

The Use of Custom-Made Shoes in Patients with Foot Deformities in Foot Clinic, Siriraj Hospital

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Objective: To study the frequency, result, and concomitant factors of the use of custom-made shoes in Foot Clinic, Siriraj Hospital.

Material and Method: Studying from patient records and interviewing the patients who had foot deformities without numbness and received custom-made shoes from the Foot Clinic, Siriraj Hospital between January 2009 and December 2011 about the latest custom-made shoes after the first three months of use.

Results: Sixty-seven participants were reviewed and included eight males (11.9%) and 59 females (88.1%) with an average age of 57.1 years. The majority had congenital foot deformity (19.4%). Most of them received sandal-type shoes (34.3%) and total contact orthosis (52.2%). The use of custom-made shoes that the participants had to use for more than 3 days/week and for more than or equal to 50% of daily walking and standing duration was 47.8%. Using these shoes reduced foot pain and increased walking stability (p -value = 0.007 and 0.023). Factors associated with the use of custom-made shoes were no previous callus (odds ratio = 25.30, 95% CI 2.20-290.56), decreasing callus after using the shoes (odds ratio = 23.54, 95% CI 1.65-335.23), decreasing foot pain after using the shoes (odds ratio = 5.01, 95% CI 1.20-20.95), and overall satisfaction (odds ratio = 21.47, 95% CI 3.81-121.04).

Conclusion: The use of custom-made shoes from the Foot Clinic, Siriraj Hospital was 47.8%. Using the shoes could reduce foot pain and increase walking stability. Factors associated with the use of custom-made shoes were no previous callus, decreasing callus, decreasing foot pain, and overall satisfaction.

Keywords: Use of shoes, Custom-made shoes, Foot deformity

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Foot deformities are common problems. Many types of foot deformity such as hallux valgus, claw toe, pes planus, posterior tibial tendon dysfunction, and chronic ankle instability are commonly diagnosed in foot clinics. These deformities could result from congenital or acquired diseases such as trauma or degenerative disorders. Foot deformities may restrict ambulation, limit activities, and influence participation in activities⁽¹⁻³⁾. Wearing appropriate shoes is one of the treatments that can reduce foot problems. Unfortunately, over-the-counter shoes may not be proper enough for correcting the patients' problems. Custom-made shoes, that is, shoes are customized and made for each patient, were regularly prescribed from physiatrists (rehabilitation doctors). Proper custom-made shoes with external or internal shoe

modifications can reduce shock and shear, relieve excessive pressure from sensitive or painful area; accommodate, correct and support deformities; and control or limit painful motion of foot and ankle⁽⁴⁾. Furthermore, they can diminish foot pain, increase walking stability, improve patient gait, increase the level of ambulation, and increase walking speed⁽⁵⁻⁹⁾.

Articles showed a high rate of non-use of orthosis and custom-made shoes. It varied from 8% to 75% depending on the patients' problems⁽¹⁰⁻¹⁹⁾. The reasons that the patients did not use their custom-made shoes were, for example, no change or increase in pain, increasing foot deformities, inconvenience of don/doff, heaviness, and poor cosmetic appearance⁽¹⁷⁻¹⁹⁾. Custom-made shoes may not satisfy all of the patients' expectations⁽²⁰⁾.

Foot Clinic, Siriraj Hospital was established in 2003. About 500 patients attend the clinic each year. Most of patients' problems were for diabetic feet and foot deformities such as hallux valgus, hallux rigidus, claw toe, pes planus, posterior tibial tendon dysfunction, and chronic ankle instability. About 100 patients

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received custom-made shoes from the clinic each year. Forty percent of them had diabetic foot problems and the rest had foot deformities. Moreover, some patients received more than one pair of custom-made shoes. Since it took professional time and skills to make shoes and the cost of them was 90-120 USD/pair, it would be a big waste if the patients did not use the shoes. As there was no information on the frequency and results of the use of custom-made shoes in Foot Clinic, Siriraj Hospital, the present study was performed. The present study chose to study only the group of patients who had foot deformities without numbness.

