

Supplementary Table 1: Risk of bias assessment within the included studies.

	Reporting	Selection of participants	Statistical tests	Data dredging	Deviations of intended interventions	Measurement of outcomes	Selection bias	Overall bias
Open pancreatoduodenectomy								
Cameron et al. 2006	Low	Low	Low	Low	Low	Low	Low	Low
Coe et al. 2015	Low	Low	Low	Low	Low	Low	Moderate	Moderate
Ecker et al. 2018	Low	Low	Low	Low	Low	Low	Low	Low
Fisher et al. 2012	Moderate	Low	Low	Low	Low	Low	Low	Moderate
Hardacre et al. 2010	Moderate	Low	Low	Moderate	Low	Low	Low	Moderate
Noda et al. 2012	Moderate	Low	Low	Low	Low	Moderate	Low	Moderate
Park et al. 2020	Low	Low	Low	Low	Low	Low	Low	Low
Relles et al. 2013	High	Low	Moderate	Low	Moderate	n.a.	Low	High
Roberts et al. 2020	Low	Low	Moderate	Low	Low	Low	Low	Moderate
Schmidt et al. 2010	Moderate	Low	Low	Low	Low	Low	Low	Moderate
Tsamalaidze et al. 2018	Moderate	Low	Low	Low	Low	Low	Low	Moderate
Tseng et al. 2007	Low	Moderate	Low	Low	Low	Low	Low	Moderate
Laparoscopic pancreatoduodenectomy								
Choi et al. 2020	Low	Low	Low	Low	Low	Low	Low	Low
Dokmak et al. 2017	Low	Low	Low	Low	Low	Low	Low	Low
Huang et al. 2020	Low	High	Low	Low	Low	Low	Low	High
Ke et al. 2020	Low	High	Low	Low	Low	Low	Low	High
Kim et al. 2012	Low	Low	Low	Low	Low	Moderate	Low	Moderate
Kim et al. 2020	Low	Moderate	Low	Low	Low	Low	Low	Moderate
Kuroki et al. 2014	Low	Low	Low	Low	Low	Low	Low	Low
Liao et al. 2017	Low	Moderate	Low	Moderate	Low	Moderate	Low	Moderate
Lu et al. 2016	Low	Low	Low	Low	Low	Moderate	Low	Moderate
Morato et al. 2020	Low	High	Low	Low	Low	Low	Low	High
Nagakawa et al. 2018	Low	Low	Low	Low	Low	Low	Low	Low
Nieuwenhuijs et al. 2020	Moderate	Low	Low	Low	Moderate	Low	Low	Moderate
Song et al. 2020	Low	Low	Low	Low	Low	Low	Low	Low
Speicher et al. 2014	Low	Moderate	Low	Moderate	n.a.	Moderate	Moderate	Moderate
Wang et al. 2020	Low	Low	Low	Low	Moderate	Low	Low	Moderate

Wang et al. 2019	Low	Low	Low	Low	Low	Low	Low	Low
Wang et al. 2016	Low	Moderate	Low	Low	Low	Low	Low	Moderate
Zhang et al. 2018	Low	Low	Low	Low	Low	Low	Low	Low

Robotic pancreatoduodenectomy

Beane et al. 2019	Moderate	Low	Low	Moderate	n.a.	Moderate	n.a.	Moderate
Boone et al. 2015	Low	Low	Low	Low	Low	Low	Low	Low
Chen et al. 2015	Low	Low	Low	n.a.	Low	Low	n.a.	Low
Guerra et al. 2018	Moderate	Moderate	Low	High	n.a.	Moderate	Moderate	High
Kim et al. 2020	Low	Low	Low	Low	Low	Low	Low	Low
Marino et al. 2020	Low	Low	Low	Low	Low	Low	n.a.	Low
Napoli et al. 2016	Low	Low	n.a.	n.a.	Low	Low	n.a.	Low
Rice et al. 2020	Low	Low	Low	n.a.	Low	Moderate	Moderate	Moderate
Schmidt et al. 2020	Low	Low	Low	Low	Low	Low	Low	Low
Shi et al.	Low	Low	Low	Low	Low	Low	Low	Low
Shyr et al. 2018	Moderate	Low	Low	n.a.	n.a.	Low	Low	Moderate
Takahashi et al. 2018	Moderate	Moderate	Low	n.a.	n.a.	Moderate	Moderate	Moderate
Watkins et al. 2018	Low	Low	Low	n.a.	Low	Low	Moderate	Moderate
Zhang et al. 2018	High	Moderate	Low	Low	n.a.	Moderate	n.a.	High
Zhang et al. 2019	Moderate	Low	Low	n.a.	n.a.	Low	n.a.	Moderate
Zhou et al.	Low	Low	Low	Low	Low	Low	Low	Low
Zwart et al. 2021	Low	Low	Low	Low	Low	Low	Low	Low

Laparoscopic distal pancreatectomy

Barga et al. 2012	Moderate	Moderate	n.a.	n.a.	Low	Low	n.a.	Moderate
Barrie et al. 2015	Low	Moderate	Low	n.a.	n.a.	Moderate	Moderate	Moderate
de Rooij et al. 2017	Moderate	Moderate	Low	n.a.	Moderate	High	n.a.	High
de Rooij et al. 2016	Low	Low	Low	n.a.	Low	Low	Low	Low
Hasselgren et al.	Low	Low	Low	Low	Low	Low	Low	Low
Kim et al. 2019	Moderate	Low	n.a.	n.a.	n.a.	Moderate	Low	Moderate
Kneuert et al. 2012	Moderate	Low	Low	n.a.	Low	Low	Moderate	Moderate
Liao et al. 2020	Low	Moderate	Low	Low	Low	Low	Moderate	Moderate
Lof et al. 2019	Low	Low	Low	Low	Low	Low	Low	Low
Malleo et al. 2014	Low	Low	Low	n.a.	Low	Low	Moderate	Moderate
Nachmany et al. 2016	Moderate	Moderate	n.a.	n.a.	Low	Low	Low	Moderate
Park et al.	Low	Moderate	Low	Low	Low	Low	Moderate	Moderate
Ricci et al. 2015	Low	Low	Low	n.a.	n.a.	Moderate	Low	Moderate
Sahakyan et al. 2021	Low	Low	Low	Low	Moderate	Low	Low	Moderate

Robotic distal pancreatectomy

Benizri et al. 2013	Moderate	Low	Low	n.a.	Low	Low	Low	Moderate
Klompaker et al. 2019	Low	Low	Low	n.a.	n.a.	Low	Moderate	Moderate
Napoli et al. 2015	Low	Moderate	Low	n.a.	Low	Low	Moderate	Moderate
Shakir et al. 2015	Low	Low	Low	n.a.	n.a.	Low	Low	Low
Shyr et al. 2018	Low	Low	Low	n.a.	Low	Low	Moderate	Moderate