

Author name	Country	Duration	Total population (n)	Female (%)	Mean age (Years)	Cause of fracture	Type of healing (non-union)	Primary Management of Clavicle fracture	Type of surgery for Nonunion	Net risk of bias
Wick et al. (2001)	Germany	1993-1998	60	33.3	36.4	Sports, fall, car, bicycle, and motorcycle	Nonunion, delayed union fracture with shortening of more than 2 cm	Both Operative and Non-operative management	LDLC plate for internal fixation, a reconstruction plate, autogenous bone grafting, and a wire loop	low
Robinson et al. (2004)	Scotland	1997-2001	918	26.5%	29.5	N/A*	Nonunion Displaced or undisplaced fracture of medial, lateral, and midshaft	Non-operative management	Open reduction	low
Murray et al. (2013)	United Kingdom	1994-2007	941	27.95	36.8	Simple falls, a fall from height, a bicycle injury, another type of traffic accident, and assault	Nonunion of displaced-midshaft clavicular fracture	Non-operative management	Open reduction and plate fixation	low
Robinson et al. (2013)	United Kingdom	2007-2010	200	12.5	32.4	Simple falls, RTAs, sports, and motorcycle	Nonunion of displaced-midshaft clavicular fracture	Non-operative management	Open reduction and plate fixation	low
Clement et al. (2016)	United Kingdom	2007-2010	92	13	32.2	Fracture due to accident	Nonunion of displaced-midshaft clavicular fracture	Non-operative management	Open reduction and plate fixation	low

Ban et al. (2016)	Denmark	2008-2014	55	27.27	46	N/A*	Nonunion Displaced or undisplaced fracture of medial, lateral, and midshaft.	NA*	Autologous bone grafts, hook-plate, and lateral pre-contoured locking plate	low
Jarvis et al. (2017)	United Kingdom	2008-2012	82	24.39	31.08	Fall from height, sport, assault, RTA, horse riding and mechanism not recorded	Nonunion of displaced or shortened midshaft fracture	Operative management	Plate fixation	low
Nicholson et al. (2019)	United Kingdom	2007-2017	184	29.3	44.5	N/A*	Nonunion, delayed union of midshaft fracture	Non-operative management	Open reduction and plate fixation	low
Nicholson et al. (2020)	United Kingdom	N/A*	200	25	39.8	Fall, sports, RTAs, and others	Nonunion of displaced-midshaft clavicular fracture	Non-operative management	Plate fixation	low
Lim et al. (2021)	South Korea	1999-2017	34	385.29	40.8	Motor vehicle accident Fall down. Sports-related injuries	Nonunion of displaced-midshaft clavicular fracture	Operative management	Plate osteosynthesis with autologous dual bone graft	low

Table 1. Baseline demographic and clinical characteristics. N/A*: Not Applicable

Studies	Selection (Maximum 4)				Comparability (Maximum 2)	Outcome (Maximum 3)			Total score
	Representativeness of the Exposed Cohort	Selection of the Non-Exposed Cohort	Ascertainment of Exposure	Demonstration That Outcome of Interest Was Not Present at the Start of Study		Assessment of Outcome	Was Follow-Up Long Enough for Outcomes to Occur	Adequacy of Follow-Up of Cohorts	
Jarvis et al., 2017	1	1	1	1	2	1	1	1	9
Nicholson et al., 2020	1	1	1	1	2	1	1	1	9
Murray et al., 2013	1	1	1	1	2	1	1	1	9
Ban et al., 2016	1	1	1	1	2	1	1	1	9
Lim et al., 2021	1	1	1	1	2	1	1	1	9
Clement et al., 2016	1	1	1	1	2	1	1	1	9
Nicholson et al., 2019	1	1	1	1	1	1	1	1	8
Lim et al., 2021	1	1	1	1	2	1	1	1	9
Robinson et al., 2004	1	1	1	1	2	1	1	1	9

Table 2. Quality Assessment of Cohorts

Study	Random sequence generation	Allocation concealment	Blinding (participants and personnel)	Blinding (outcome assessment)	Incomplete outcome data	Selective reporting	Other sources of bias	Net Risk
Robinson et al., 2013	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Unclear Risk	Unclear Risk	Moderate Risk

Table 3. Quality Assessment of Randomized Control Trials