Non communicable diseases (NCD)s are on rise and the known modifiable risk factors can be controlled to slow the pace of occurrence of these diseases. A large community level nutrition education can play an important role including major lifestyle recommendations. In this study cases of metabolic syndrome were selected to carry out this study. The diagnostic criteria to identify the metabolic syndrome patients were based on the NCEP ATP-III definitions. These respondents were at risk to develop cardiovascular diseases or diabetes in the future. In this study the metabolic syndrome has been identified as a target for dietary therapies to observe its effect on cardiovascular disease risk other than LDL cholesterol lowering by the medicines. Various epidemiological data linking high-fiber, whole grain foods and low glycemic index diets to lower insulin resistance and a lower risk of the metabolic syndrome.

Despite compelling evidence supporting a role of whole grain consumption in chronic disease prevention, different types of fibers from whole grain foods appear to have different metabolic effects. Whole grain products from oat, barley, rye, and psyllium are high in soluble fiber, while wheat and rice typically contain insoluble fiber. Lipid-lowering properties were generally observed for grain products rich in soluble fiber. This study was initiated with the main objective to determine the effect of barley consumption on body composition, blood pressure, lipid profile and fasting blood sugar among patients with metabolic syndrome. Metabolic syndrome patients
were randomly divided into two groups and barley was introduced in intervention group and both groups were followed at every month for 12 weeks of intervention period.

The findings of this study are concluded with the following key points:

- In this study both the groups significantly increased the intake of total dietary fiber during the intervention period. The mean total dietary fiber intake was (31.5 gm) in the intervention group and (28.5 gm) in the control group. The main reason was to increased total dietary fiber in intervention group due to the addition of barley. All the respondents reached within the range of recommended total dietary fiber intake by ICMR that is 25-40 gm/day or 12-14 gm/1000 kcal energy.

- In this trial, the subjects in the intervention group able to reach the US (FDA) dietary goal of consumption of at least (3 gm) of viscous soluble fiber per day through inclusion of barley. An additional important outcome of the present study was that a greater number of subjects from the intervention group versus control attained their recommended goal for intake of major nutrients. Compliance was good therefore it can be concluded that dietary interventions based on the NCEP ATP-III recommendations with healthy nutrition counseling had beneficial effects among metabolic syndrome patients.

- These findings indicated that intervention group significantly reduces the body fat %, visceral fat, Systolic blood pressure, total cholesterol, triglycerides, low density lipoprotein cholesterol and fasting blood sugar as compared to control group over the three month of active intervention with barley. Although mechanisms behind the blood pressure lowering effect of
dietary fibers are, however, still unclear. More human intervention studies are needed to confirm the blood-pressure-lowering effect of β-glucans within the metabolic syndrome and to define its optimal use in different settings.

- The addition of β-glucan through inclusion of barley to a meal beneficially influences glucose metabolism in patients with Metabolic Syndrome. In general, the effects of oat β-glucan have been studied more intensively than those of barley β-glucan. Many factors are responsible for the outcomes in human studies, and it is rather difficult to directly compare results from different intervention. The viscosity of gastrointestinal chyme, a key factor affecting physiological changes, is influenced by the source and the physicochemical properties of β-glucan, the processing techniques, the food matrix, and the dose.

- These findings suggest that dietary sources naturally rich in β-glucan (e.g., oat and barley) and β-glucan-supplemented foods as part of a healthy diet could be recommended to metabolic syndrome patients. Increased consumption of barely products should be considered as a dietary approach to reduce LDL cholesterol concentrations.

- We believe that the lack of the dietary fiber intake is related to the prevalence of lifestyle-related diseases in modern people and advocate increases in the intake of dietary fiber to prevent these diseases. We conducted this study to observe an increase in the intake of dietary fiber, not just an increase in the intake of barley, is good for health. If the mixture of barley and rice is not well received by people, we might extract the effective component in barley (dietary fiber) and use it as a food additive.