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Multipronged Approach to Assess Risk Factors for Non-alcoholic Fatty Liver Disease

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Dear Editor,

We read with great interest the article by Mohamed et al,[1] recently published in the *Oman Medical Journal*. The article has highlighted the prevalence and risk factors of non-alcoholic fatty liver disease (NAFLD) among patients with type 2 diabetes mellitus in Bahrain. We agree that the authors have included an impressive number of covariates in determining the risk factors of NAFLD. However, we notice that in the case of metabolic syndrome, the reference used was Adult Treatment Panel III guidelines instead of the harmonized criteria which is ethnic-specific in waist circumference measures with a lower cut-off for fasting blood glucose.[2] In future studies, we suggest that the authors may consider using the harmonized criteria to ensure all possible causes of metabolic syndrome are detected. In addition, the demographic data in Table 1 mentioned cardiovascular risks as one of the variables; however, we could not elicit it in the univariate analysis.[1] We are wondering whether it is associated with physical activity or other variables.

The authors also considered obesity as measured through body mass index (BMI) as a risk factor for NAFLD. This was confirmed by the findings of the study as an independent risk factor for NAFLD. Although BMI is robust and simple to use as an indicator of obesity, similar BMI does not necessarily mean similar proportion of body fat. Thus, the measurement of body fat percentage through bioimpedance analysis may be a better indicator of obesity.[3] Future studies may consider various body composition measures to accurately define obesity.

For the statistical analysis, researchers did a good job by performing all the univariate analyses and then selected the statistically significant variables to be included in the binomial logistic regression. However, there is another way to analyze the data by performing a full multiple logistic regression.[4] In multiple logistic regression, the univariate analysis called simple logistic regression is required to select the possible variables that could be included in the preliminary model.[4] Performing multiple logistic regression (multivariate analysis) can increase the power of statistical analysis.[5] We notice some missing data for most of the measured variables, which could lead to potential bias and compromise the inferences from the research if not handled and treated appropriately. We would like to know how the researchers handled or treated the missing data.

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