ABSTRACT
Mediator complex subunit 12 (MED12) is the most frequently mutated gene in uterine leiomyomas (ULs)-with a frequency of up to 85%-suggesting that it plays key roles in the pathogenesis of ULs. However, there is no established relationship between genetic alteration and other risk factors of UL pathogenesis such as the patient's age, weight, and race. In this meta-analysis, we established an association between these risk factors and the frequency of MED12 mutation. We also established the relationship between MED12 mutation with the number and size of tumors in a patient. A systematic literature search was performed for studies published by May 2020 and performed a meta-analysis according to PRISMA guidelines. Twenty-five studies were included in the analysis, representing 3151 tissue samples. MED12 mutations were more common in Black (74.5%) as compared to White (65.8%) and Asian (53.2%) patients. There was no significant relationship between the patient's age and the frequency of mutations (OR 0.73, 95% CI 0.38 to 1.41). MED12 mutations were common in patients barring small-sized (OR 1.46, 95% CI 1.09 to 1.95) multiple (OR 0.39, 95% CI 0.17 to 0.92) tumors. For the patient's weight, studies were few and the outcome was not statistically significant. This meta-analysis provides valuable information on the relationship between the patient's clinical characteristics and frequency of MED12 mutation among patients barring ULs, which is relevant for understanding the pathogenesis of ULs.Protocol registration: The protocol was registered in PROSPERO with registration number CRD42019123439.
Keywords: Genetics; MED12; Mutation; Uterine fibroids; Uterine leiomyoma; Uterine tumors.