History of many cultures shows the medicinal uses of foods to prevent and treat diseases. There are document evidences showing that the Indians, Egyptians, Chinese, and Sumerians are a few civilizations who used many foods for medicinal purposes for thousands of years.

“Food as medicine” philosophy fell into relative gloom in the 19th century with the dawn of modern medical drug therapy. Later on the 20th century, interest in the medicinal effects of foods was revived, when diseases related to dietary habits, such as diabetes, obesity and cardiovascular diseases, became an alarming health concern. Scientists began to recognize components in foods from plants and animals sources that were physiologically active. These components could potentially reduce risk for various chronic diseases.

In 1990’s these developments, coupled with changes in food regulations, technological advances, and a marketplace rise for the health-promoting products, for an aging, health-conscious population and created the trend known as “Functional Foods.”

5.1 Summary
Present thesis entitled “Impact of Awareness Programme for Women on Knowledge and Consumption of Functional Foods” deals the subject in the following chapters:

- Introduction
- Review of literature
- Material and methods
- Results and discussion
- Summary and conclusion
- Bibliography
- Appendices

Chapter 1: Introduction
This chapter deals with the concept and categories of Functional Foods, active components in Functional Foods and their impact on health and physiological functions under the following heads:

- Origin of the Functional Foods concept
The tenet “Let food be thy medicine and medicine be thy food”, espoused by Hippocrates namely 2,500 years ago, is receiving renewed interest. There has been an explosion of consumer interest in the health-enhancing role of specific foods or physiologically active food components so-called “Functional Foods”. The Ancient Indian health science Ayurveda, 5,000 year old, have based on benefits of food for therapeutic purposes. (Wildman, 2001) Functional Foods have been demonstrated health benefits if consumed regularly in sufficient amount as part of a well-balanced and healthy diet. The American Dietetic Association (ADA) issued a position statement in 1999. ADA described Functional Foods as “any potentially healthful food or food ingredient that may provide a health benefit beyond the traditional nutrients it contains.”

According to FOSHU “all Functional Foods must meet three established requirements: foods should be (I) present in their naturally-occurring form, rather than a capsule, tablet, or powder; (ii) consumed in the diet as often as daily; and (iii) should regulate a biological process in hopes of preventing or controlling disease.” (Hardy, 2000)

**Categories of Functional Foods**

According to all definitions, there are wide varieties of foods which represent the natural whole foods. All these would be considered as Functional Foods because they contain physiologically active components in sufficient amount like phytochemicals lycopene and lutein, beta-carotene, sulforaphane etc. Foods that have been modified or fortified with nutrients or enriched with phytochemicals or botanicals also fall within the range of Functional Foods. There are varieties of functional food which are commonly grouped in two categories:
Conventional foods: Natural or conventional foods like citrus fruits, vegetables, tomatoes, carrots, broccoli, garlic, soy products, dairy products, dietary fibre, oat meals, tea, chocolate, cocoa and animal products like fish etc. are powerful, health-enhancing conventional foods. These foods contain bioactive components related to health promotion and are mostly preferred by consumers.

Fortified foods: These foods are consumed for specific purpose to reduce disease or increase health benefits by including in a daily diet. Such as calcium-fortified orange juice, eggs and pasta with high levels of omega-3 fatty acids, cereals enriched with floater stanol or sterol ester-enhanced margarine, beverages with added vitamin E, salad dressings with n-3 fatty acids etc.

FDA-Approved Health Claims
Food and Drug Administration (FDA) in the United States supervise and regulate the health claims. In order for a health claim to earn approval, there needs to be significant scientific agreement that claim is factual. Varieties of Functional Foods are sold in global markets. Food and Drug Administration had approved health claims for Functional Foods which generally are supported by clinical trials. Functional Foods like whole oat products, soy protein, garlic, spinach, green leafy vegetables, cruciferous vegetables, tomatoes and processed tomato products, dairy products, fermented dairy products and probiotics, nuts, black tea, green tea, fortified margarines, fatty fish, grape juice or red wine, eggs with omega-3 fatty acids etc all have carry FDA-approved health claims. (Hasler, 2002)

Active components in Functional Foods
Functional Foods in each of above categories contain at least one physiologically active components which has health enhancing properties. The antioxidant and anti-inflammatory benefits of these components as vitamins, minerals, antioxidants, and fibbers are too great to ignore.

