

Table E-1. Patient Characteristics by Treatment Method*

Characteristic	Overall % (n = 80)	ORIF % (n = 42)	EF ± Limited IF % (n = 38)
Age (yr)†			
19–35	28.8 (23)	33.3 (14)	23.7 (9)
36–54	52.5 (42)	57.1 (24)	47.4 (18)
55+	18.8 (15)	9.5 (4)	28.9 (11)
Gender			
Male	77.5 (62)	76.2 (32)	78.9 (30)
Female	22.5 (18)	23.8 (10)	21.1 (8)
Marital status			
Married	51.3 (41)	50.0 (21)	52.6 (20)
Sep/wid/div	25.0 (20)	23.8 (10)	26.3 (10)
Never married	23.8 (19)	26.2 (11)	21.1 (8)
Education			
<High school graduate	36.3 (29)	38.1 (16)	34.2 (13)
High school graduate	40.0 (32)	38.1 (16)	42.1 (16)
Some college/college graduate	23.8 (19)	23.8 (10)	23.7 (9)
Personal income‡			
<\$25,000	34.6 (27)	35.0 (14)	34.2 (13)
≥\$25,000	65.4 (51)	65.0 (26)	65.8 (25)

(cont’)

(Table E-1. continued)

Characteristic	Overall % (n = 80)	ORIF % (n = 42)	EF ± Limited IF % (n = 38)
Health insurance§			
Yes	78.8 (63)	81.0 (34)	76.3 (29)
No	21.3 (17)	19.0 (8)	23.7 (9)
Work status before injury			
Not working	18.8 (15)	19.0 (8)	18.4 (7)
Working	81.3 (65)	81.0 (34)	81.6 (31)
Cigarette smoker§			
Yes	45.0 (36)	42.9 (18)	47.4 (18)
No	55.0 (44)	57.1 (24)	52.6 (20)
Presence of comorbidities			
None	7.5 (6)	9.5 (4)	5.3 (2)
One	26.3 (21)	26.2 (11)	26.3 (10)
Two or more	66.3 (53)	64.3 (27)	68.4 (26)
Follow-up interval			
2 years	23.8 (19)	14.3 (6)	34.2 (13)
3 years	41.3 (33)	45.2 (19)	36.8 (14)
4–5 years	35.0 (28)	40.5 (17)	29.0 (11)

*ORIF, open reduction with internal fixation; EF ± Limited IF, external fixation with or without limited internal fixation; Sep/wid/div, separated, widowed, or divorced. † $p \leq 0.10$. ‡Missing data. §At time of interview.

Table E-2. Injury Characteristics by Treatment Method*

Characteristic	Overall % (n = 80)	ORIF % (n = 42)	EF ± Limited IF % (n = 38)
Fracture wound†			
Open	38.8 (31)	26.2 (11)	52.6 (20)
Closed	61.3 (49)	73.8 (31)	47.4 (18)
AO fracture type†			
B	26.3 (21)	40.5 (17)	10.5 (4)
C	73.8 (59)	59.5 (25)	89.5 (34)
Bilateral fractures‡			
Yes	7.5 (6)	2.4 (1)	13.2 (5)
No	92.5 (74)	97.6 (41)	86.8 (33)
Mechanism of injury			
MVA/MCA/bicycle	37.5 (30)	35.7 (15)	39.5 (15)
Fall/other blunt/penetrating	62.5 (50)	64.3 (27)	60.5 (23)
Glasgow Coma Scale score			
3–14	12.5 (10)	9.5 (4)	15.8 (6)
15	87.5 (70)	90.5 (38)	84.2 (32)
Contralateral injury§			
Yes	11.3 (9)	11.9 (5)	10.5 (4)
No	88.8 (71)	88.1 (37)	89.5 (34)

*ORIF, open reduction with internal fixation; EF ± Limited IF, external fixation with or without limited internal fixation; MVA, motor vehicle accident; MCA, motorcycle accident. † $p \leq 0.05$.

‡ $p \leq 0.10$. §Includes fractures of the pelvis, femur, and tibia, patella dislocation, and knee dislocation.