Objective

The purposes of the present study were to explore the frequency and result of the use of custom-made shoes from the Foot Clinic, Siriraj Hospital. The factors correlated with the use of custom-made shoes were also explored.

Material and Method

The patients that had foot deformities and received custom-made shoes from Foot Clinic, Siriraj Hospital between January 2009 and December 2011 were included in this study.

The inclusion criteria included being older than eighteen years old, having foot deformities, having foot pain or walking instability, and receiving custom-made shoes from the Foot Clinic, Siriraj Hospital. The exclusion criteria were those patients who could not be evaluated for foot symptoms such as foot numbness (impair 5.07 Semmes-Weinstein monofilament test) or inability to communicate.

The sample size was determined by using the n Query Advisor 5.0 program. Based on the related article, the use of custom-made shoes was about 70%⁽¹⁶⁾. A 10% acceptable error had been defined and 95% CI have been marked out. Eighty-one patients were statistically required.

The present study used the 3-part case record form. The first part, the background information, included ages, genders, body weight, height, health benefits, and diagnosis. The second part, the custom-made shoe information included types of shoes and shoe modifications. The first part and the second part were collected from patient records. The third part included 10 types of information such as uniform shoes required, obtaining physician explanation regarding benefits from using custom-made shoes, working hours that one needed to stand or walk, days of using custom-made shoes, levels of foot pain and walking stability

before and after receiving custom-made shoes, callus and/or ulcer before and after receiving custom-made shoes, convenience of don/doff custom-made shoes, and satisfaction with the custom-made shoes (fitting, comfort, weight, perspiration, cosmetic appearance, maintenance, and overall satisfaction). Levels of foot pain were recorded by using a numeric rating scale. The questions were scored from 0 (no pain) to 10 (worst pain). Levels of walking stability were recorded by using numeric rating scale as well. The questions were scored from 0 (instability) to 10 (very good stability). Convenience of don/doff custom-made shoes and satisfaction with custom-made shoes were recorded by using a numeric rating scale. The questions were scored from 0 (no convenience/not satisfying) to 10 (very convenient/very satisfying). The information from the third part was collected from the patient interviews. Finally, the patients were asked for their suggestions for improving the quality of custom-made shoes.

In the present study, the data of the custom-made shoes was collected from the latest shoes the patients received from the foot clinic. Moreover, the 3-month period use after receiving shoe was collected. To avoid any unreliable information from the patients due to be afraid of offending, the interviews were performed by the researchers who were not the patients' physicians.

The present study protocol was approved by the Siriraj Institutional Review Board (Si 615/2011) and was supported by Siriraj Research Development Fund (Managed by Routine to Research: R2R).

Statistical analysis

Statistical analysis was done with SPSS version 11.5.

The qualitative data such as gender, health benefit, diagnosis, uniform shoes required, levels of foot pain and walking stability, types of skin abnormalities, types of shoes and shoe modifications, obtaining physician explanation regarding benefits from using custom-made shoes, participation in selecting types of shoes, and the amount of patients who used or did not use custom-made shoes were reported both in number and percentage. Continuous variables, such as age, body weight, height, and body mass index (BMI), were calculated in mean and standard deviation. Levels of foot pain and walking stability before and after receiving custom-made shoes were calculated in median (range).

Fisher's exact test was used to explore the difference of genders, health benefits, and types of shoe

modification. Furthermore, Chi-square test was used to explore the difference of changing of callus and/or ulcer after receiving custom-made shoes, obtaining physician explanation regarding benefits from using custom-made shoes, participation in selecting types of shoes, changing of pain and walking stability after receiving custom-made shoes, convenience of don/doff custom-made shoes and satisfaction with custom-made shoes. Additionally, Mann-Whitney U test was used to explore the difference of levels of foot pain and walking stability between user and nonuser receiving the custom-made shoes. Finally, Stepwise Logistic Regression Analysis was used to explore the factors associated with the use of custom-made shoes. The p-value of less than 0.05 was considered a statistically significant difference.

