

Annexure -VIII

UNIVERSITY GRANTS COMMISSION, BAHADUR SHAH ZAFAR MARG
NEW DELHI – 110 002.

Final Report of the work done on the Major Research Project.

1. Project report No. 1st /2nd /3rd/Final _____ **FINAL** _____
2. UGC Reference No----- **F.No. 42—109/ 2013 (SR)** dated **25/3/2013** _____
3. Period of report: from **1/4/ 2013** to **31 /3 /2016** _____
4. Title of research project **“Impact of Nutrition Education and Coping Techniques on the Health and Nutritional status of Housewives”** _____
5. (a) Name of the Principal Investigator ----**Dr. Abha Khetarpal** _____
(b) Deptt. **Department of Home Science** _____
(c) University/College where work has progressed **DAV College for girls, Yamuna nagar—135001 (Haryana)**---
6. Effective date of starting of the project **1/4/ 2013** _____
7. Grant approved and expenditure incurred during the period of the report:
 - a. Total amount approved---- **Rs. 10,30,800** _____
 - b. Total expenditure ----- **-Rs. 9,34,277** _____
 - c. Report of the work done: (Please attach a separate sheet)
 - i. Brief objective of the project **Annexure-I**
 - ii. Work done so far and results achieved and publications, if any, resulting from the work (Give details of the papers and names of the journals in which it has been published or accepted for publication **Annexure-II** _____)
 - iii. Has the progress been according to original plan of work and towards achieving the objective. if not, state reasons-----**Yes the progress has been according to the plan**
 - iv. Please indicate the difficulties, if any, experienced in implementing the project **I did not face any difficulty in implementing the project** _____
 - v. If project has not been completed, please indicate the approximate time by which it is likely to be completed. A summary of the work done for the period (Annual basis) may please be sent to the Commission on a separate sheet.-----**N.A.**-----
 - vi. If the project has been completed, please enclose a summary of the findings of the study----- **Annexure-I**

One bound copy of the final report of work done may also be sent to University Grants Commission.-----**Enclosed Herewith**

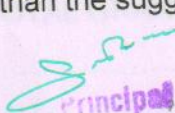
vii. Any other information which would help in evaluation of work done on the project. At the completion of the project, the first report should indicate the output, such as **(a) Manpower trained** ---The project fellow Ms. Kamna Duggal has learnt a lot during three years of working in the project. She counselled the Housewives that if they want to be accepted as efficient homemakers, they have to make use of effective stress management techniques, appropriate coping patterns and consume a nutritionally balanced diet. This will not only improve their health and nutritional status but will also reduce their stress levels at home . The need of the hour is to improve the health of the woman and reduce her stress levels. Since health, nutritional status and coping patterns of an individual depends on the food she eats, the components of the diet must be chosen judiciously, to provide all the nutrients needed in adequate amounts and proportions. Selection of foods from the different food groups also results in a variety in the diet, which not only ensures nutritional adequacy but also increases food acceptability.

(b) Ph. D. awarded -----No

(c) Publication of results-----List of publications-----Annexure II

(d) Other impact, if any---- ----- After counseling for 6 months, noteworthy changes were observed in the life pattern of the housewives. The sleeping hours improved to 6-8 hours and this improvement was observed in housewives (80%). The subjects become physically active and started doing light walking - housewives (33.3%). Moreover, 13.3 per cent of the subjects resorted to brisk walking. They engaged themselves in different household activities before and after counseling however, more involvement was observed in housewives after counseling. Majority of the subjects were vegetarian in the category of housewives (80%). Following counseling- the subjects increased their intake of fruit as food in between meals. The intake of milk increased and that of tea and cold drinks decreased. The subjects from the experimental group of housewives decreased their intake of fast foods from 53.3 to 13.3 per cent respectively. The percentage of subjects preferring home food was 53.3 among housewives. The post-counseling data of housewives showed that counseling was effective in reducing the complaints of low blood pressure to 6.6 percent of the subjects along with respiratory problems, anemia and skin problems