Awareness through nutrition education
Malnutrition is the major problem in human nutrition. There are two categories of malnutrition; one is due to insufficient intake of food and others owing to extra and inappropriate intake of nutrients or a particular dietary component. Main objective of
nutrition education is to enrich people with knowledge, and motivate to consume proper foods. Nutritional awareness must be directed to indicate ignorance, correct selection of food, and proper consumption, to such segments of community, where health related problems are increasing. In modern era health related problems and degenerative diseases are increasing tremendously. It is very essential that people should be familiar about the nutrients and active components present in specific foods along with nutritious diets. Awareness through the nutrition education plays important role in creation of basic concept about the nutritional wellbeing and modifying the knowledge, food habits, and intake of the particular foods.

The role of Women in Healthy Nutrition

Women’s participation is indispensable for the progress of any society. Women are caretaker of entire population of the society specially children who are future generation. Indian women have participated in every sphere of life with complete dedication. The success of nutrition education programme depends on the involvement of the persons who participate in the care and feeding of family. Women play a special role in health and nutrition of the community. There is significant importance of women as the mother for child rearing and as the food manager of family. Professionally majority of employees are women in field of education both primary and higher education, health and fitness, public catering, food trade and industry. Nutritional awareness among women, help the implementation of nutrition policy at the family level as well as community level. If they are given the correct information, women can educate their children, husbands and relatives.

Aims and objectives of the Study

(i) To collect information on demographic profile of the subjects.
(ii) To assess the pre existing knowledge related to Functional Foods.
(iii) To identify the sources of their knowledge about Functional Foods.
(iv) To assess the extent of usage of Functional Foods in terms of types and frequency
(v) To create awareness for Functional Foods using suitable modules and audio-visual aids.
(vi) To study the impact of awareness creation programme on
Knowledge & consumption of Functional Foods.

Limitations of the Study

(i) Study was limited only to the women subjects of Raipur city.
(ii) Women subjects from different range of income were included in the study.
(iii) The number of subjects was limited to 240.

Hypothesis

**Hypothesis-I**
It was assumed that there would be no relation between knowledge of Functional Foods and Educational level.

**Hypothesis-II**
It was assumed that there would be no relation between knowledge of Functional Foods and Working status of women.

**Hypothesis-III**
It was assumed that Source of information would be mainly electronic media.

**Hypothesis-IV**
It was assumed that there would be no relation between Consumption of Functional Foods and Educational level.

**Hypothesis-V**
It was assumed that there would be no relation between Consumption of Functional Foods and Working status of women.

**Hypothesis-VI**
It was assumed that there would be great need for Nutritional Counseling in terms of Functional Foods.

**Hypothesis-VII**
It was assumed that there would be a great improvement in Knowledge status and Consumption of Functional Foods through awareness programme.
Chapter 2: Review of Literature

The main objective of review of past research work is to be familiar with the result of those researches in areas where similar concepts and methodologies had been used successfully. A review of previous research work helps the researcher to formulate satisfactory structure for research plan.

The present study was designed to assess the impact of awareness programme for women on consumption of Functional Foods residing at Raipur city of Chhattisgarh state. Chhattisgarh state is a target group for the marketing of high cost nutraceuticals products of multinational food companies. Functional Foods are better option and substitute for nutraceuticals and synthetic dietary supplements. Success requires comprehensive knowledge on dimensions behind in acceptance of Functional Foods by consumers. Awareness creation among the population especially women on nutrition is the key for success of all government and non-government programmes on health and nutrition. Several studies in field of nutrition support the concepts which are expanding, from emphasis on the use of food for survival and hunger satisfaction to encourage the use of foods to promote a state of wellbeing, better health and to reduce the risk of diseases. Therefore the related information from worldwide including from India was documented for detail analysis. The literature during the research work had been discussed and keeping in view its significance a paraphrased version under suitable caption has been arranged. The literature under review focuses on the following heads:

- Functional Foods : Health claims studies -worldwide
- Impact of Nutritional Awareness programme studies -worldwide
- Functional Foods: Awareness studies -countrywide

Review of literature suggests that Functional Foods related studies are quite few in Indian context. These studies have gained much importance in West where health consciousness and concern are given most priority. The nutritional awareness creation programmes for Functional Foods are almost nil in Indian scenario. The entire review of literature also suggests that no study in the state of Chhattisgarh has been ever
performed to assess the impact of awareness programme for women on consumption of Functional Foods. Therefore it was thought worthwhile to take up this investigation.

Chapter 3: Materials & Methods

Research methodology is a way which systematically solves the research problems. Research can be defined as a specific, scientific and systematic search for pertinent information on a specific topic.