Table E-3. Reported and/or Demonstrated Difficulty with Symptoms and/or Functional Activities by Treatment Method*

Outcome	Overall % (n)	ORIF % (n)	EF ± Limited IF % (n)
Patient reported a lot of difficulty...†			
With ankle stiffness	35.0 (28)	31.0 (13)	39.5 (15)
With ankle swelling	28.8 (23)	28.6 (12)	29.0 (11)
With ankle pain	32.5 (26)	33.3 (14)	31.6 (12)
Wearing different shoes‡	42.5 (34)	54.8 (23)	29.0 (11)
Running one block	72.5 (58)	66.7 (28)	79.0 (30)
Climbing a ladder	35.0 (28)	33.3 (14)	36.8 (14)
Doing usual recreational activities	43.8 (35)	38.1 (16)	50.0 (19)
Patient reported usually...†			
Using an ambulatory aid	12.5 (10)	7.1 (3)	18.4 (7)
Wearing an orthotic device	25.0 (20)	19.1 (8)	31.6 (12)
Patient was unable to...§			
Complete full toe excursion¶	51.5 (35)	45.5 (15)	57.1 (20)
Ascend and descend stairs reciprocally	32.9 (23)	29.4 (10)	36.1 (13)
Squat and pick up a heavy object	30.0 (21)	29.4 (10)	30.6 (11)
Stand on injured leg for 30 seconds‡	71.4 (50)	55.9 (19)	86.1 (31)
Tandem walk a straight line‡	67.1 (47)	55.9 (19)	77.8 (28)
Stand from chair within 15 seconds	45.7 (32)	44.1 (15)	47.2 (17)
Run in place for 30 seconds	54.3 (38)	52.9 (18)	55.6 (20)

*ORIF, open reduction with internal fixation; EF ± Limited IF, external fixation with or without limited internal fixation. †Self-reported during interview (n = 80). ‡p ≤ 0.05. §Performance during clinical evaluation (n = 70). ¶Missing data.

Table E-4. Outcome Scores by Patient Characteristics*

Characteristic	Physical Function n = 80 Avg (SD)	SIP Ambulation n = 80 Avg (SD)	AMA ROMI n = 70 Avg (SD)	VAS Pain n = 69† Avg (SD)	Stairs‡ n = 70 %
Age (yr)					
19–35	63.7 (23.9)	19.1 (21.6)	0.18 (0.20)	27.2 (24.4)	75.0
36–54	63.1 (28.6)	18.7 (16.6)	0.20 (0.20)	35.8 (30.1)	71.4
55+	60.7 (26.7)	18.3 (12.4)	0.20 (0.19)	30.6 (28.3)	46.7
Gender					
Male	63.1 (25.0)	18.0 (16.5)	0.21 (0.21)	33.0 (26.3)	68.5
Female	61.9 (32.6)	21.2 (20.4)	0.15 (0.17)	29.0 (34.4)	62.5
Marital status					
Married	58.4 (26.1)	19.7 (15.6)§	0.21 (0.20)	31.2 (29.3)	60.5
Sep/wid/div	73.3 (24.7)	11.6 (12.1)	0.11 (0.08)	35.7 (28.3)	73.3
Never married	61.3 (28.2)	24.2 (23.0)	0.24 (0.25)	31.5 (26.2)	76.5
Education					
<High school graduate	54.4 (26.7)§	28.3 (20.2)¶	0.23 (0.21)	38.5 (24.4)¶	58.8
High school graduate	60.3 (26.6)	17.5 (16.5)	0.18 (0.20)	37.5 (32.8)	75.9
Some college+	71.1 (25.2)	13.8 (13.9)	0.19 (0.19)	20.8 (20.4)	62.5
Personal income†					
<\$25,000	73.6 (21.2)¶	22.5 (18.7)¶	0.22 (0.22)	36.0 (27.8)	66.7
≥\$25,000	56.3 (27.5)	12.4 (12.5)	0.16 (0.16)	25.0 (27.6)	66.7

(cont’)

(Table E-4. continued)