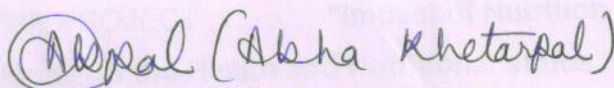
reducing to 5 per cent in each case. There was a reduction in the incidence of common ailments like backache, fatigue, headache, acidity etc. The mean BMI of housewives was $22.348 \pm 3.624 \text{ Kg/m}^2$ however, after counseling for six months, the mean BMI of the housewives reduced to $21.972 \pm 3.31 \text{ Kg/m}^2$. Among the housewives- 50 per cent of the subjects were marginally anaemic and non-anaemic respectively. After counseling, the Hb levels of all the subjects improved and they were in the category of non-anaemic ($\text{Hb} \geq 12 \text{ g/dl}$). The mean serum total cholesterol level in housewives was $189.02 \pm 18.3 \text{ mg / dl}$ respectively. However, after counseling for 6 months, a non-significant reduction in the cholesterol level of the subjects was observed and the respective decreased values of blood cholesterol for housewives was $187.62 \pm 25.20 \text{ mg/dl}$. Before counseling, the mean HDL-cholesterol level in housewives was $50.42 \pm 10.96 \text{ mg/dl}$ respectively. However, after counseling, a significant increase ($p \leq 0.01$) in the HDL-C level was observed. The respective intake of cereals by housewives was $411.973 \pm 11.927 \text{ g}$. Following counseling, in the housewives, the intake of cereals reduced significantly ($p \leq 0.01$) to $360.413 \pm 48.778 \text{ g}$. Before counseling, the overall mean daily consumption of pulses by the housewives was $57.320 \pm 4.08 \text{ g}$ which after counseling significantly reduced ($p \leq 0.01$) to $55.470 \pm 5.90 \text{ g}$. The mean daily intake of vegetables by housewives was $205.653 \pm 5.776 \text{ g}$ respectively. However, after counseling, the overall mean intake of the vegetables significantly increased ($p \leq 0.01$) to $207.493 \pm 10.00 \text{ g}$. However, the intake of fruits by the housewives was $57.320 \pm 4.104 \text{ g}$. Following counseling, the fruit intake significantly increased ($p \leq 0.01$) to $66.027 \pm 13.498 \text{ g}$. The amount of milk and milk products in the diet of housewives was $205.493 \pm 5.239 \text{ g}$ respectively which was less than the suggested intake (300g).



O.A. REGISTRAR/PRINCIPAL

YAMUNA NAGAB

(Seal)



SIGNATURE OF THE PRINCIPAL INVESTIGATOR

Annexure – IX

UNIVERSITY GRANTS COMMISSION, BAHADUR SHAH ZAFAR MARG
NEW DELHI – 110 002

**PROFORMA FOR SUBMISSION OF INFORMATION AT THE TIME OF SENDING
THE FINAL REPORT OF THE WORK DONE ON THE PROJECT**

1. Title of the Project..... **“Impact of Nutrition Education and Coping Techniques
on the Health and Nutritional status of Housewives”**

2. NAME AND ADDRESS OF THE PRINCIPAL INVESTIGATOR-----

**Dr. Abha Khetarpal, Dept. of Home Science, DAV College for girls,
Yamuna nagar—135001 (Haryana)_____**

3. NAME AND ADDRESS OF THE INSTITUTION---- **DAV College for girls,
Yamuna nagar—135001 (Haryana)_____**

4. UGC APPROVAL LETTER NO. AND DATE ...---**F.No. 42—109/ 2013 (SR)
dated 25/3/2013**

5. DATE OF IMPLEMENTATION ... **1/4/ 2013.....**

6. TENURE OF THE PROJECT **__1/4/ 2013__ to __31 /3 /2016**

7. TOTAL GRANT ALLOCATED ... **Rs. 10,30,800**

8. TOTAL GRANT RECEIVED ... **Rs. 6,41,800.....**

9. FINAL EXPENDITURE **Rs. 9,34,277**

10. TITLE OF THE PROJECT **“Impact of Nutrition Education and
Coping Techniques on the Health and Nutritional status of Housewives”**