The different aspects covered in this chapter are described under the following sub headings:

1. Research design.
2. Location of study area
3. Selection of samples.
4. Techniques adopted for motivation.
5. Tools and Techniques for data collection.
6. Procedure and Scoring
7. Statistical Analysis of Data
8. Operational Definitions

‘Before-and-after with control design’ was used for this study. (Kothari, 2009) Independent variables were work status, level of education of subjects and awareness programme, while dependent variables were knowledge status and consumption of Functional Foods among subjects. In this design dependent variables were measured in both control and test groups in first phase. An awareness programme was then implemented into test group only, and the dependent variables were measured in both groups for an identical time period. The impact of awareness programme was determined through gain in score by subtracting the change in the dependent variables in the control group from the change in the dependent variables in test group. This design can be shown in the following manner:
Selection of sample

In this study to observe the impact of awareness programme for women on knowledge and consumption of Functional Foods, initially five hundred women were selected randomly from different ladies clubs, mahila mandals, institutions and residential colonies located in different areas of Raipur city. For final selection of subjects multistage random sampling technique was adopted. Subjects who were having educational status from Under graduation, Post graduation & above, who were decision takers for their cuisines, housewives, and a few in any profession were identified as respondents. Finally 240 women were selected comprising of 120 women engaged in different professions and 120 home makers (not in any profession). Again subjects were selected according to their level of education i.e. 60 subjects, up to under graduation and 60 having degree of post graduation & above in each group. Then subjects were divided into test groups of 30 subjects and control groups of 30 subjects in each subgroup.

Tools and techniques for data collection

Data collection is an important part of research. Self developed pretested following questionnaires were used to gather the required information from the subjects:
(a) Individual Data Sheets (IDS)

(b) General Health information sheet

(c) Functional Food Frequency Questionnaire (FFQ)

Functional food groups studied in FFFQ were –
1. Oatmeal, Bran, Cornflakes.
2. Milk and Milk products (Probiotics)
3. Soy products (Nuggets, soy flour, soy milk, tofu)
4. Green leafy vegetables
5. Cruciferous group of vegetables (Cauliflower, Cabbage, Radish, Turnip, and broccoli.)
6. Fruits (citrus, apple, pomegranate and Black grapes, Jamun)
7. Cocoa products
8. Nuts (Almonds, Walnuts, Flaxseed)
9. Garlic
10. Methi seeds
11. Honey
12. Amla
13. Green Tea
14. Fish Oil
15. Alovera.

Procedure and Scoring

This study was planned in three phase, namely, Formulation, Implementation and Evaluation of educational programme for creating awareness among women on Functional Foods.

(a) Formulation: The primary objective of this nutritional awareness programme is the nutritional knowledge improvement and changes in food consumption behaviour, with special reference to Functional Foods. To fulfil this objective a specially designed booklet on Functional Foods both in English & Hindi was formulated to distribute among the subjects.

(b) Implementation:- Implementation means carrying out activities in the field and
equating the intervention. Subjects were divided into test and control groups. An awareness programme was then implemented into test group only. In this study ‘before’ and ‘after’ measurement of the dependent variables had been done on both the test and the control groups. Slide shows & lectures were used to provide basic information related to Functional Foods and their nutritional importance to the test group during the awareness programme. Specially prepared Booklets on Functional Foods were distributed to the subjects of test group.

(c) **Evaluation** - For the measurement of effectiveness and adequacy of intervention, evaluation is essential. Follow-up of both test and control group was done to assess the effect of nutritional counselling and demonstration on knowledge and consumption of Functional Foods, with the help of self prepared questionnaire after six weeks and given scores for answers were assessed on awareness scale of 100 points.

**Statistical analysis of data**

The information collected was tabulated and percentage gain in mean score and “t” test were used to analyze data for the determination of trend of awareness, consumption and significance of the results.

**Chapter 4: Results and Discussion**

After collection of data, interpretation is necessary. First data is analyzed and then interpreted to the result of analysis. The purpose of analysis is to reduce data to intelligible and interpretable form so that the relations of research problems can be studied and tested (Kerlinger 2008). The results were discussed under the heads:

1. **Socioeconomic and demographic details**

   Distribution of the 240 subjects on the basis of their age and nature of work showed that 40.83% gainfully employed women and 13.34% home makers were below the age of 35 years, 40.83% gainfully employed women and 39.16% home makers were in the age group of 36-50 years whereas 18.34% gainfully employed and 47.50% home makers were in the above 51 years age group.
Out of 240 subjects studied, 74.58% lived in nuclear families while 25.42% lived in joint families. The data showed the dominance of nuclear family system and pivot role of women in decision making. Family size is very important in selection of foods and family food pattern. Majority of the subjects were having family size of 4-6 members. The overall distribution of food habits of subjects was 70% vegetarian, followed by preference for non-vegetarian 22.5% and rest 7.5% were eggitarian. Overall data of family income shows that 29.17% subjects had monthly income less than Rs. 25,000, 46.25% subjects in between Rs. 25,000 to 50,000, 12.92% subjects had monthly income between Rs. 50,000 to 75,000 and remaining 11.66% subjects had monthly income between Rs. 75,000 to 1,00,000.