Characteristic	Physical Function n = 80 Avg (SD)	SIP Ambulation n = 80 Avg (SD)	AMA ROMI n = 70 Avg (SD)	VAS Pain n = 69† Avg (SD)	Stairs‡ n = 70 %
Health insurance					
Yes	62.0 (26.3)	18.8 (18.0)	0.20 (0.21)	30.5 (27.8)	61.4¶
No	65.8 (28.5)	18.4 (14.9)	0.16 (0.12)	39.8 (28.8)	92.3
Cigarette smoker					
Yes	60.3 (28.2)	22.6 (20.6)§	0.21 (0.22)	36.5 (28.4)	75.0
No	64.9 (25.5)	15.6 (13.5)	0.19 (0.18)	28.4 (27.6)	60.5
Comorbidities					
None/one	74.1 (19.3)¶	13.5 (15.0)¶	0.18 (0.23)	18.9 (20.9)	76.0
Two or more	57.1 (28.2)	21.4 (17.9)	0.20 (0.18)	39.7 (28.9)	62.2
Follow-up interval					
2 years	59.5 (25.8)	22.1 (19.8)	0.24 (0.23)	30.5 (26.4)	57.9
3 years	65.8 (28.0)	16.7 (13.1)	0.16 (0.17)	29.2 (28.5)	62.1
4–5 years	61.6 (26.3)	18.9 (20.1)	0.21 (0.21)	37.8 (29.2)	81.8

*Avg, average outcome score; SD, standard deviation; SIP, Sickness Impact Profile; AMA ROMI, American Medical Association range-of-motion impairment rating; VAS, visual analog scale; Sep/wid/div, separated, widowed, or divorced. †Missing a pain score for one of the seventy participants who completed the physical therapy assessment; missing income information for two of the eighty participants who completed the interview. ‡Percent able to ascend and descend stairs reciprocally. §p ≤ 0.10. ¶p ≤ 0.05. ||At time of interview.

Table E-5. Outcome Scores by Injury and Treatment Characteristics*

Characteristic	Physical Function n = 80 Avg (SD)	SIP Ambulation n = 80 Avg (SD)	AMA ROMI n = 70 Avg (SD)	VAS Pain† n = 69 Avg (SD)	Stairs‡ n = 70 %
Fracture wound					
Open	59.7 (26.8)	21.2 (19.5)	0.26 (0.26)§	25.8 (22.3)	46.4§
Closed	64.8 (26.6)	17.2 (15.8)	0.15 (0.13)	36.5 (30.9)	81.0
AO fracture type					
B	71.2 (25.4)	17.1 (15.4)	0.11 (0.11)¶	41.1 (33.7)	87.5§
C	59.8 (26.7)¶	19.3 (18.0)	0.22 (0.21)	29.5 (25.8)	61.1
Bilateral fractures					
Yes	39.2 (32.0)§	39.5 (30.2)§	0.43 (0.29)§	40.0 (38.7)	33.3¶
No	64.7 (25.5)	17.1 (15.0)	0.17 (0.18)	31.4 (27.1)	70.3
Treatment method					
ORIF	67.3 (26.0)	15.7 (16.4)¶	0.13 (0.13)§	24.5 (29.1)§	70.6
EF ± limited IF	57.9 (26.8)	22.1 (17.9) (10)	0.26 (0.23)	39.2 (25.4)	63.9
Mechanism of injury					
MVA/MCA/bicycle	67.8 (27.2)	17.2 (19.4)	0.19 (0.20)	23.3 (26.9)§	59.3
Fall/other blunt/penetrating	59.8 (26.1)	19.7 (16.1)	0.20 (0.20)	37.5 (27.6)	72.1
Glasgow Coma Scale score					
3–14	73.5 (19.7)	17.0 (19.2)	0.21 (0.26)	30.6 (32.3)	50.0
15	61.3 (27.3)	19.0 (17.2)	0.19 (0.19)	32.4 (27.7)	69.4
Contralateral injury					
Yes	63.9 (25.5)	20.6 (13.4)	0.19 (0.25)	23.6 (25.0)	66.7
No	62.7 (27.0)	18.5 (17.8)	0.20 (0.19)	33.5 (28.4)	67.2

*Avg, average outcome score; SD, standard deviation; SIP, Sickness Impact Profile; AMA ROMI, American Medical Association range-of-motion impairment rating; VAS, visual analog scale; ORIF, open reduction with internal fixation; EF ± Limited IF, external fixation with or without limited internal fixation; MVA, motor vehicle accident; MCA, motorcycle accident.

†Missing data for one of the seventy participants who completed physical therapy assessment.

‡Percent able to ascend and descend stairs reciprocally. §p ≤ 0.05. ¶p ≤ 0.10.