11. OBJECTIVES OF THE PROJECT----- Annexure I

12. WHETHER OBJECTIVES WERE ACHIEVED ... Yes the objectives were achieved..... Annexure I

.....(GIVE DETAILS)

13. ACHIEVEMENTS FROM THE PROJECT Annexure I ...

.....

14. SUMMARY OF THE FINDINGS ----- Annexure I

(IN 500 WORDS)

15. CONTRIBUTION TO THE SOCIETY Annexure I

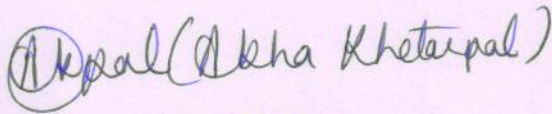
(GIVE DETAILS)

16. WHETHER ANY PH.D. ENROLLED/PRODUCED OUT OF THE PROJECT-----

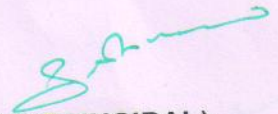
NO.....

17. NO. OF PUBLICATIONS OUT OF THE PROJECT Annexure II.....

(PLEASE ATTACH)



(PRINCIPAL INVESTIGATOR)



(REGISTRAR/PRINCIPAL)

Principal
B.A.V. College for Girls
Y(Seal) NAGAB

ANNEXURE 1

BRIEF OBJECTIVES OF THE PROJECT

The present study is titled—"Impact of Nutrition Education and Coping Techniques on the Health and Nutritional status of Housewives"

The objectives of the present study are:-

- To assess the dietary pattern and nutritional status of Housewives.
- To measure the stress levels of Housewives.
- To co-relate the stress levels of Housewives with their nutritional status and dietary patterns.
- To impart counseling for maintaining adequate nutritional status, improving dietary patterns as well as effective stress management.
- To evaluate the impact of counseling on the nutritional status, dietary patterns and stress management of Housewives.

PUBLICATIONS----Annexure-II

ACHIEVEMENTS FROM THE PROJECT

Woman's health is of utmost importance as it reflects the health of the family but in some cases, dual stress of manual labour and conflicting demands of work in and outside the home have been shown to have adverse effects on the nutritional status of woman. Earlier, the stress management of women in the family had been a low priority because of ignorance. However, if the women want to be accepted as efficient homemakers, they have to make use of effective stress management techniques, appropriate coping patterns and consume a nutritionally balanced diet. This will not only improve their health and nutritional status but will also reduce their stress levels at home. Health promotion is the science and art of helping people change their lifestyle to move toward a state of optimal health which is a balance of physical, emotional, social, spiritual, and intellectual health. It deals with the giving of coping strategies for good mental and physical health. The counseling is used as an intervention for the promotion of health by enhancing the knowledge of

the respondents about the consumption of a balanced diet and using effective coping strategies. The present study titled—"Impact of Nutrition Education and Coping Techniques on the Health and Nutritional status of Housewives" aims to provide a practical and positive approach to the women to improve their health, nutritional status and coping patterns

SUMMARY OF THE FINDINGS

Women of today are doing multiple roles in the society-bearing household and family responsibilities thereby leading to stress in them. This stress further results in poor dietary and nutritional status in women. Reports depicted that counseling of women with emphasis on the intake of a balanced diet may improve the nutritional adequacy of the diet and assist in effective stress management. **Hence, the current study evaluates the efficacy of —“Impact of Nutrition Education and Coping Techniques on the Health and Nutritional status of Housewives”.** The present study was conducted on 300 volunteered Housewives between the age group of 25-55 years hailing from the various districts of Haryana.

