

One of the most commonly tested mechanical properties of dental restorative materials is flexural strength (FS), which is considered important for characterizing brittle materials. This type of test generates complex stresses that combine tensile, compressive, and shear stresses when specimens are loaded.²⁹ Several studies examined FS of a number of commercial nanocomposites comparing hybrid and microfilled composites.^{11,13,22,28–36} Direct comparison showed that the FS of nanocomposites was equivalent to or even higher than other composites tested^{11,13,22,29,31,37} with values ranging from 103 to 192 MPa.^{38–40} Mitra and others,²² who developed nanocomposite materials in 2003, reported FS values ranging from 153 to 177 MPa. These values were significantly higher than a number of tested hybrid composites, comparable to that of one hybrid material and significantly higher than the microfilled composite (Table 2). Similarly, Pontes and others²⁹ reported significantly higher FS of a nanocomposite compared with a hybrid. On the other hand, several investigators reported FS values of several nanocomposites comparable to or significantly lower than a number of hybrid materials but significantly higher than microfilled composites.^{11,31,36,40–42}