, using the original AOFAS questionnaire in our country can introduce cultural differences that may impede accurate interpretation or measurement. As such, these instances require cultural adaptation and translation to maintain the equivalence and validity of the instrument.[4]

This study was able to create a Filipino translation of the AOFAS Ankle-Hindfoot scale that shows internal consistency in terms of a single dimension (function) (Cronbach alpha 0.814) but not for the other dimensions, or the tool as a whole. The Rasch model analysis for internal consistency consisted of the following measures: person reliability index, an item reliability index, an item separation index, and a person separation index.[7] The person reliability and item reliability values range from 0 to 1 and can be interpreted much like Cronbach's alpha. Taking these into account, our construct showed strong item reliability with a value of 0.98, indicating good internal consistency of the variables measured.

Separation index values range from 0 to infinity, with higher values indicating better separation. The item separation index reveals how well a sample of people can separate items. Analysis of the construct demonstrates a good item separation of 7.10. According to Linacre in 2012, an item separation index score of 3 or more is desirable.[9] Pearson reliability index reveals how well a set of items separates persons measured, with a value of 1.5 as acceptable, 2 as good, and 3 as excellent. The low person indices (separation: 1.46, reliability 0.68) in this analysis may suggest that the instrument may not have sufficient sensitivity to consistently differentiate between respondents (high and low performers) or that more well-targeted items may be needed in the instrument.[10] Rasch analysis[9] also looked at the dimensionality of the construct. Entries from the AOFAS Ankle-Hindfoot scale were entered in the WINSTEPS software to measure raw variance. The index of raw variance was greater than the standard of 40% (Observed 81.9%) with an unexplained variance. Despite this, the positive point measure correlation index in its sub-analysis supports the finding that the items point toward the same construct, making the questionnaire sound.

The statistically significant values for both Pearson's and ICC for test-retest reliability suggest that the assessment questionnaires are reproducible over time in the same patient. This was consistent with the other translations of the AOFAS Ankle-Hindfoot scale.[3,11] Repeat examination was done within at least one week, not exceeding fourteen days. Strong correlations and reproducibility of the values indicate excellent consistency among the questions, suggesting they are easily understood by respondents.

Convergent validity of the AOFAS Ankle-Hindfoot Scale was done by comparing the scores with a validated SF-36 v2 (Tagalog)[8] using Pearson's correlation coefficient. The SF-36 is a widely accepted and generic outcome instrument to assess a patient's health status, including musculoskeletal conditions.[12] Good construct validity was demonstrated for Persian and Italian translations of the AOFAS when

Table 9. Intra-class correlation and Pearson's correlation of AOFAS overall score

AOFAS	Coefficient	Test stat	p	Lower limit	Upper limit
Pearson's	0.8779	9.7008	<0.001*	0.7571	0.9407
ICC	0.8779	15.3781	<0.001*	0.7596	0.94

*Significant at 5%

Table 10. Pearson's correlation of AOFAS overall score and SF-36 v2

SF-36	AOFAS				
	Pearson	Test Stat	p	Lower limit	Upper limit
Physical function	0.3173	1.7706	0.0875	-0.0485	0.6081
Social function	**0.4975**	3.0348	**0.0052***	0.1672	0.7274
Mental health	0.2023	1.0929	0.2837	-0.1704	0.5243
Pain	0.2212	1.2001	0.2402	-0.1511	0.5385
Change in health	-0.1859	-1.0013	0.3253	-0.5119	0.1869
Role limitation – physical	**0.4188**	2.4401	**0.0213***	0.0689	0.6769
Role limitation – mental	0.3139	1.7493	0.0912	-0.0523	0.6057
Energy/vitality	**0.4891**	2.967	**0.0061***	0.1564	0.7221
Health perception	**0.6417**	4.4275	**1.00E-04***	0.3661	0.8138

*Significant at 5%

correlated with SF-36 v2, while other translations made use of other functional outcome forms. We have made use of a corresponding language version of the SF-36, which has 8 subscales. The Filipino version of the AOFAS Ankle-Hindfoot scale has the strongest positive correlation with the health perception domain of SF-36 v2 (Pearson = 0.647, p = 0.0001, 95% CI: 0.3661–0.8138) and moderate positive correlation with the domains of social function, energy/vitality and role limitation (physical). Although vitality/energy and social function showed statistically significant values, there were no corresponding questions of these items seen in the AOFAS ankle-hindfoot assessment scale.

At the height of the pandemic when this study was performed, the authors shifted to videoconferencing to administer the questionnaires. This proved advantageous since it was convenient for both the patient and the interviewer. However, it took a longer time to complete the questionnaire, as the interviewer would read the questions and the itemized responses one by one to the patient. Answering the anatomic items also proved to be a challenge as the interviewer would need to demonstrate the examination and wait for a return demonstration by the patient.

CONCLUSION

The translation of the AOFAS Ankle-Hindfoot scale into Filipino along with its cultural adaptation, internal consistency, and convergent validity suggests that this clinical assessment tool may be used for Filipino patients with foot and ankle pathologies.

This study is however limited in terms of not being able to do an inter-interviewer analysis as well as testing for responsiveness of the tool, which needs more time to measure (i.e., one-month interval). The manner of the examination (videoconference) may likewise influence the response rate of patients, as we have observed a longer time it took to examine in this setting.

STATEMENT OF AUTHORSHIP

All authors certified fulfillment of ICMJE authorship criteria.