General information of the subjects which included their family income, age, marital status and type of family was collected through the method of questionnaire cum interview schedule. Counseling was imparted to the housewives for six months through nutrition modules, lectures, demonstrations, participatory discussions, posters and flash cards. Before and after counseling for six months, a dietary survey was conducted to assess the dietary intake of the subjects for 3 consecutive days by the 24 hour recall cum weightment method using standardized containers and the intake of major foods and nutrients by the respondents was calculated with the help of Tables (ICMR, 1998).

In addition to measuring the anthropometric indices i.e. height, weight and BMI and the presence of any clinical signs related to malnutrition, the subjects were also examined for the presence of non-communicable diseases. Moreover, their Hb level and lipid profile was also noted. Further, the efficacy of counseling on the stress levels along with its coping were also assessed. Moreover, the co-relation of psychological variables with age, anthropometric indices, micronutrients and food intake was also measured.

Maximum number of housewives were in the age group of 25 -35 years and this figure was 34.67 per cent. Some housewives were graduates and others were diploma holders. The number of housewives in the low, medium and high income group were 15, 47 and 13 in each. The percentage of married subjects in the group of housewives was 49.33 and the number of housewives living in the joint family system was 41.

After counseling for 6 months, noteworthy changes were observed in the life pattern of the housewives. The sleeping hours improved to 6-8 hours and this improvement was observed in housewives (80%). The subjects become physically active and started doing light walking - housewives (33.3%). Moreover, 13.3 per cent of the subjects resorted to brisk walking. They engaged themselves in different household activities before and after counseling however, more involvement was observed in housewives after counseling.

Majority of the subjects were vegetarian in the category of housewives (80%). Following counseling- the subjects increased their intake of fruit as food in between meals. The intake of milk increased and that of tea and cold drinks decreased. The subjects from the experimental group of housewives decreased their intake of fast foods from 53.3 to 13.3 per cent respectively. The percentage of subjects preferring home food was 53.3 among housewives.

The post-counseling data of housewives showed that counseling was effective in reducing the complaints of low blood pressure to 6.6 percent of the subjects along with respiratory problems, anemia and skin problems reducing to 5 per cent in each case. There was a reduction in the incidence of common ailments like backache, fatigue, headache, acidity etc. The complaints of backache and headache along with fatigue reduced to 16.6 per cent ; in acidity and fever reduced to 10 per cent ; in lethargy and breathlessness reduced to 8.3 per cent and in depression and giddiness decreased to 6.6 and 3.3 per cent . However, the number of housewives showing irritation or complaining of backache, headache, lethargy and fatigue due to menopause were 25,5 and 12 respectively.

The mean BMI of housewives was $22.348 \pm 3.624 \text{ Kg/m}^2$ however, after counseling for six months, the mean BMI of the housewives reduced to $21.972 \pm 3.31 \text{ Kg/m}^2$.

Among the housewives- 50 per cent of the subjects were marginally anaemic and non-anaemic respectively. After counseling, the Hb levels of all the subjects improved and they were in the category of non-anaemic ($Hb \geq 12g/dl$). The mean serum total cholesterol level in housewives was 189.02 ± 18.3 mg / dl respectively. However, after counseling for 6 months, a non-significant reduction in the cholesterol level of the subjects was observed and the respective decreased values of blood cholesterol for housewives was 187.62 ± 25.20 mg/dl. Before counseling, the mean HDL-cholesterol level in housewives was 50.42 ± 10.96 mg/dl respectively. However, after counseling, a significant increase ($p \leq 0.01$) in the HDL-C level was observed.