2. Health Status

The overall percentage of women with excellent status of health without any disease was 22.5% whereas majority of subjects were with moderate level of health status. These subjects had one or more of some health complaints of mild degree. Poor status of health was observed in 5.84% subjects. Among gainfully employed women more subjects had excellent status of health than the home makers. Moderate level of health status was observed in two third of gainfully employed and three fourth of home makers. Subjects with poor status of health were very few in both the groups.

3. Consumption of Nutraceuticals

Trend of consumption of nutraceuticals and supplements by the gainfully employed women showed that about one-fourth subjects did not consume any dietary supplements. This figure for the homemakers was one-third. The remaining subjects of both the groups consumed calcium, iron, B-complex, micronutrient-nutraceuticals, energy drinks and certain ayurvedic products in order to remain healthy and to overcome the deficiency diseases. Data indicated that gainfully employed women’s first choice was B complex, while homemakers preferred micronutrients and ayurvedic products. Calcium and iron supplements were equally consumed by both the groups & women horlicks was the most preferred energy drink in both the groups.
4. Sources of Awareness about Health

Comparison of data for sources of health information revealed that television was the most popular source of health information in both the groups of gainfully employed (19.17%) and homemakers (18.33%) subjects. Internet as the source of information was more popular among gainfully employed women (9.17%) as compared to homemakers (6%). Result confirms the assumption of study that source of information would be mainly electronic media.

5. Awareness for Functional Foods

Out of the 240 selected subjects, only 10% knew about the Functional Foods, with a breakup of 9.17% gainfully employed subjects & 10.83% homemakers. Results confirm the assumption that there was great need for nutritional counselling in terms of Functional Foods. Trend of data also indicated that there was no relation between knowledge of Functional Foods and working status of women as slightly more homemakers knew about Functional Foods than the working women.

6. Impact of Awareness Programme on Knowledge of Functional Foods

Results related to gain in knowledge at the completion of awareness programme indicated that this awareness programme definitely improved the knowledge related to Functional Foods amongst the gainfully employed women of test group having different educational levels. Comparison of pretested mean scored by both groups revealed that gainfully employed women having undergraduate level of education had basically somewhat better knowledge of Functional Foods than subjects having education level of post graduate and above. After awareness generation sessions results showed that though subjects with higher educational level gained more post test scores but mean difference when tested statistically applying ‘t’ test was not found to be significant at .01 level. Thus it can be stated that there was no definite trend with gain in post test awareness of Functional Foods as far as educational status was concerned in gainfully employed women of test group. Similar trend was observed in case of homemaker subjects of test group.
Results revealed that homemaker subjects of test group upto under graduate level of education were basically having higher awareness about Functional Foods, than subjects with post graduation or above education while awareness generation programme improved the gain in mean awareness score of both educational groups of homemakers significantly. These results confirmed the assumption that there would be no relation between knowledge of Functional Foods and educational level. Results also confirm the assumption that there would be great improvement in knowledge status of Functional Foods through awareness programme.

There was no significant increase in post test scores on awareness scale in control group of gainfully employed women having both the levels of education. Gain in score of subjects was tested statistically & was found to be insignificant. Thus it can be stated that educational status had not affected gain in score significantly in homemakers of control group.

Results related to mean gain scores after competition of awareness programme showed similar trends of increase in gain score in between test groups of gainfully employed women and home makers. The difference was insignificant irrespective of working status.

Results revealed that increase in mean gain scores of homemakers of control group was greater than gainfully employed women of same educational status but statistically was not found to be significant. This indicates that working status had no considerable impact on control group as well as test group.

Trends of data indicate that awareness programme on Functional Foods created awareness definitely among gainfully employed women of test group as compared to gainfully employed women of control group.

Similar results revealed that mean gain on awareness scale is significantly higher in home makers of test group as compared to home makers of control group which confirmed the favourable and positive impact of awareness creation programme on Functional Foods. It also confirmed the assumption that there would be a great improvement in knowledge status of Functional Foods through awareness programme.
7. Impact of Awareness Programme on Consumption of Functional Foods

The impact of awareness programme on consumption of Functional Foods among gainfully employed women and home makers of the test group was observed in terms of changes in frequency of functional foods intake. The observations were compared with the control group.