Results

At collection information from patient records regarding patients who received custom-made shoes from the Foot Clinic, Siriraj Hospital between January 2009 and December 2011, the number of patients who met the criteria was 104. Unfortunately, 37 patients were unreachable and/or did not have a follow-up appointment with the clinic. Therefore, the information used was from 67 patients.

Sixty-seven patients were interviewed. There were eight males and 59 females with an average age of 57.1 years old. The average BMI was 24.5 kg/m². Most of their expenses were covered by the government's employee health benefits (61.2%) and no uniform shoe was required (94%). Most of the patients had congenital foot deformities such as pes planus (19.4%) and levels of foot pain and walking stability when walking without shoes at a moderate level (NRS 4-6). Twenty-six patients had calluses (38.8%) and eight patients had foot ulcers (11.9%) (Table 1).

The largest type of shoes the patients received was sandals (34.3%). The rests were ankle boots (31.3%), pumps (16.4%), boots (9%), Oxford-type shoes (6%), and others respectively. Most shoe modifications required were total contact orthosis (TCO) (52.2%), rocker sole and medial long counter (32.8%), medial arch support (25.4%), and others respectively. Most of the patients received a physician's explanation regarding benefits from using custom-made shoes (89.6%) and participated in selecting types of shoes (71.6%) (Table 2).

Regarding the use of custom-made shoes, the present study defined the use of custom-made shoes as

using the shoes more than three days/week and more than or equal to 50% of daily walking and standing duration. There were 32 patients (47.8%) classified as the user group. The level of foot pain decreased in the user group. The median of the different pain level recorded by NRS between before and after receiving the custom-made shoes (calculated by NRS before receiving the shoes minus NRS after receiving the shoes, positive value mean decreased pain) was 3.5 (-4 to 10). The analysis of the pain measures revealed that there were significant differences between the two groups (p-value = 0.007). The level of walking stability was increased in the user group. The median of the

Table 1. Demographic data (n = 67)

Characteristics	Number (percent)
Gender	
Male	8 (11.9)
Female	59 (88.1)
Health benefits	
Covered by government employee benefits	41 (61.2)
Own expenses	9 (13.4)
Universal health insurance coverage	5 (7.5)
Others	7 (10.4)
Diagnosis/deformities	
Congenital foot deformity	13 (19.4)
Hallux valgus	12 (17.9)
Posterior tibial tendon dysfunction (PTTD)	12 (17.9)
Foot deformity from trauma	11 (16.4)
Chronic ankle instability	4 (6.0)
Others	14 (20.9)
Uniform shoes required	
No	63 (94.0)
Yes	4 (6.0)
Levels of foot pain during walking without shoes	
No pain (NRS 0)	8 (12.0)
Mild (NRS 1-3)	10 (14.9)
Moderate (NRS 4-6)	26 (38.8)
Severe (NRS 7-10)	23 (34.3)
Levels of walking stability during walking without shoes	
Instability (NRS 0)	7 (10.5)
Poor (NRS 1-3)	10 (14.9)
Fair (NRS 4-6)	27 (40.3)
Good (NRS 7-10)	23 (34.3)
Skin abnormalities before receiving custom-made shoes	
Callus	26 (38.8)
Ulcer	8 (11.9)

NRS = numeric rating scale

Table 2. Data of custom-made shoes and shoe modifications (n = 67)