The respective intake of cereals by housewives was $411.973 \pm 11.927g$. Following counseling, in the housewives, the intake of cereals reduced significantly ($p \leq 0.01$) to $360.413 \pm 48.778g$. Before counseling, the overall mean daily consumption of pulses by the housewives was $57.320 \pm 4.08g$ which after counseling significantly reduced ($p \leq 0.01$) to $55.470 \pm 5.90g$. The mean daily intake of vegetables by housewives was $205.653 \pm 5.776g$ respectively. However, after counseling, the overall mean intake of the vegetables significantly increased ($p \leq 0.01$) to $207.493 \pm 10.00g$. However, the intake of fruits by the housewives was $57.320 \pm 4.104g$. Following counseling, the fruit intake significantly increased ($p \leq 0.01$) to $66.027 \pm 13.498g$. The amount of milk and milk products in the diet of housewives was $205.493 \pm 5.239g$ respectively which was less than the suggested intake ($300g$).

Before counseling, the average daily intake of fats and oils by the housewives was $42.053 \pm 2.741g$. Following counseling, the fat intake reduced to $40.027 \pm 4.057g$. The intake of sugar by the housewives was $41.893 \pm 2.739g$. Following counseling, the intake of sugar reduced to in housewives ($41.800 \pm 34.266g$).

The mean intake of energy by the housewives was 1632.512 ± 238.068 Kcal. Following counseling, the energy intake increased significantly ($p \leq 0.01$) in housewives (1688.291 ± 189.98 Kcal). The protein intake by housewives was $47.449 \pm 7.517g$ which was adequate as compared to the recommended allowance ($50g$, ICMR, 1998). However, no change in the protein intake was observed after counseling. In contrast, the carbohydrate intake by the housewives $259.46 \pm 49.47g$ which was inadequate as compared to the recommended allowance. However, following counseling, the carbohydrate intake increased to $259.53 \pm 49.35g$.

The mean daily intake of fats by housewives was $36.608 \pm 11.124\text{g}$ which was less than the specified amount (40g) by ICMR, (1989). However, after counseling the fat intake reduced, but this reduction was non-significant. Before counseling, the mean intake of dietary fibre by the housewives was $16.956 \pm 1.762\text{g}$ respectively. However, after counseling, the fibre intake significantly increased ($p < 0.01$) in housewives ($17.033 \pm 1.754\text{g}$).

Before counseling, the mean calcium intake by housewives was $706.98 \pm 170.57\text{ mg}$ and the iron intake was $13.113 \pm 4.00\text{ mg}$. Following counseling, a non-significant increase of both calcium and iron was observed in the housewives. The mean daily intake of zinc by housewives was $15.470 \pm 1.165\text{ mg}$. However, after counseling, the zinc intake increased significantly ($p \leq 0.05$) to $16.171 \pm 1.20\text{ mg}$.

The mean daily intake of β -carotene by the housewives was $1584.281 \pm 1192.162\text{ }\mu\text{g}$. Moreover, after counseling there was no apparent increase in the intake of β -carotene. Contrary to the above, the Vitamin C intake in the housewives significantly increased ($p \leq 0.01$) from 124.751 ± 57.659 to $153.959 \pm 47.60\text{ mg}$ respectively.

The mean thiamine intake by housewives was $1.489 \pm 0.453\text{ mg}$, which showed a significant increase ($p \leq 0.05$) following counseling in housewives (1.590 ± 0.359). The daily intake of riboflavin by housewives was $0.741 \pm 0.741\text{ mg}$. A statistically non-significant increase in the riboflavin intake was observed in housewives after counseling. Before counseling the niacin intake by housewives was $8.133 \pm 1.817\text{ mg}$. Following counseling the niacin intake increased non-significantly.

Before counseling, the stress score of the housewives was 58.800 ± 7.5 . Following counseling, the stress levels showed a significant reduction ($P \leq 0.01$) and reduced to 41.267 ± 5.4 . The coping score of the housewives was 21.733 ± 4.15 . However, after counseling, the coping levels showed a significant improvement ($P \leq 0.01$) and increased to 39.733 ± 11.41 . The mean stress scores and mean coping strategy scores showed a positive relationship between counseling imparted to the respondents and the effective stress management with appropriate coping strategies.

