

HW7

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Instructions. In this problem, we will still be working on analyzing the association between *Insurance* and *Stage* with five covariates including *Age*, *Sex*, *Race*, *Marital status* and *Poverty*. Please submit your homework by uploading the .RMD file or the HTML NB file to Blackboard under the HW7 assignment.

1. Import the data and library packages
2. Make new variables for *marital status* categorizing marital status into single and married; transfer *poverty* variable to numeric variable (hint: using *as.numeric* function). Check your recodings to make sure they are correct.
3. Re-level (using the *relevel* function) the dependent variable to the case that stage I as reference category and execute a multinomial regression with the independent variable and five covariates. Summary the results
4. Perform the hypothesis test for the *insurance* variables, explain what you find
5. Get the odds ratio of the *insurance* variables, explain what you find.
6. Execute an ordinal logistic regression with the independent variable and the same covariates. Summary the results
7. Perform the hypothesis test for the *insurance* variables, explain what you find
8. Get the odds ratio of the *insurance* variables, explain what you find.
9. Estimate the AME, explain what you find for *insurance* variables.

```
AME <- ocME(mod1)
AME
```

10. What conclusions can you draw from both models in terms of the association between insurance and stage among breast cancer patients?