Shoes and shoe modifications	Number (percent)
Shoe types	
Sandal	23 (34.3)
Ankle boot	21 (31.3)
Pump	11 (16.4)
Boot	6 (9.0)
Oxford	4 (6.0)
Moccasin	1 (1.5)
Custom mold shoe	1 (1.5)
Shoe modifications^a	
Outsole	
Rocker sole	22 (32.8)
Flare	8 (11.9)
Wedge	8 (11.9)
Insole	
TCO	35 (52.2)
Medial arch support	17 (25.4)
Heel cushion	5 (7.5)
Inner sole relief	2 (3.0)
Metatarsal pad	1 (1.5)
Upper	
Medial long counter	22 (32.8)
Heel counter	14 (20.9)
Lateral long counter	7 (10.4)
Obtaining physician explanation regarding benefits from using custom-made shoes	
Yes	60 (89.6)
No	7 (10.4)
Participation in selecting types of shoes	
Yes	48 (71.6)
No	19 (28.4)

^a Some patients received more than one shoe modification
TCO = total contract orthosis

different of the walking stability level recorded by NRS between before and after receiving the custom-made shoes (calculated by NRS before receiving the shoes minus NRS after receiving the shoes, minus value mean increased stability) was -2.5 (-9 to 0). The analysis of the walking stability measures revealed that there were significant differences between the two groups (p-value = 0.023) (Table 3).

Regarding the factors associated with the use of custom-made shoes, the factors associated with the use of the shoes when using Univariate Analysis were as follows: change of callus after receiving custom-made shoes, using rocker sole, using medial arch support, change of pain level after receiving custom-made shoes, change of walking stability level after receiving custom-made shoes, convenience of don/doff and satisfaction with custom-made shoes on fitting, comfort, maintenance and overall satisfaction (p-value <0.05). However, the factors associated with the use of the shoes when using Stepwise Logistic Regression Analysis were change of callus after receiving custom-made shoes, change of pain level after receiving custom-made shoes, and overall satisfaction (p-value <0.05) (Table 4). The patients who had fewer callus after receiving the shoes and the patients who have never had calluses had a chance of using the shoes 23.54 times (odds ratio = 23.54, 95% CI 1.65-335.23) and 25.30 times (odds ratio = 25.30, 95% CI 2.20-290.56) of the ones who had the same amount or more calluses after receiving the custom-made shoes, respectively. Additionally, the patients who had a difference score of the foot pain

Table 3. Levels of foot pain and walking stability before receiving the custom-made shoes and after receiving the custom-made shoes

	User (n = 32) median (min-max)	Nonuser (n = 35) median (min-max)	p-value ^c
Levels of foot pain			
Before receiving shoes	5 (0 to 10)	5 (0 to 10)	0.969
After receiving shoes	0 (0 to 10)	3 (0 to 10)	0.006
Differences of pain levels ^a	3.5 (-4 to 10)	1 (-3 to 9)	0.007
Levels of walking stability			
Before receiving shoes	5 (0 to 10)	5 (0 to 10)	0.198
After receiving shoes	9.5 (2 to 10)	7 (0 to 10)	<0.001
Differences of stability levels ^b	-2.5 (-9 to 0)	0 (-10 to 4)	0.023

Levels of foot pain and walking stability were recorded by numeric rating scale

^a Calculated by score before receiving the custom-made shoes minus score after receiving the custom-made shoes (positive value means the patients had less pain after receiving the custom-made shoes)

^b Calculated by score before receiving the custom-made shoes minus score after receiving the custom-made shoes (minus value means the patients had better walking stability after receiving the custom-made shoes)

^c Using Mann-Whitney U test

Table 4. Univariate Analysis of demographic data, differences of pain levels, differences of stability levels, convenience of putting on/taking off custom-made shoes and satisfaction with custom-made shoes

