

RISK FACTORS OF BREAST CANCER IN WOMEN IN KELANTAN, MALAYSIA

Dear Sir,

We very much thank Dr Afifi⁽¹⁾ for highlighting some missing or unclear points in our article on risk factors of breast cancer in women in Kelantan, Malaysia⁽²⁾.

It is true that the 95% confidence interval (CI) of Table V did not align correctly. The 95% CI should be one line lower than what is presented. These 95% CIs belong to the adjusted ORs (see amended Table V below).

Table V. Multiple conditional logistic regression analysis of risk factors for female breast cancer⁽²⁾.

| Risk factors | Crude odds-ratio ^a | Adjusted odds-ratio ^b | 95% CI ^c | p-value ^d |
|---|-------------------------------|----------------------------------|---------------------|----------------------|
| Number of children | | | | <0.001 |
| >2 | 1.0 | 1.0 | | |
| 1-2 | 2.2 | 1.6 | 0.8-3.2 | |
| Nulliparous | 26.4 | 15.3 | 3.2-72.4 | |
| Family history | | | | 0.0074 |
| No | 1.0 | 1.0 | | |
| Yes | 4.0 | 4.3 | 1.3-14.1 | |
| Oral contraceptive pills | | | | 0.0031 |
| Never use | 1.0 | 1.0 | | |
| Ever use | 1.9 | 2.5 | 1.3-4.8 | |
| Body mass index at diagnosis (kg/m ²) | | | | 0.0105 |
| Normal (18.5- 24.9) | 1.0 | 1.0 | | |
| Underweight (<18.5) | 2.7 | 3.9 | 1.3-11.9 | |
| Overweight/obese (≥25.0) | 1.6 | 2.1 | 1.1-3.9 | |

^a Simple conditional logistic regression; ^b Multiple conditional logistic regression; ^c 95% confidence interval of the adjusted odds ratio; ^d LR test, multiple conditional logistic regression

Some of the variables that we missed defining are as follows. Irregular menses in our study involved all respondents. It refers to the last three menstrual cycles prior to the diagnosis of breast cancer or interview for controls or menopause for post-menopausal women. It is considered irregular if the menses did not come at the expected time. Cigarette smoker includes former and current regular smoker of at least a month in duration. Alcohol drinker includes former and current regular alcohol drinker of at least a glass per week for a month in duration.

Height and weight were included because the literature has shown a significant association with breast cancer⁽³⁻⁵⁾. We checked the multi-collinearity for all variables in the model during the process of modelling, and no serious problem was found. Waist circumference and waist-hip ratio were not included because we were using retrospective data, and they were not measured when breast cancer was diagnosed. This can therefore be considered a limitation of this study.

The relationship of breast cancer and BMI depends on the menopausal status of the women. There was significant association of breast cancer and obesity in post-menopausal^(5,6) but not in pre-menopausal women^(3,5). With pre- and post-menopausal women combined, we found a significant association between breast cancer and overweight/obese as well as underweight women. We did not perform separate analyses of pre- and post-menopausal women due to the small sample size of post-menopausal women. Hirose et al did not report the association of breast cancer and underweight but an inverse relationship of BMI and breast cancer risk among pre-menopausal women⁽⁵⁾. Further study is needed to confirm this association.

We included age in our results, although it was one of the matching variables because it is important for us to prove/show that our matching was successful. I hope the author is aware that age is a continuous variable and matching is done within five years of age and therefore, matching was not 100% like in ethnicity (which was the other matching variable).

Once the main effects model had been refined correctly, the interactions among variables in the model were checked⁽⁷⁾. As the author pointed out, we checked again the interactions of age and other variables but none was significant, because of the homogeneity of age across the groups as a result of matching.

In the discussion, we did not agree that we were repeating our point regarding parity. In the second paragraph, we mentioned the association between breast cancer and parity. In the following paragraph, we discussed the relationship between parity with education. The education level influences age of marriage and number of children, thus the parity. Then, in the next paragraph, we discussed nulliparity in relation to infertility and how its treatment may influence the occurrence of breast cancer.

Regarding ethical consideration, our study had been approved by the Research and Ethics Committee of our university. We took informed consent and anonymity was guaranteed.

Finally, we would like to thank Dr Afifi again for his concerns. With the opportunity to add or clarify points, we hope that the article will be more understandable.

Yours sincerely,

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