The purpose of this study was to examine the relationship between tobacco use and different measures of socioeconomic status (SES) in cohorts of radiation workers. Often, tobacco use information is unavailable in occupational studies, so measures of SES are commonly used as a surrogate. However, there is not a standard measure of SES that is used across occupational studies, nor is there a full understanding of how SES is related to tobacco use in these unique groups. Specifically, this study hypothesized that there will be a relationship between tobacco use and SES, but it is expected that this relationship may change as tobacco use patterns shift over time. For this study, data were obtained from the Comprehensive Epidemiologic Data Resource (CEDR) for three previously published cohorts each with a different SES measure. All analyses were completed in SAS 9.3 and R. Job category was the tobacco use surrogate for 492 white males employed at the Hanford Site, while highest level of education was the SES measure for 456 white males from the Lindsay Chemical Company, and pay category was used for 564 males and 46 females from the Tennessee Eastman Corporation. There were slight differences in birth cohorts between the three sites although all three shared overlapping periods. Without adjustment for birth cohort, the job category and pay category did not show significant associations with tobacco use in the chi-square analysis. There was a significant relationship between education level and tobacco use in the Lindsay Chemical Company workers at 95% confidence level. A simple logistic regression showed the odds of using tobacco are lower in those with graduate education compared to those with less than high school education, and this association persisted once adjusted for birth cohort.

### Results

#### Tobacco Use Prevalence by Cohorts

- **Cohort**: Hanford, Lindsay, TEC, USA
- **Percentage of Tobacco Use**: 45–55%

#### TEC Tobacco Use by Pay Category

- **Pay Category**: Hourly, Pay Category, Salary
- **Percentage of Tobacco Use**: 74.3% to 72.4%

#### Lindsay Tobacco Use by Education

- **Education Level**: High School Graduate, High School Diploma, Some College, College Graduate, Graduate School
- **Percentage of Tobacco Use**: 75% to 53.1%

#### Hanford Tobacco Use by Job Category

- **Job Category**: Craftsmen, Nuclear, Other, White Collar
- **Percentage of Tobacco Use**: 94.5% to 91.7%

### Discussion

- Overall, the study was limited by small sample size. Specifically, a lack of women (n=46) and non-white participants.
- Both the Hanford and Lindsay studies only included white males.
- The number of people who did not use tobacco is small in each cohort compared to tobacco users.
- Tobacco use prevalence by occupational cohort show declines in later birth cohorts while the prevalence in the greater USA does not show the decline.
- The observed decline could be the result smaller number of people with tobacco use information available in the later birth cohorts.
- Of the three different types of SES, only education level showed a statistically significant difference in tobacco use.
- Both Hanford (31/492, 6.3%) and TEC (159/610, 26.1%) had relatively small proportions of non-tobacco users.
- In the logistic regression, only the comparison of graduate school education to less than high school education had a significantly relationship.
- More research is needed to determine if different measures of SES are reasonable estimates of tobacco use in occupational cohorts of radiation workers.

### References


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