	User number (percent) (n = 32)	Nonuser number (percent) (n = 35)	p-value
Gender			
Male	4 (12.5)	4 (11.4)	1.000 ^b
Female	28 (87.5)	31 (88.6)	
Health benefits			
Not own expenses	25 (78.1)	33 (94.3)	0.075 ^b
Own expenses	7 (21.9)	2 (5.7)	
Diagnosis/deformities			
Hallux valgus	4 (12.5)	8 (22.9)	0.104 ^a
Claw toe/hammer toe	0 (0)	1 (2.9)	
PTTD	9 (28.1)	3 (8.6)	
Chronic ankle instability	1 (3.1)	3 (8.6)	
Foot deformity from trauma	4 (12.5)	7 (20.0)	
Congenital foot deformity	9 (28.1)	4 (11.4)	
Others	5 (15.6)	9 (25.7)	
Uniform shoes required			
No	30 (93.8)	33 (94.3)	1.000 ^b
Yes	2 (6.3)	2 (5.7)	
Foot callus after receiving shoes			
Same amount or increase	1 (3.1)	10 (28.6)	0.019 ^a
Decrease	8 (25.0)	6 (17.1)	
No previous callus	23 (71.9)	19 (54.3)	
Foot ulcer after receiving shoes			
No previous ulcer	30 (93.8)	29 (82.9)	0.073 ^a
Same amount or increase	0 (0)	5 (14.3)	
Decrease	2 (6.3)	1 (2.9)	
Shoe types			
Boot	1 (3.1)	5 (14.3)	0.514 ^a
Ankle boot	10 (31.3)	11 (31.4)	
Sandal	12 (37.5)	11 (31.4)	
Pump	7 (21.9)	4 (11.4)	
Moccasin	0 (0)	1 (2.9)	
Oxford	2 (6.3)	2 (5.7)	
Other	0 (0)	1 (2.9)	
Shoe modifications			
Outsole			
Flare	3 (9.4)	5 (14.3)	0.711 ^b
Wedge	5 (15.6)	3 (8.6)	
Rocker	6 (18.8)	16 (45.7)	
Insole			
TCO	15 (46.9)	20 (57.1)	0.401 ^b
Medial arch support	12 (37.5)	5 (14.3)	
Heel cushion	3 (9.4)	2 (5.7)	
Metatarsal pad	0 (0)	1 (2.9)	
Inner sole relief	0 (0)	2 (5.7)	
Upper			
Heel counter	8 (25.0)	6 (17.1)	0.429 ^b
Medial long counter	13 (40.6)	9 (25.7)	
Lateral long counter	2 (6.3)	5 (14.3)	

Using Chi-square test^a and Fisher's exact test^b

Table 4. (cont.)

	User number (percent) (n = 32)	Nonuser number (percent) (n = 35)	p-value
Obtaining physician explanation regarding benefits from using custom-made shoes			
Yes	31 (96.9)	29 (82.9)	0.108 ^a
No	1 (3.1)	6 (17.1)	
Participation in selecting types of shoes			
Yes	25 (78.1)	23 (65.7)	0.260 ^a
No	7 (21.9)	12 (34.3)	
Differences of pain levels (NRS)			
<3	9 (28.1)	23 (65.7)	0.002 ^a
≥3	23 (71.9)	12 (34.3)	
Differences of stability levels (NRS)			
<-2	10 (31.3)	21 (60.0)	0.018 ^a
≥-2	22 (68.8)	14 (40.0)	
Convenience of putting on/taking off custom-made shoes			
<7	3 (9.4)	10 (28.6)	0.047 ^a
≥7	29 (90.6)	25 (71.4)	
Satisfaction with custom-made shoes			
Fitting			
<7	3 (9.4)	16 (45.7)	0.001 ^a
≥7	29 (90.6)	19 (54.3)	
Comfort			
<7	4 (12.5)	15 (42.9)	0.006 ^a
≥7	28 (87.5)	20 (57.1)	
Weight			
<7	12 (37.5)	20 (57.1)	0.108 ^a
≥7	20 (62.5)	15 (42.9)	
Perspiration			
<7	9 (28.1)	17 (48.6)	0.086 ^a
≥7	23 (71.9)	18 (51.4)	
Cosmetic appearance			
<7	15 (46.9)	23 (65.7)	0.120 ^a
≥7	17 (53.1)	12 (34.3)	
Maintenance			
<7	2 (6.3)	14 (40.0)	0.001 ^a
≥7	30 (93.8)	21 (60.0)	
Overall			
<7	2 (6.3)	21 (60.0)	<0.001 ^a
≥7	30 (93.8)	14 (40.0)	