AUTHORS DISCLOSURE

The authors declared no conflict of interest.

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APPENDICES

Appendix A. AOFAS Ankle and Hindfoot Scale (Filipino)

Pangalan ng Pasyente: _____
Case # ng Pasyente: _____
Petsa: _____

I. Pananakit (40 puntos)
- ☐ Wala [+40]
- ☐ Bahagya, paminsan-minsan [+30]
- ☐ Katamtaman, araw-araw [+20]
- ☐ Matindi, halos laging nananakit [0]

II. Kakayahan (50 puntos)

Mga limitasyon sa gawain, kinakailangang suporta
- ☐ Walang mga limitasyon, walang suporta [+10]
- ☐ Walang mga limitasyon sa mga pang-araw-araw na gawain, may mga limitasyon sa mga gawaing panlibangan, walang suporta [+7]
- ☐ Limitadong gawaing pang-araw-araw at panlibangan, tungkod [+4]
- ☐ Malaking limitasyon sa mga gawaing pang-araw-araw at panlibangan, walker, saklay, wheelchair, brace [0]

Pinakamalayong distansiya sa paglalakad, mga kanto
- ☐ Higit sa anim [=5]
- ☐ Apat – anim [+4]
- ☐ Isa – tatlo [+2]
- ☐ Wala pang isa [0]

Uri ng nilalakaran
- ☐ Walang hirap sa kahit anong uri ng nilalakaran [+5]
- ☐ May kaunting hirap sa mga hindi patag na daraanan, baitang, dalisdis, hagdan [+3]
- ☐ Matinding hirap sa mga hindi patag na daraanan, baitang, dalisdis, hagdan [0]

Abnormalidad sa porma paglalakad
- ☐ Wala, kaunti [+8]
- ☐ Halata [+4]
- ☐ Hindi maitatanggi [0]

Sagittal Motion (flexion plus extension)
- ☐ Normal o bahagyang restriksiyon (30° o higit pa) [+8]
- ☐ Katamtamang restriksiyon (15°–29°) [+4]
- ☐ Malaking restriksiyon (mababa sa 15°) [0]

Paggalaw ng likurang bahagi ng paa o hindfoot (inversion plus eversion)
- ☐ Normal o bahagyang restriksiyon (75%–100% na normal) [+6]
- ☐ Katamtamang restriksiyon (25%–74% na normal) [+3]
- ☐ Hindi maitatanggi ang restriksiyon (mababa sa 25% ng normal) [0]

Katatagan ng sakong-hindfoot (anteroposterior, varus-valgus)
- ☐ Matatag [+8]
- ☐ Tiyak na hindi matatag [0]

III. Pagkaka-align (10 puntos)
- ☐ Normal, plantigrade foot, maganda ang alignment ng ankle-hindfoot [+6]
- ☐ Karaniwan, plantigrade foot, may kaunting malalignment ng ankle-hindfoot; walang sintomas [+3]
- ☐ Hindi maayos, nonplantigrade foot, malalang malalignment, mga sintomas [0]

IV. Kabuoang Marka (100 puntos):
- ☐ Puntos para sa pananakit +
- ☐ Puntos para sa kakayahan +
- ☐ Puntos para sa alignment = _____
- ☐ Kabuoang Marka/100 puntos

Appendix B. AOFAS Ankle and Hindfoot Scale (English)

orthotoolkit

AOFAS Ankle-Hindfoot Scale

Patient Name: _____
Patient MRN: _____
Date: _____

I. Pain (40 points)

☐ None	+40
☐ Mild, occasional	+30
☐ Moderate, daily	+20
☐ Severe, almost always present	+0

II. Function (50 points)

Activity limitations, support requirements

☐ No limitations, no support	+10
☐ No limitation of daily activities, limitations of recreational activities, no support	+7
☐ Limited daily and recreational activities, cane	+4
☐ Severe limitation of daily and recreational activities, walker, crutches, wheelchair, brace	+0

Maximum walking distance, blocks

☐ Greater than six	+5
☐ Four-six	+4
☐ One-three	+2
☐ Less than one	+0

Walking surfaces

☐ No difficulty on any surface	+5
☐ Some difficulty on uneven terrain, stairs, inclines, ladders	+3
☐ Severe difficulty on uneven terrain, stairs, inclines, ladders	+0

Gait abnormality

☐ None, slight	+8
☐ Obvious	+4
☐ Marked	+0

Sagittal motion (flexion plus extension)

☐ Normal or mild restriction (30° or more)	+8
☐ Moderate restriction (15° - 29°)	+4
☐ Severe restriction (less than 15°)	+0

Hindfoot motion (inversion plus eversion)

☐ Normal or mild restriction (75% - 100% normal)	+6
☐ Moderate restriction (25% - 74% normal)	+3
☐ Marked restriction (less than 25% of normal)	+0

Ankle-hindfoot stability (anteroposterior, varus-valgus)

☐ Stable	+8
☐ Definitely unstable	+0

III. Alignment (10 points)

☐ Good, plantigrade foot, ankle-hindfoot well aligned	+10
☐ Fair, plantigrade foot, some degree of ankle-hindfoot malalignment observed, no symptoms	+5
☐ Poor, nonplantigrade foot, severe malalignment, symptoms	+0

IV. Total Score (100 points):

_____ Pain Points +
_____ Function Points +
_____ Alignment Points =

_____ Total Points/100 points