

Abstract

In the recent years, there has been a growing interest to utilise the precision nutrition approach for the prevention, management and treatment of obesity, which takes into consideration the interaction between food and the human and microbial genome. It is quite evident that awareness and popularity about genetic testing for personalised nutrition is gaining momentum. Consumer attitudes and perceptions towards genetic testing to determine the risks of a predisposition to various diseases have already been examined by several studies, consumer acceptance of personalised nutrition have not been studied in the Indian population till date. In phase one of the study, Consumer acceptance of genetic testing and the responses towards perceived advantages of receiving DNA based dietary advice were ease of understanding and specificity of the diet advice, which was the most frequently reported theme (57.5%), followed by more personalised and enjoyable (22.4%) and reduced costs due to disease prevention (20.1%). The study concluded that individuals were optimistic and perceived many advantages of nutrigenetic testing. The study populations was optimistic and were willing to adopt genetic tests for personalised nutrition recommendations. In phase two of the study, we compared the differences in anthropometric measurements, dietary intake and dietary adherence among standard generic dietary advice, personalized nutrition advice based on nutrigenetic variations and the precision nutrition advice based on nutrigenetic variations and gut microbiome profiling. A statistically significant increase in the Bacteroidetes genus was observed in the personalized nutrition group ($p = .04$). The change (delta) values in gut microbiome composition in personalized nutrition group were significantly higher at the end of 90 days. Gut microbiome-based personalized microbiome modulation through diet significantly improves gut microbiome profiles among obese individuals. Further need studies are needed with larger sample size to validate these study findings and long-term follow-up.