When the impact of awareness programme on consumption of functional foods among gainfully employed women of the test group was compared on basis of their educational status (under graduation) it was found that the daily intake of oat products and bran, green leafy vegetables, fruits, garlic, honey, amla and amla products was increased. Intake of methi, Soy products, cauliflower group, cocoa, nuts, and green tea in terms of daily & weekly consumption was improved. In case of fish & fish oil most of the subjects started to consume fish oil weekly while the monthly intake also improved.

When pre-post test observations on intake of selected Functional Foods among gainfully employed women of control group having education up to under graduation, showed that due to absence of awareness programme the daily & weekly consumption of oat & oat products, bran, dairy products, fruits, green leafy vegetables, amla, green tea and aloevera showed no significant changes. Consumption trends of soy products, cauliflower groups, cocoa and cocoa products, nuts, garlic, methi, honey, fish & fish oil remain unchanged at the end of awareness programme. Results confirmed the necessity of awareness creation programme for improvement of Functional Foods consumption.

Trend of data related to pre-post test observations on intake of selected Functional Foods among gainfully employed women of test group having level of education post graduation and above indicated the positive impact of awareness programme, as the daily intake of oat products and bran, dairy products, soy products, green leafy vegetables, cauliflower, fruits, cocoa & cocoa products, nuts, garlic, methi, honey, amla, green tea and aloevera increased significantly. Subjects started to consume the preserved amla products without season. When data related to fish and fish oil intake were analyzed it was found that two third of subjects started consuming it weekly and monthly.

Pre-post test observations on intake of selected Functional Foods among gainfully employed women of control group (up to PG level education) indicated that
due to the absence of awareness programme for control group daily and weekly frequency of intake was slightly changed.

Pre-Post test observations on intake of selected Functional Foods among homemakers of test group up to UG level of education showed that consumption of oat, oat products and bran, dairy products, soy products, cauliflower group, garlic, honey, methi, green tea, was tremendously increased after the exposure to awareness programme. Most of the subjects started consuming green leafy vegetables, fruits & nuts, cocoa & cocoa products, amla & aloevera daily. Majority of the subject were not consuming fish and fish oil whereas after getting awareness about the benefit of these products weekly consumption was improved considerably and seasonal intake was shifted to monthly.

Trend of pre-post test observations on intake of selected Functional Foods among homemakers of control group up to UG level of education indicated that changes among the intake of oat bran, dairy product, green leafy vegetables, fruits, cocoa & cocoa products, nuts, garlic, methi, fish and fish oil and aloevera was not considerable.

It can be revealed form pre-post test observations on intake of selected Functional Foods among homemakers of test group upto PG level education that frequency of daily intake of oat bran, dairy products, soy products, cocoa & cocoa products, green leafy vegetables, fruits, cauliflower, nuts, garlic, methi, honey, amla, green tea, fish oil & aloevera was extremely increased as the post impact of awareness programme. Thus success of awareness programme was evident.

From the analysis of pre-post test observations on intake of selected Functional Foods among homemakers of control group having post graduation and above level of education it can be stated that consumption of oat bran, soy products, cauliflower group, cocoa, nuts, green tea, fish and aloevera showed no significant changes. The post data indicated that daily, weekly and occasional intake of dairy products & garlic remained unchanged.

The trend of pre-post test observations on intake of selected Functional Foods among gainfully employed women of test group indicated that there was great positive impact of awareness programme on the daily intake of oat products and bran, dairy products, green leafy vegetables, cauliflower group, fruits, nuts, garlic, methi, honey, amla & green tea. Initially about half of the subjects were not consuming soy products and cocoa products but after the exposure to awareness programme maximum subjects
started consuming soy products and cocoa products on daily on weekly basis. In case of fish and fish oil and aloevera, intake mainly improved on weekly basis.

On the basis of pre-post test observations on intake of selected Functional Foods among gainfully employed women of control group it can be stated that there was no change in the consumption of soy products, cocoa products, nuts, garlic, honey and amla. Intake of oat products, green leafy vegetables, and cauliflower group of vegetables, fruits, methi, green tea, fish oil and aloevera was insignificantly changed. In case of dairy products weekly intake was shifted to daily intake and monthly intake was improved.

