

## Abstract

### Background

Metabolic syndrome (MetS) is a multifactorial condition characterized by a complex interrelation between genetic and environmental factors. This study aims to examine the association between dietary pattern and biochemical biomarkers and MetS among Bahraini adults.

### Methods

The health electronic system of King Hamad University Hospital was accessed to extract data of 151 patients diagnosed with MetS by convenient sampling. Telephonic interviews were conducted with these patients. Food consumption data were gathered using a Food Frequency Questionnaire and physical activity was evaluated using the International Physical Activity Questionnaire. The primary outcome was the association of food consumption and change in biomarkers with the MetS parameters. The secondary outcomes included the effects of sleep, smoking, physical activity, Polycystic Ovarian Syndrome, and fatty liver on MetS.

### Results

The mean age of the participants was  $53.8 \pm 8.3$  years of which 89 (58.9%) were females while 62 (41.1%) were males. This study reveals a positive association between increase in BMI and increase of processed meat consumption ( $B=3.83$ ,  $p=0.001$ ). Consumption of specific foods as legumes ( $B=-2.70$ ,  $p=0.04$ ) showed a significant protective impact on BMI. The increase of Systolic Blood Pressure (SBP) was negatively associated with rice, bread, and pasta ( $p=0.005$ ). A positive relationship was found between glucose increase and increased consumption of meat ( $B=1.86$ ,  $p=0.01$ ), as well as falafel sandwiches ( $B=1.55$ ,  $p=0.02$ ). Dates consumption was associated with a lower SBP ( $B=-0.85$ ,  $p=0.04$ ). The analysis of the impact of the biomarkers on MetS showed that the triglycerides were positively associated with low-fat dairy products ( $B=0.76$ ,  $p=0.01$ ). Moreover, a negative association was observed between HDL and increase of chicken consumption ( $B=-3.44$ ,  $p=0.02$ ), cheddar cheese ( $B=-3.89$ ,  $p=0.04$ ), ricotta and goat cheese ( $B=-6.29$ ,  $p=0.01$ ), and chips ( $B=-3.89$ ,  $p=0.39$ ).

### Conclusion

Dietary patterns and some food consumption are closely associated with MetS among Bahraini adults. Our aim is to raise awareness toward healthy dietary patterns in Kingdom of Bahrain.