

Dietary Fat Intake: Associations with Dietary Patterns and Postmenopausal Breast Cancer. A Case-Control Study

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Background: Breast cancer is the most common cancer in females worldwide¹. Although fat has been hypothesized to be involved in breast cancer etiology, the results of available studies are inconclusive. The aim of this study was to assess the associations of the individual's percentage of energy from dietary fat (Pfat) with dietary patterns (DPs), and occurrence of the peri- and postmenopausal breast cancer (BC).

Methods: This case-control study obtained 420 women aged 40–79 years from north-eastern Poland, including 190 newly diagnosed BC cases. Dietary data were collected using a food frequency questionnaire (62-item FFQ-6®). The Quick Food Scan of the National Cancer Institute, and the Percentage Energy from Fat Screener scoring procedures were used to estimate Pfat. *A posteriori* DPs were derived with a Principal Component Analysis (PCA). Three PCA-driven DPs: 'Non-Healthy', 'Prudent', and 'Margarine and Sweetened Dairy' were described previously². A logistic regression analysis was performed. The odds ratios (ORs) and 95% confidence interval (95% CI) were calculated.

Results: The odds of BC occurrence was three-times higher in the upper tertile of Pfat >32% (OR:3.00; 95%CI: 1.66–5.41; p<0.001; reference: bottom tertile <30%). The odds of Pfat >32% was higher in the upper tertile of the 'Non-Healthy' DP (OR:11.02; 95%CI: 5.17-23.50; p<0.001; reference: bottom tertile). The odds of Pfat >32% was lower in the higher level of the Polish-aMED® score (5-8 points; OR:0.19; 95%CI: 0.11-0.33; p<0.001; reference: lower level 0-4 points), lower with a one-point increase of the 'Prudent' DP (OR:0.80; 95%CI: 0.64-0.99; p<0.05), and lower in the middle tertile of the 'Margarine and Sweetened Dairy' DP (OR:0.29; 95%CI: 0.15-0.55; p<0.001; reference: bottom tertile).

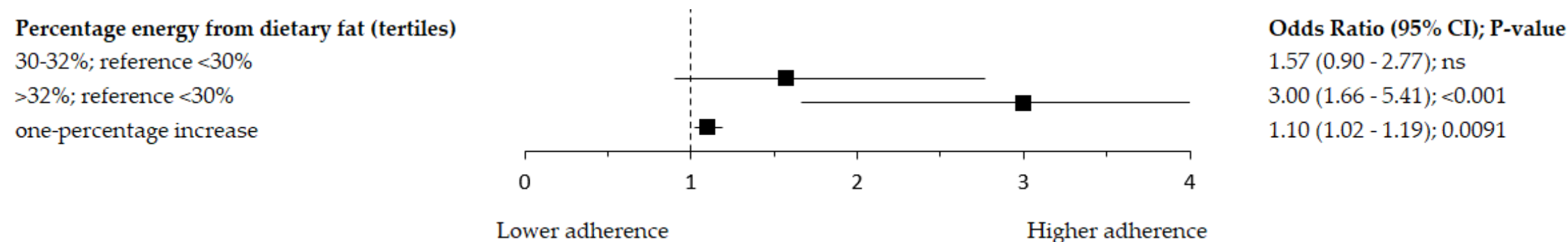


Figure 1. Forest plot of the breast cancer occurrence by adherence to the percentage of energy from dietary fat; Ref. – reference categories; p-value – the level of significance was assessed by Wald's test.

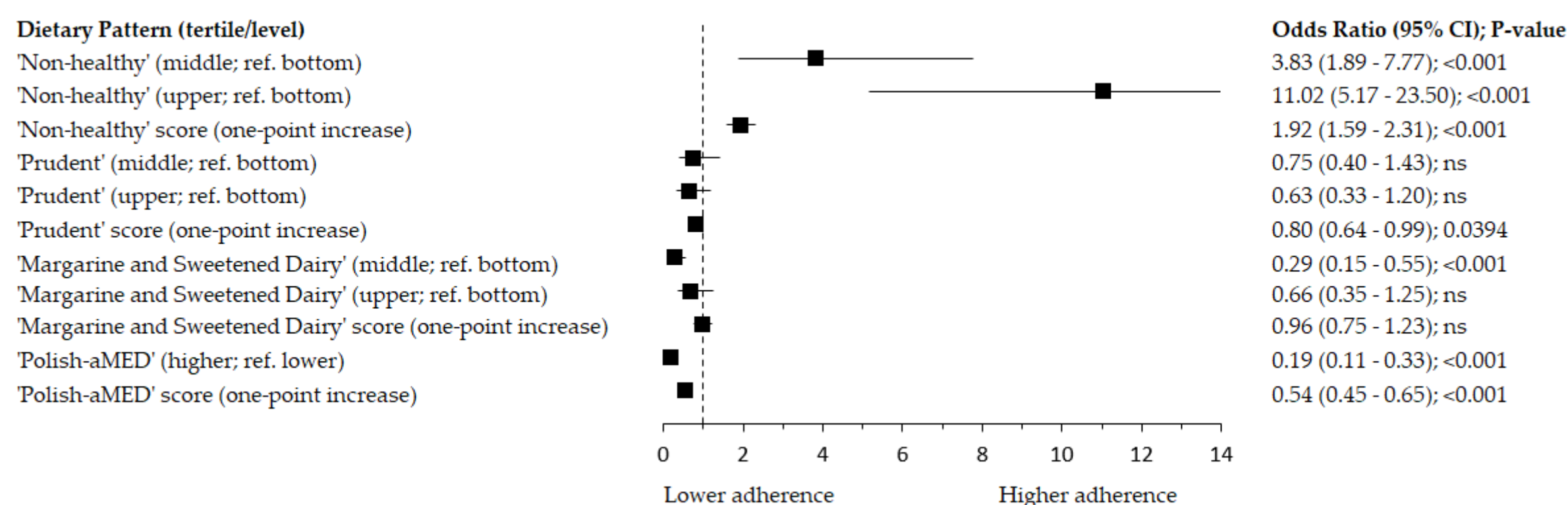


Figure 2. Forest plot of the upper tertile of the percentage of energy from dietary fat (>32%) by adherence to the dietary patterns; Ref. – reference categories; p-value – the level of significance was assessed by Wald's test.

Conclusions: The higher dietary fat intake may contribute to an increased occurrence of peri- and postmenopausal breast cancer. Given that dietary pattern characterized by the consumption of highly processed, high in sugar and animal fat foods was positively linked with dietary fat intake, it is important to avoid this unhealthy diet in breast cancer prevention. Instead, dietary patterns characterized by the frequent consumption of low-processed plant foods and fish, and moderate consumption of low-fat dairy should be recommended since this pro-healthy diet was inversely associated with dietary fat intake.

References: ¹Sung H, Ferlay J, Siegel RL *et al.* (2021) *Ca Cancer J. Clin.* 71, 201-249. ²Krusinska B, Wadolowska L, Slowinska MA *et al.* (2018) *Nutrients* 10, 2013.

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