|  |  |  |  |
| --- | --- | --- | --- |
|  | Case | | |
| Control |  | Estrogen Use | No Estrogen Use |
| Estrogen Use | 27 | 2 |
| No Estrogen Use | 29 | 5 |

* 1. OR = = 29/2 = **14.5**

Controlling for age, marital status, and community, there is a 1350% increase in odds of endometrial cancer for women who use estrogen compared to women who do not use estrogen.

* 1. Log OR = log(14.5) = 2.674

SE(Log(OR) = = = 0.731

CI = exp(2.674±1.96\*0.731) = **(3.460,60.750)**

Controlling for age, marital status, and community, we are 95% confident that the odds of endometrial cancer are 246 to 5907% higher for women who use estrogen to women who do not use estrogen.

* 1. 2.674/0.731 = **3.658** > 1.96. **Reject H0.**

H0­: The odds of endometrial cancer between women who use estrogen and women who don’t use estrogen are equal, controlling for age, marital status, and community.

Ha: The odds of endometrial cancer between women who use estrogen and women who don’t use estrogen are not equal, controlling for age, marital status, and community.

Since we reject the null hypothesis, the odds of endometrial cancer between women who use estrogen and women who do not use estrogen are not equal, controlling for age, marital status, and community.

* 1. g(BMI) = log-odds of endometrial cancer within pair given BMI.

= αi + β1BMI

Where αi is the intercept for pair *i*, BMI is continuous

* 1. G = 2 x (-16.0353) – 2 x (63) x log(0.5) = -32.0706 - -87.3365 = 55.2659 > 3.84; Reject H0

H0: BMI is not related to endometrial cancer, controlling for age, marital status, and community.

Ha: BMI is related to endometrial cancer, controlling for age, marital status, and community.

We have sufficient evidence to suggest that BMI is related to endometrial cancer, controlling for age, marital status, and community.



OR = e0.2337539 = 1.263. There is a 26% increase in odds for endometrial cancer per 1 kg/m2 increase in BMI, controlling for age, marital status, and community.

* + 1. Probability cannot be calculated. Do not have an observed exposure level for case and controls. Also, there is nothing concerning pairs in the question.
    2. = = 0.9119
  1. g(x) = αi + β1est + β2age\_est

αi­ is the intercept for the pair. Est is estrogen use, age\_est is the interaction variable. Age is not coded since it is part of the pairing process.

*   
  i. OR = e(4.086618-.0196291(65)) = 16.62

65 year olds who use estrogen have a 1562% increase in odds of endometrial cancer when compared to 65 year olds who do not use estrogen, controlling for marital status and community.

ii. OR = e(4.086618-.0196291(80))= 12.38

80 year olds who use estrogen have a 1138% increase in odds of endometrial cancer when compared to 80 year olds who do not use estrogen, controlling for marital status and community.

* 1. After performing the LR test in STATA, We failed to reject the null hypothesis at the 0.05 significance level.

H0: Age does not significantly modify the effect of estrogen use on the odds of endometrial cancer, controlling for marital status and community.

Ha: Age does significantly modify the effect of estrogen use on the odds of endometrial cancer, controlling for marital status and community.

G = 0.04 < 3.84.