Purpose:
Although several prediction models for the occurrence of postoperative pancreatic fistula (POPF) after pancreatoduodenectomy exist, all were established using Western cohorts. Large-scale external validation studies in Eastern cohorts are scarce. This study was to externally validate POPF prediction models using nationwide large-scale Korean cohorts.

Methods:
Nine tertiary university hospitals in Korea participated. POPF grades were determined according to the 2016 International Study Group on Pancreatic Surgery definition. Three POPF risk models (Callery, Roberts, and Mungroop) were selected for external validation.
Results:
A total of 1898 PD patients were enrolled. A non-pancreatic disease diagnosis (hazard ratio [HR], 1.856; 95% confidence interval [CI], 1.223–2.817; P = 0.004), higher preoperative body mass index (HR, 1.069; 95% CI, 1.019–1.121; P = 0.006), and soft pancreatic texture (HR, 1.859; 95% CI, 1.264–2.735; P = 0.002) were independent risk factors for clinically relevant POPF. The areas under the receiver operating characteristic curve were 0.61, 0.64, and 0.63 on the Callery, Roberts, and Mungroop models, respectively; all were lower than those published in each external validation study.

Conclusion:
Western POPF prediction models performed poorly when applied to Korean cohorts. Thus, a large-scale Eastern-specific and externally validated POPF prediction model is needed.