It was observed from the pre-post test observations on intake of selected Functional Foods among homemakers of test group that at the end of nutritional awareness programme all subjects started consuming oat products and bran, nuts, garlic, methi, amla & green tea whereas the daily consumption of dairy products, green leafy vegetables, fruits, honey was improved significantly. In the case of soy products, cauliflower, fish oil & aloevera great improvement in weekly consumption was observed.

Pre-post test observations on intake of selected Functional Foods among homemakers of control group showed that initially all the subjects were consuming dairy product, green leafy vegetables and fruits but the daily intakes of dairy products and green leafy vegetables were slightly improved at the end of programme but intake of fruits was comparatively greater. Oat, bran, cocoa products, nuts, methi and aloevera consumption was very slightly improved while majority of subjects were not consuming green tea, fish and aloevera products which was slightly changed at the completion of the programme due to lack of awareness. It is distinct from results that awareness creation programmes for Functional Foods is very much needed.

It can be stated from the pre-post test observation on intake of selected foods in overall test groups including gainfully employed women and homemakers that at the end of the awareness programme the zero intake of oats, bran, fruits, nuts, methi, amla & green tea among the subjects had been shifted to daily intake. Initially all the subject was consuming green leafy vegetables. As the impact of awareness programme daily consumption of oats, bran, dairy products, green leafy vegetables, fruits, nuts, garlic, methi, honey and green tea was significantly improved. While the weekly intake of cauliflower and fish and aloevera was also increased. About half of the subjects were not consuming cocoa and cocoa products which increased to daily and weekly intake.
Overall pre-post test observations on intake of selected Functional Foods in control group showed that due to the absence of awareness programme the intake of soy products, garlic, honey, amla was unchanged whereas the daily intake of oat bran, dairy products, green leafy vegetables, cauliflower group, cocoa, nuts, methi, green tea and aloevera was very slightly changed. In case of fish & fish oil majority of the subjects were not consuming it, while insignificant improvement in weekly and monthly intake was observed.

Comparison of pre-post test observations of selected Functional Foods in overall test and control groups indicated that there was significant changes in daily intake of all fifteen functional food groups studied in this awareness programme among test groups than control groups, with special reference to oat products, bran, dairy products, green leafy vegetables, fruits, cocoa, nuts, garlic, methi, honey & green tea. Weekly intake of soya products, cauliflower group, cocoa, honey, amla, green tea was improved in test group whereas consumption of fish & fish oil and aloevera was just doubled in test groups.

On the whole awareness programme had significant effects on daily and weekly consumption of some functional food groups as mentioned above among test groups whereas the changes in intake of Functional Foods was insignificant in control group due to lack of awareness programme.

5.2 Testing of Hypothesis

Hypothesis-I: It was assumed that there would be no relation between knowledge of Functional Foods and Educational level.

There was higher mean gain score (M=48.27) for gainfully employed women with postgraduate and above level of education than subjects of undergraduate level of education (M=42.56) of test group. When difference was tested statistically applying ‘t’ test, was found no significant (1.60) at .01 level of significance. No significant difference was observed between mean gain scores of home makers of test group with different educational status. The calculated t=0.48 also supported this finding statistically through results.

Results also showed that mean gain score of home makers of control group of educational status up to undergraduate was 3.16, while mean gain score of post graduation and above was 4.40, which was higher but when tested with statistical test
‘t’ it was found insignificant (1.75). Thus in homemakers of control group educational status affected gain in score slightly but not significant statistically. It confirmed the assumption that there would be no relation between knowledge of Functional Foods and educational status. Thus the assumed hypothesis I was accepted on the strength of obtained results.

**Hypothesis–II: It was assumed that there would be no relation between knowledge of Functional Foods and Working status of women.**

Analysis of values revealed that mean difference (4.87) of gain scores among the test group of gainfully employed women and homemakers with same educational status (UG) was tested and found statistically insignificant (t=1.47) at .05 level of significance. Mean difference of gain scores of test group of gainfully employed women and homemakers with same educational status (PG and above) was 0.47 which was statistically not significant. Results showed similar trends of increase in gain score in between test groups of gainfully employed women and homemakers irrespective of working status.

Comparison was made between the mean gain score of gainfully employed and homemakers belonging to control group (UG level) showed that increase in mean gain score of homemakers was greater than gainfully employed women but when tested statistically found no significant (1.88P>.05). Comparison of mean difference of gainfully employed and homemakers belonging to control group (PG and above) was found insignificant (t=.08 p>.05). The assumption was confirmed that there would be no relation between knowledge of Functional Foods and working status of women. Thus the assumed hypothesis II was accepted on the strength of obtained results.

