

Title: A study into the long-overlooked carcinogenic radon in bottled water and deep well water in Dhaka, Bangladesh

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Abstract: Objective: The aim of this study is to evaluate diet quality and other associated factors with dyslipidaemia in cardiovascular disease (CVD) patients in Bangladesh. **Design:** The study employed a cross-sectional design. **Setting:** Data from medical records, dietary intake and socioeconomic factors were collected from January to October 2022 at the National Institute of Cardiovascular Disease, Dhaka, and Noakhali Sadar Hospital. **Participants:** A total of 570 CVD patients, aged 25-80 years, with a confirmed diagnosis within the past 3 months, were included in the study. **Main outcome measures:** The primary outcomes were the Global Diet Quality Score (GDQS) and dyslipidaemia. Multivariate logistic regression models were used to explore the associations between dyslipidaemia and various sociodemographic, nutritional, and dietary factors in CVD patients. **Results:** Dyslipidaemia was identified in more than two-thirds (70.4%) of participants. The mean GDQS was 24.38, with 69.8% of the population maintaining a healthy diet. GDQS was significantly higher in the non-dyslipidaemic group (25.21 ± 2.53) compared with the dyslipidaemic group (24.03 ± 2.33). Nutrient intake was generally higher in non-dyslipidaemic patients. The odds of hypercholesterolaemia, hypertriglyceridaemia and elevated low-density lipoprotein (LDL) were notably higher for participants in the lowest GDQS tertile compared with the highest. Multivariable logistic regression identified sex, employment status, body mass index (BMI) and GDQS as significant predictors of dyslipidaemia. Males (adjusted odds ratio (AOR)=4.18, 95% CI 2.32 to 7.54), homemakers (AOR=2.86) and obese individuals (AOR=1.0) were at increased odds of dyslipidaemia. Compared with the highest GDQS tertile, the odds of dyslipidaemia were nearly double in the middle tertile (AOR: 1.87, 95% CI 1.13 to 3.11) and almost four times higher in the lowest tertile (AOR: 3.67, 95% CI 2.02 to 6.64). **Conclusions:** A high-quality diet was associated with significantly lower odds of dyslipidaemia, hypercholesterolaemia, hypertriglyceridaemia and elevated LDL cholesterol. The study findings highlight the potential of targeted nutritional interventions with a multifaceted approach to managing dyslipidaemia, emphasising the need for personalised dietary guidelines that consider the individual's gender, occupation and BMI.

Keywords: Cardiovascular Disease; Cross-Sectional Studies; Nutrition & Dietetics; Public Health

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