Using Chi-square test^a and Fisher's exact test^b

level ≥3 had a chance of using the shoes 5.01 times more often than the ones who had a difference score <3 (odds ratio = 5.01, 95% CI 1.20-20.95). Finally, the patients who rated overall satisfaction score ≥7 had a chance of using the shoes 21.47 times of the ones who rated the score <7 (odds ratio = 21.47, 95% CI 3.81-121.04) (Table 5).

Regarding the suggestions for improving the quality of custom-made shoes, 52% of the patients,

25% of the patients in the user group, and 27% of the patients in the nonuser group, suggested improving the cosmetic appearance (color, style, and neatness). Twenty-five percent of the patients, 13% of the patients in the user group and 12% of the patients in the nonuser group, suggested improving the material. Furthermore, 19% of the patients, 4% of the patients in the user group and 15% of the patients in the nonuser group, suggested reducing the shoe weight.

Table 5. Stepwise logistic regression analysis of concomitant factors

	Crude odds ratio (95% CI)	Adjusted odds ratio (95% CI)	p-value
Callus after receiving custom-made shoes			0.031
Same amount or increase	1.00	1.00	
Decrease	13.33 (1.32-134.62)	23.54 (1.65-335.23)	
No previous callus	12.11 (1.42-103.25)	25.30 (2.20-290.56)	
Shoe modifications			
No	1.00	-	
Rocker sole	3.65 (1.20-11.06)	-	
Medial arch support	0.28 (0.09-0.91)	-	
Differences of pain levels (NRS)			0.027
<3	1.00	1.00	
≥3	4.90 (1.73-13.85)	5.01 (1.20-20.95)	
Differences of stability levels (NRS)			
<-2	1.00	-	
≥-2	3.30 (1.20-9.04)	-	
Convenience of putting on/taking off custom-made shoes			
<7	1.00	-	
≥7	3.87 (0.96-15.63)	-	
Satisfaction with custom-made shoes			
Fitting			
<7	1.00	-	
≥7	8.14 (2.09-31.78)	-	
Comfort			
<7	1.00	-	
≥7	5.25 (1.51-18.20)	-	
Maintenance			
<7	1.00	-	
≥7	10.00 (2.05-48.70)	-	
Overall			0.001
<7	1.00	1.00	
≥7	22.50 (4.62-109.57)	21.47 (3.81-121.04)	

CI = confidence interval

Discussion

The present study selected only the patients who had foot deformities without numbness. The main problem in these patients was pain that commonly related to length of time standing and walking. The purposes of the use of custom-made shoes in these patients were pain reduction by relieving excessive pressure from sensitive or painful area and limiting painful motion of foot and ankle⁽⁵⁻⁹⁾. It was different from the diabetic foot in that the purposes of those were prevention of and treatment for foot ulcer. Moreover, the diabetic patients had to use the shoes all the time for standing and walking. Therefore, the way to evaluate the use and the results of the use of custom-made shoes was different. This was the reason why the present study selected only patients who had foot deformities and no numbness.

Regarding the definition for the use of shoes, there was no literature specifying the suitable time for the use of shoes. In addition, each patient had different daily activities as well as walking and standing duration periods. Thus, the present study defined the use of custom-made shoes as when the patients had to use the shoes more than three days per week and more than or equal to 50% of the day, walking and standing duration periods. The authors expected that that would be outdoor time during which the patients need to stand or walk for a long period. For indoor time, the patients may use slippers or walk without shoes because most of the activities in their house or office did not require them to stand or walk continuously for a long time.

