Background and Methods

Uranium (U) exposure may increase risk of developing Diabetes Mellitus (DM). U-miners may be at increased risk of DM due to occupational U exposure. American Indians (AI) are a vulnerable population with a high rate of DM and may be at greater risk of developing DM due to U exposure than are U-miners of other races/ethnicities. Our aim is to assess DM prevalence in U-miners among different races/ethnicities. This was a retrospective cohort study using survey data from former U-Miners in the Radiation Exposure Screening & Education Program at University of New Mexico (UNM) from 4/1/2005-9/30/2022. Age, gender, race/ethnicity, educational attainment, body mass index, history of cancer diagnosis, smoking history, and DM diagnosis were determined by self-report and medication history. DM prevalence by race/ethnicity was assessed with adjusted logistic regression and interpreted using odds ratio (OR) and 95% confidence interval (CI) with Stata-17. Statistical significance was defined as p<0.05. Data source: UNM–REDCap (Research electronic data capture).

Results, Conclusions and Public Health Implications

The study included 746 U-Miners. Mean age was 70 years. The population was 96.5% male, 3.5% female; 33% white, 67% non-white; 33% AI and 67% non-AI. Statistical analysis showed higher DM prevalence in white (25%) vs. non-white (43%) (OR 2.7; CI, 1.7-4.1; p<0.01); and in AI (49.2%) vs non-AI (31%) (OR 2.4; CI, 1.6-3.6; P<0.01).

U-miner DM prevalence differed by race/ethnicity. Further research is needed to evaluate how race/ethnicity affects DM prevalence following U exposure. AI U-miners are a vulnerable population with high prevalence of DM. U exposure may further increase DM risk. Many AI U-miners and their families live near active or abandoned mines with ongoing environmental U exposure. Better understanding of U exposure’s health risks will enable delivery of more comprehensive, culturally-competent preventive and medical care to vulnerable populations.