**Hypothesis-III: It was assumed that Source of information would be mainly electronic media.**

Comparison of data for sources of health information revealed that television was almost equally popular source of health information in both group of gainfully employed (19.1%) and homemakers subjects (18.33%). Internet as the source of information was more popular among gainfully employed women (9.17%) than homemakers (5%). Similarly both groups of the subjects were mentioned internet (5.83%) as the source of information regarding Functional Foods. It can be confirmed from the trend of data that major sources of awareness among all subjects were mainly
electronic media. Thus the assumed hypothesis III was accepted on the strength of obtained results.

**Hypothesis-IV:** It was assumed that there would be no relation between consumption of Functional Foods and educational level.

Analysis of the combined pre post test effect indicated that the consumption of oat groups, dairy products, cauliflower groups, nuts, garlic, methi, amla and green tea was nil among some subjects of gainfully employed women & homemakers of test groups of both educational status (up to UG level & PG level & above) except green leafy vegetables and fruits. The entire subject had started to consume these Functional Foods as the post test effects of programme. Initially percentage of subjects of gainfully employed women having level of education up to UG were consuming soy and cocoa products more than subjects having level of education PG & above. While the subjects of homemakers (UG) were initially consuming less soy & cocoa products than the homemakers of PG & above level of education.

The percentage of test group of gainfully employed women & homemakers with UG level of education consuming methi, honey and green tea was less than subjects of PG level & above except the homemakers (UG) in which the intake of honey was less. Results revealed that improvement trend in the daily intake of cauliflower, amla & aloevera was similar in both educational status. The changes in daily intake of soy, cocoa products and nuts were higher among gainfully employed women having level of education up to UG. While weekly intake of soy and cocoa was improved among subjects having level of education PG & above. But the trend was found just reverse among the subjects of homemakers. The assumption was confirmed that there would be no relation between consumption of Functional Foods and educational level. Thus the assumed hypothesis IV was accepted on the strength of obtained results.

**Hypothesis-V:** It was assumed that there would be no relation between Consumption of Functional Foods and Working status of women.

Results indicated that initially there was zero consumption of Functional Foods group among some subjects of gainfully employed women & homemakers of test group except green leafy vegetables. As the impact of awareness programme all the gainfully employed women and homemakers were started consuming Functional Foods except soy products, cocoa products, honey, fish & fish oil and aloevera. In case
of garlic, gainfully employed women and in case of cauliflower group, homemakers showed less improvement due to the taste and flavour perception. Daily intake of oat groups, dairy products, fruits, garlic, methi, honey, amla and green tea was increased tremendously in gainfully employed women & homemakers similarly. The weekly intake of soy products, cauliflower group, cocoa products, amla, green tea, fish & fish oil and aloevera was improved significantly in both gainfully employed women and homemakers but in case of nuts the daily intake of among homemakers showed greater improvement than weekly intake. Comparisons of results indicated the same trend of improvement in Functional Foods intake among homemakers and gainfully employed women of test groups. Thus the assumed Hypothesis V was accepted on the strength of obtained results.

**Hypothesis-VI: It was assumed that there would be great need for Nutritional counselling in terms of Functional Foods.**

In case of awareness related to Functional Foods it was observed that 90% of subjects were not aware about Functional Foods. Out of 240 subjects surveyed the number of homemakers having awareness of the term Functional Foods was 13 while 11 gainfully employed subjects were familiar with this term. Results confirm the assumption that there was great need for nutritional counselling in terms of Functional Foods. Thus the assumed Hypothesis VI was accepted on the strength of obtained results.

**Hypothesis-VII: It was assumed that there would be a great improvement in Knowledge status and Consumption of Functional Foods through awareness programme.**

Analysis of results revealed that awareness programme significantly improved the knowledge related to Functional Foods amongst the subjects of test group in both homemakers & gainfully employed group with different educational status. It was also observed that mean gain on awareness scale is significantly higher in test group (M=46.75) as compared to the control group (M=3.34). Calculated t=37.35 showed a significant difference at .01 level of statistical significance thus awareness programme definitely created awareness among subjects who were exposed to the programme.
Comparison of pre-post test observations of selected Functional Foods in overall test and control groups indicated that there were significant changes in daily intake of all fifteen Functional Foods groups among test groups in comparison to control groups, with special reference to oat products, bran, dairy products, green leafy vegetables, fruits, cocoa, nuts, garlic, methi, honey & green tea. Whereas weekly intake of soya products, cauliflower group, cocoa, honey, amla, green tea was improved in test group whereas consumption of fish & fish oil and aloevera was just doubled in test groups. Results confirmed the assumption that there would be a great improvement in knowledge status and consumption of Functional Foods through awareness programme. Thus the assumed Hypothesis VII was accepted on the strength of obtained results.