From the patients' records, there were 104 patients met the inclusion criteria. Unfortunately,

only 67 patients were reachable (64%). The rest of them changed their addresses and telephone numbers and no longer had appointments with the foot clinic. The authors tried to extend the period of data collecting. Regrettably, most patients on the list were previously included in the present study. Nevertheless, if the collection period had been extended longer, the information collected might have been inaccurate since the patients may not have remembered the needed information, which related to the first 3 months after receiving the shoes.

Regarding to the use of custom-made shoes, the present study discovered the use of the custom shoes at 47.8%. In addition, other studies found the use of those at 8 to 75% depending on the group of patient samples and the definition of shoe-using used in each study⁽¹⁰⁻¹⁹⁾. When comparing this with the most similar population used in a study, Jannink MJ did study in patients with degenerative disorder and reported the rate of use was 70%⁽¹⁶⁾.

As a result, in using the custom-made shoes, it turned out that the level of foot pain decreased while the level of walking stability increased in the user group with a statistically significant difference compared with the non-user group. The result was in harmony with many prior studies^(4,6-9,16,19). It illustrated the effectiveness of the custom-made shoes made by the Foot Clinic, Siriraj Hospital.

Regarding the factors associated with the use of custom-made shoes, the result of the study revealed one of the factors linked to the use of them when using Stepwise Logistic Regression Analysis was the amount of calluses. Getting fewer calluses is one of factors motivating the use of custom-made shoes that harmonized with other studies: Jenisse DJ, and Jannink MJ. In addition, Janisse DJ had studied patients with arthritis of ankle and foot⁽⁴⁾ while Jannink MJ had studied patients with degenerative disorder⁽¹⁶⁾. The other factor was decreasing foot pain that occurred similarly in the present study results from Van Netten JJ⁽¹⁹⁾ as well as Jannink MJ's study⁽¹⁶⁾. In relation to those prior studies, the present study result illustrated that the patients had a tendency to use the custom-made shoes if the shoes were able to correct these two problems: pain and calluses. From the Jannink MJ, males used custom-made shoes more than females⁽¹⁶⁾. This result was inconsistent with the present study in that gender was not the factor of the use of custom-made shoes. The reason may have been that most of the samples in the present study were females.

Due to the patients' satisfaction, the factors associated with the use of custom-made shoes when using Stepwise Logistic Regression Analysis was only overall satisfaction. This result was inconsistent with the study of Van Netten JJ and the study of Jannink MJ^(16,19) that spotted that the factors most affected were about the fit, weight, and cosmetic appearance. Dissimilarly, the major factor which affected the frequency of using the custom-made shoes, could have been that most patients' problems were solved suitably. Even though the patients might have been satisfied with the custom-made shoes differently, overall satisfaction with the custom-made shoes was the major factor in the patients' decision to use or not to use their custom-made shoes frequently.

Conclusion

The use of custom-made shoes in Foot Clinic, Siriraj Hospital was 47.8%. Using the shoes could reduce foot pain and increase walking stability. Factors associated with the use of custom-made shoes were no previous callus, decreasing callus, decreasing foot pain and overall satisfaction.

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What is already known on this topic?

Rate of non-use of orthosis and custom-made shoes was high. It varied from 8% to 75% depending on the patients' problems. The reasons that the patients did not use their custom-made shoes were, for example, no change or increase in pain, increasing foot deformities, inconvenience of don/doff, heaviness, and poor cosmetic appearance.

What this study adds?

The use of custom-made shoes in Foot Clinic, Siriraj Hospital was 47.8%. Using the shoes could reduce foot pain and increase walking stability. Factors associated with the use of custom-made shoes were no previous callus, decreasing callus, decreasing foot pain and overall satisfaction.

Potential conflicts of interest

None.

