

Form a group with your neighbors and discuss Questions 1 & 6 below.

Deciding What Study Results to Publish and Transparency in Research Publication

Dr. Wyck is the lead investigator for a cohort-based case-control study of the genetic and environmental factors related to Parkinson's Disease (PD) that compares 1,000 patients with 1,000 matched controls. Her team's analysis discovers that having a history of head trauma ($p=0.005$), high blood pressure ($p=0.01$), or exposure to agricultural pesticides ($p=0.04$) is related to 25-60% higher risk of PD. Surprisingly, Dr. Wyck found that current cigarette smokers were at 40% lower risk of PD as compared to non-smokers ($p=0.02$). The analysis also indicated that non-smokers exposed to second-hand smoke had 12% lower PD risk as compared to non-smokers without exposure to second-hand smoke, but this association was not formally statistically significant ($p=0.07$).

Dr. Wyck is concerned that the findings for smoking exposure may have a negative impact on public health by discouraging people from quitting (i.e., as a way to avoid developing PD). While preparing the study manuscript, she is considering whether or not to report the findings related to smoking (and if so, how to address those findings in the discussion).

Questions:

1. Should Dr. Wyck report all of her findings, including those related to smoking? Why or why not? What if the result for smoking was opposite; i.e., it was related to *higher* PD risk?
2. Should she only report findings with p-values $p<0.05$?
3. Which findings should Dr. Wyck emphasize in title, abstract, and discussion?
4. How should she discuss the apparent protective association with smoking; e.g., should she speculate on possible mechanisms, such as nicotine's role in increasing brain dopamine levels?
5. What, if anything, should the authors say about the second-hand smoke finding?
6. What aspects of the many health risks associated with smoking are relevant to the findings?

Case study taken From National Institutes of Health
Office of Intramural Research

<https://oir.nih.gov/sourcebook/ethical-conduct/responsible-conduct-research-training>

Other health-related findings about smoking:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3296911/>

Introduction reports "Lung cancer is a leading cause of death, where the proportion of cases attributable to smoking has reached up to 90% in countries with a history of tobacco consumption (<https://www.ncbi.nlm.nih.gov/books/NBK316407/>)."