

CHAPTER 3

SCOPE OF INVESTIGATION

Based on the available literature, the present study entitled **“Sensory evaluation of fructooligosaccharide (FOS) added popular recipes of India and its role in modulating anthropometric indices, gut flora and lipopolysaccharide (LPS) in obese young adults of urban Vadodara”** was undertaken with following working hypothesis:

- Fructooligosaccharide substituted/added food products are similar with standard product in their organoleptic characteristics.
- There is no difference in grade-I obese subjects and non-obese subjects in terms of anthropometry profile, medical history, family history of diseases, defecation profile, hunger and satiety, psychological depression status, dependency on habits, dietary intakes, biophysical profile, atherogenic profile, endotoxemia and gut microbiota (*LAB, bifidobacteria, bacteroides and clostridium*) and no correlations existed between various parameters.
- 20 gram fructooligosaccharide (FOS) supplement has no effect on anthropometry profile, blood pressure, defecation profile, hunger and satiety, psychological depression, dietary intakes, lipemic parameters, plasma LPS level and gut microbiota (*LAB, bifidobacteria, bacteroides and clostridium*) in obese grade-I adults.

To authenticate the above mentioned hypothesis present study was undertaken with the following objectives-

Phase I - Development and standardisation of FOS incorporated popular recipes of India and studying their various organoleptic attributes and overall acceptability.

- ✚ Substituting and adding FOS in the base material of popular Indian food products i.e. *lilva kachori, vegetable parantha, rawa idli* and *chocolate cake* at varying levels.
- ✚ Conducting the organoleptic evaluation of FOS incorporated food products and study their overall acceptability.

Phase II - Situational analysis: mapping the prevalence of various grades of obesity in banks employees of Urban Vadodara (A cross-sectional design).

- ✚ Studying the distribution of subjects according to gender and age
- ✚ Classifying the subjects according to BMI and studying the prevalence of obesity in the bank employees
- ✚ Studying the anthropometric and biophysical profile of the subjects
- ✚ Studying the prevalence of abdominal obesity and central obesity in bank employees
- ✚ Studying the distribution of subjects according to percent body fat
- ✚ Studying the prevalence of hypertension in the bank employees

Phase III - Comparison of grade-I obese subjects with non-obese subjects in terms of anthropometry profile, medical history, family history of diseases, defecation profile, hunger and satiety, psychological depression status, dependency on habits, dietary intakes, biophysical profile, atherogenic profile, endotoxemia and gut microbiota (LAB, bifidobacteria, bacteroides and clostridium) and understand the correlations amongst various parameters.

- ✚ Studying the background information of obese and non-obese young adults

- ✚ Studying the anthropometric profile of obese and non-obese young adults
- ✚ Assessing the prevalence of abdominal obesity and studying the percent body fat in obese and non-obese young adults
- ✚ Assessing the blood pressure of obese and non-obese young adults
- ✚ Studying the family history of diseases and personal medical history of obese and non-obese young adults
- ✚ Studying defecation profile, personal habits and physical activity pattern of obese and non-obese young adults
- ✚ Assessing the psychological depression profile, hunger-satiety pattern, frequency of consumption of food and dietary intakes of the subjects of obese and non-obese young adults
- ✚ Assessing the atherogenic profile and endotoxemia of obese and non-obese young adults
- ✚ Analyzing the colonization of beneficial and potentially harmful bacteria in the gut of obese and non-obese young adults
- ✚ Understanding the relationships amongst BMI, direct and indirect determinants of obesity

Phase IV - Effect of fructooligosaccharide (FOS) supplementation on anthropometry, defecation, hunger and satiety, depression, dietary, lipemic parameters, LPS and gut microflora in obese grade-I adults.

- ✚ Studying the effect of FOS supplementation on anthropometric profile, biophysical profile, defecation profile, hunger and satiety pattern, dietary intakes and depression status of obese grade-I subjects before and after intervention
- ✚ Studying the effects of FOS supplementation on lipemic parameters and plasma LPS levels of obese grade-I subjects before and after intervention

- ✚ Studying the prebiotic effect of FOS supplementation by determining fecal microbial counts (*Lactobacillus*, *Bifidobacteria*, *clostridium* and *bacteriodes*) before and after supplementation.