Executive Summary

This case assesses the impact of a workplace wellness program on health outcomes and healthcare costs using data from the Illinois Workplace Wellness Study. Employees were randomly assigned to either a treatment group (offered the wellness program) or a control group. The main objectives are to evaluate the program's effects by comparing these groups, identify selection bias by analyzing differences between participants and non-participants within the treatment group, and validate random assignment by checking for baseline differences. The study aims to determine the program’s effectiveness and factors that influence employee participation.

Responses to Case Questions

1. To estimate the causal effect of wellness programs on healthcare spending, firms with and without such programs need to be comparable in factors like size, structure, and financial stability, ideally with random program allocation. This condition is challenging to meet, as firms with wellness programs are typically larger, more financially stable, and have higher employee loyalty, potentially biasing the results.

2. For the comparison of eligible and ineligible employees to reflect the causal effect, these groups must be similar in unrelated factors, without systematic differences in health or job type that influence eligibility. This condition is difficult to satisfy, as eligibility often correlates with job type and health status, which complicates causal inference.

3. In this study, the treatment group includes employees offered the wellness program, while the control group was not offered it, serving as a baseline. Participants are treatment group members who engaged in the initial screening, while non-participants either did not engage or are part of the control group. There are 3,300 employees in the treatment group and 1,534 in the control

group, with 1,900 treatment group members participating in the first-year screening. This setup enables program impact assessment.

4. In the pre-randomization analysis, we calculated outcome means for treatment and control groups, using linear regression to determine the p-value for differences between groups. Only 4.88% of outcomes had p-values below 0.05, suggesting minimal baseline differences and supporting random assignment. The regression equation used was:

$$\text{Outcome}=\beta 0+\beta 1\times \text{treat}$$

where $\beta 0$ is the control group mean, $\beta 1$ represents the difference, and the p-value tests $\beta 1$'s significance.

5. For the first-year post-randomization outcomes, we estimated differences between treatment and control groups, with and without demographic controls, using linear regression. The average absolute difference between estimates was 1.14, indicating minimal change when controls were added. The regression equation was:

$$\text{Outcome}=\beta 0+\beta 1\times \text{treat}+(\text{controls})$$

where $\beta 1$ represents the treatment effect. Small changes between columns suggest minimal influence of demographic factors, supporting randomization validity and low selection bias.

6. For the first-year outcomes, we compared participants and non-participants with and without demographic controls. The average absolute difference between estimates was 0.44, indicating minimal change with controls. The regression model used was:

$$\text{Outcome}=\beta 0+\beta 1\times \text{participant}+(\text{controls})$$

where $\beta 1$ represents the participation effect. Small differences suggest demographic factors have little impact, supporting a valid causal effect of program participation with limited selection bias.

Conclusion

Workplace wellness programs may offer modest health and cost benefits, but success depends on active employee participation, which varies by demographics. Employers should consider strategies like targeted incentives or tailored wellness activities to increase engagement across all groups. Regular program evaluation and monitoring are essential to align benefits with organizational goals. A well-designed, inclusive wellness program can promote employee health and reduce healthcare expenses.