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การใช้รองเท้าตัดเฉพาะบุคคลของผู้ป่วยที่มีปัญหาเท้าผิดปกติ

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วัตถุประสงค์: เพื่อศึกษาการใช้รองเท้าตัดเฉพาะบุคคล ผลของการใช้รองเท้า และปัจจัยที่มีผลต่อการใช้ในคลินิกสุขภาพเท้า โรงพยาบาลศิริราช

วัสดุและวิธีการ: ศึกษาข้อมูลจากเวชระเบียนและสัมภาษณ์ผู้ป่วยเท้าผิดปกติที่ไม่มีเท้าชา ที่มารับบริการตัดรองเท้าที่คลินิกสุขภาพเท้า โรงพยาบาลศิริราช ในช่วงเดือนมกราคม พ.ศ. 2552 ถึง เดือนธันวาคม พ.ศ. 2554 โดยตรง เกี่ยวกับรองเท้าตัดที่ได้รับจากคลินิก คู่ล่าสุด และข้อมูลของการใช้รองเท้าตัดในช่วง 3 เดือนแรก หลังจากได้รับรองเท้า

ผลการศึกษา: ผู้เข้าร่วมการศึกษา 67 ราย อายุเฉลี่ย 57.1 ปี เป็นชาย 8 ราย (ร้อยละ 11.9) หญิง 59 ราย (ร้อยละ 88.1) ส่วนใหญ่มีปัญหาเท้าผิดปกติแต่กำเนิด (ร้อยละ 19.4) รองเท้าที่ได้รับส่วนใหญ่เป็นรองเท้าสานรัดส้น (ร้อยละ 34.3) และมีการเสริมแผ่นรองในรองเท้าชนิดหล่อเฉพาะราย (ร้อยละ 52.2) ผู้เข้าร่วมการศึกษามีการใช้รองเท้า (ใส่รองเท้ามากกว่า 3 วันต่อสัปดาห์ และระยะเวลาในการใช้รองเท้าต่อวันมากกว่าหรือเท่ากับร้อยละ 50 ของระยะเวลาในการยืนและเดินต่อวัน) จำนวน 32 ราย (ร้อยละ 47.8) เมื่อเปรียบเทียบระหว่างกลุ่มที่ใช้รองเท้าตัดกับกลุ่มที่ไม่ใช้ พบว่ากลุ่มที่ใช้รองเท้าตัดมีอาการเจ็บเท้าลดลงและมีความมั่นคงในการเดินเพิ่มขึ้นอย่างมีนัยสำคัญทางสถิติ (p -value = 0.007 และ 0.023 ตามลำดับ) ปัจจัยที่มีผลต่อการใช้รองเท้าตัด ได้แก่ การไม่เคยมีหนังด้านแข็ง (odds ratio = 25.30, 95% CI 2.20-290.56) การมีหนังด้านแข็งลดลงหลังใช้รองเท้า (odds ratio = 23.54, 95% CI 1.65-335.23) การมีอาการเจ็บเท้าลดลงหลังใช้รองเท้า (odds ratio = 5.01, 95% CI 1.20-20.95) และมีความพึงพอใจในภาพรวมของรองเท้าตัด (odds ratio = 21.47, 95% CI 3.81-121.04)

สรุป: การใช้รองเท้าตัดเฉพาะบุคคลในคลินิกสุขภาพเท้า โรงพยาบาลศิริราช เท่ากับร้อยละ 47.8 การใช้รองเท้าตัดช่วยลดอาการเจ็บเท้าและเพิ่มความมั่นคงในการเดิน และปัจจัยที่มีผลต่อการใช้รองเท้าตัด ได้แก่ การไม่เคยมีหนังด้านแข็งที่เท้า การมีหนังด้านแข็งที่เท้าลดลง การมีอาการเจ็บเท้าลดลง และมีความพึงพอใจในภาพรวมของรองเท้าตัด