(Table E-5. continued)

Characteristic	Physical Function n = 80 Avg (SD)	SIP Ambulation n = 80 Avg (SD)	AMA ROMI n = 70 Avg (SD)	VAS Pain† n = 69 Avg (SD)	Stairs‡ n = 70 %
Contralateral injury					
Yes	63.9 (25.5)	20.6 (13.4)	0.19 (0.25)	23.6 (25.0)	66.7
No	62.7 (27.0)	18.5 (17.8)	0.20 (0.19)	33.5 (28.4)	67.2

*Avg, average outcome score; SD, standard deviation; SIP, Sickness Impact Profile; AMA ROMI, American Medical Association range-of-motion impairment rating; VAS, visual analog scale; ORIF, open reduction with internal fixation; EF ± Limited IF, external fixation with or without limited internal fixation; MVA, motor vehicle accident; MCA, motorcycle accident.

†Missing data for one of the seventy participants who completed physical therapy assessment.

‡Percent able to ascend and descend stairs reciprocally. § $p \leq 0.05$. ¶ $p \leq 0.10$.

Table E-6. Parameter Estimate (p Value) for Selected Outcomes*					
Characteristic	Physical Function	Log SIP Ambulation	Log AMA ROMI	Log VAS Pain	Stairs†
Marital status					
Married	ref	ref	ref	ref	ref
Sep/wid/div	15.79 (0.03)‡	−0.95 (0.01)	−0.13 (0.01)	−0.12 (0.77)	1.24 (0.26)
Never married	15.71 (0.09)	−0.91 (0.05)	−0.03 (0.65)	−0.86 (0.10)	1.20 (0.37)
Education					
High school graduate	ref	ref	ref	ref	ref
Not a high school graduate	−5.31 (0.48)	0.87 (0.02)	0.04 (0.33)	0.41 (0.30)	−2.16 (0.03)
Personal income					
≥\$25,000	ref	ref	ref	ref	ref
<\$25,000	−12.60 (0.08)	0.62 (0.08)	0.02 (0.70)	0.44 (0.25)	−0.21 (0.81)
Comorbidities					
0–1	ref	ref	ref	ref	ref
2 or more	−17.66 (0.01)	0.60 (0.06)	0.02 (0.56)	0.71 (0.04)	−1.73 (0.06)
Fracture wound					
Closed	ref	ref	ref	ref	ref
Open	0.00 (0.99)	0.38 (0.24)	0.06 (0.15)	−0.09 (0.79)	−2.56 (0.00)
AO type of fracture					
B type	ref	ref	ref	ref	ref
C type	−10.40 (0.17)	−0.44 (0.23)	0.03 (0.58)	−0.82 (0.07)	−1.40 (0.25)
(cont')					

(Table E-6. Continued)

Characteristic	Physical Function	Log SIP Ambulation	Log AMA ROMI	Log Visual Pain	Stairs†
Treatment method					
ORIF	ref	ref	ref	ref	ref
EF ± limited IF	1.40 (0.86)	1.01 (0.01)	0.12 (0.01)	1.34 (0.00)	0.07 (0.95)
Contralateral injury					
No	ref	ref	ref	ref	ref
Yes	−5.46 (0.57)	0.80 (0.10)	0.04 (0.44)	0.05 (0.92)	0.19 (0.87)
Mechanism of injury					
Fall/other blunt/penetrating	ref	ref	ref	ref	ref
MVA/MCA/bicycle	2.58 (0.68)	−0.43 (0.17)	−0.02 (0.54)	−0.68 (0.05)	−1.10 (0.20)
Site					
Site A	ref	ref	ref	ref	ref
Site B	11.19 (0.14)	0.74 (0.05)	0.05 (0.34)	0.04 (0.92)	−1.66 (0.12)

*All these models also simultaneously controlled for age, gender, health insurance, timing of follow-up evaluation, and presence of bilateral fractures. However, none of these variables was significant for any of the selected models, so the parameter estimates are not shown. SIP, Sickness Impact Profile; AMA ROMI, American Medical Association range-of-motion impairment rating; VAS, visual analog scale; Sep/wid/div, separated, widowed, or divorced; ORIF, open reduction with internal fixation; EF ± Limited IF, external fixation with or without limited internal fixation. †Ability to ascend and descend stairs reciprocally. ‡Values shown in **boldface type** are significant at $p \leq 0.10$.