5.3 Conclusion

The average Indian woman is now falling in line with her global counterparts. That is because women today are more conscious of the products they buy for their family. Though an average Indian housewife is middle-class but her aspirations for her children are very high. In this context she is always eager to feed the best quality healthy food to her family & specially children. Although many Functional Foods may hold promise for public health. There are concerns that the promotion of Functional Foods and structure &function claims may not rest on, sufficiently strong scientific evidence.

Mounting evidence supports the observation that Functional Foods contain physiologically active components either from plants or animal sources that may enhance health. Research into Functional Foods will not advance public health unless the benefits of the Functional Foods are effectively communicated to the consumer. This study was conducted to assess the impact of awareness programme among women of Raipur city. FFQ was used to observe the impact on knowledge and consumption of Functional Foods. The salient findings of the study are concluded below:

- There was dominance of nuclear family and in majority of cases the average family size was between four to six members. It confirms the pivot role of women in family decision and food habits.
Majority of the subjects were having vegetarian food habits. This suggests that the knowledge of plant based Functional Foods will be of great benefit for the subjects.

About half of the subjects were in between the income range of Rs. 25,000 to 50,000 per month which suggests that they belonged to middle income families & knowledge of Functional Foods will be of great use for them as they will not be required to spend on costly medicines & nutraceuticals to remain healthy.

Near about three fourth of the subjects were having moderate health status that is they were not suffering from very major health problems.

When comparison was made for the consumption of nutraceuticals it was concluded that gainfully employed women used to consume iron, B-complex and energy drinks to a greater extent than the homemakers. The homemakers preferred certain ayurvedic products and micro nutrients to remain healthy.

Comparison of data for sources of health information revealed that television was almost equally popular source of health information in both group of gainfully employed and homemakers subjects. Internet as the source of information was more popular among gainfully employed women. It can be concluded from the trend of data that major sources of awareness among all subjects was mainly electronic media.

In case of awareness related to Functional Foods it can be concluded that 90% of subjects were not aware about Functional Foods. The awareness level of the homemakers was slightly higher than gainfully employed subjects. Results confirming the assumption that there was great need for nutritional counselling in terms of Functional Foods.

It can be concluded from results that awareness programme significantly improved the knowledge related to Functional Foods amongst the subjects of test group in both homemakers & gainfully employed group with different educational status.

Comparison of test and control groups of gainfully employed women showed there was significant increase in gain in knowledge of subjects of both educational status. It confirms the assumption that there would be a great
improvement in knowledge status of Functional Foods through awareness programme irrespective of educational status.

It was also concluded that mean gain on awareness scale is significantly higher in gainfully employed women of test group as compared to gainfully employed women of control group. Similar results were observed for home makers also.

- Comparison of pre-post test observations of selected Functional Foods in overall test and control groups indicated that there were significant changes in daily intake of all fifteen Functional Foods groups among test groups in comparison to control groups, with special reference to oat products, bran, dairy products, green leafy vegetables, fruits, cocoa, nuts, garlic, methi, honey & green tea.

- Weekly intake of soya products, cauliflower group, cocoa, honey, amla, green tea was improved in test group whereas consumption of fish & fish oil and aloevera was just doubled in test groups.

- Results confirmed the necessity of awareness creation programme for improvement of functional food consumption among the women to improve the food habits of the entire family.

### 5.4 Recommendations

Certain recommendations that have emerged out of this study are listed below:

- Awareness programmes for Functional Foods should be carried out in all women groups to create awareness for the Functional Foods as women have pivot role in family food habits.

- This programme may help in improving the health status of women and their family members & thus the entire society will become healthy.

- This programme can be conducted among women institutions like hostels, clubs, anganwadis, schools and colleges in order to create awareness about the Functional Foods.

- State and local policy makers for health, nutrition, women and child welfare and development & consumer awareness should identify strategies for making decisions which affect the level of awareness about health and Functional Foods.
5.5 Areas of Future Researches

- Study of varieties of Functional Foods.
- Study of availability of Functional Foods in local market.
- Study of probability of cultivation of Functional Foods in Chhattisgarh.
- Study of active components present in Functional Foods available in Chhattisgarh with special reference to Tribal areas.
- Analysis of production, marketing, exports of Functional Foods grown in Chhattisgarh.
- Establishment of Food Regulations, Standards and Consumer awareness for Functional Foods.
- Scope of researches, entrepreneurship and financial assistance for Functional Foods in Chhattisgarh.