Age showed a significant ($p \leq 0.05$) and negative correlation with stress at home ($r = -0.09$). Contrary to this, it showed a significant ($p \leq 0.05, 0.01$) and positive correlation with coping ($r = 0.0251^{**}$). Stress showed a negative correlation with the intake of calcium ($r = -0.047$), iron ($r = -0.020$), zinc ($r = -0.057$), riboflavin ($r = -0.047$) and vitamin C ($r = -0.068$) thereby exhibiting that stress levels decreased as the intake of micronutrients i.e. Calcium, Iron, Zinc, Vitamin B₂ and vitamin C increased. Coping levels in housewives showed a positive correlation with the intake of calcium ($r = +0.102$), iron ($r = +0.254$), zinc ($r = +0.010$), vitamin B₂ ($r = +0.073$) and vitamin C ($r = +0.128$) which shows that coping improves as nutritional status showed improvement. Stress levels were negatively correlated with the intake of pulses ($r = -0.104$), vegetables ($r = -0.081$), fruits ($r = -0.128$) and milk and milk products ($r = -0.014$) and positively correlated with the intake of cereals ($r = +0.099$), fats ($r = +0.012$) and sugar and jaggery ($r = +0.050$).

Coping showed a significant ($p \leq 0.01$) and positive correlation with the intake of pulses ($r = 0.261$), vegetables ($r = 0.223$) and fruits ($r = 0.287$). Weight was significantly ($P \leq 0.01$) and positively correlated with the intake of fats and oils ($r = +0.113$) and sugars ($r = 0.150$) along with BMI which was negatively correlated with the intake of vegetables ($r = -0.144$), fruits ($r = -0.192$) and positively correlated with the intake of fats and oils ($r = +0.192$) and sugar and jaggery ($r = +0.171$). Similarly BMI showed a significant ($P \leq 0.01$) and negative correlation with the intake of vegetables ($r = -0.151$) and fruits ($r = -0.174$) and a positive correlation with the intake of fats and oils ($r = +0.113$) and sugar ($r = +0.150$).

It is summarized that the strenuous pressure of work or activity at home, coupled with a poor dietary intake due to lack of time and ignorance was the prime reason for high stress levels and poor dietary and nutritional status. Nutritional counseling with emphasis on the intake of a balanced diet can result in the enhancement of nutritional status, which would help in more effective stress management strategies. The subjects of the present study were counseled about the benefits of reducing weight in the form of improved cardio-respiratory fitness, general health and well-being and increased immunity. Despite the bare minimum reduction in weight, the subjects in the present study admitted that losing weight had a positive effect on their life by bringing an overall feeling of health and wellness.

These findings are in accordance with the observations made in the present study that as the intake of vegetables, fruits and milk and milk products increased, the weight and BMI reduced along with reduction in the stress levels along with increase in coping levels. On the other hand weight, BMI, stress increases as the intake of fats, oils, sugar and jaggery in the diet increases. This is in concurrence with the findings of the present study that as the nutritional status of the subject improves, the stress of the person reduces along with an improvement in the coping levels

CONTRIBUTION TO THE SOCIETY

The present study titled—"Impact of Nutrition Education and Coping Techniques on the Health and Nutritional status of Housewives" aims to provide a practical and positive approach to the women to improve their health, nutritional status and coping patterns. Women of today are doing multiple roles in the society-bearing household and family responsibilities thereby leading to stress in them. This stress further results in poor dietary and nutritional status in women. Reports depicted that counseling of women with emphasis on the intake of a balanced diet may improve the nutritional adequacy of the diet and assist in effective stress management. It is summarized that the strenuous pressure of work or activity at home, coupled with a poor dietary intake due to lack of time and ignorance was the prime reason for high stress levels and poor dietary and nutritional status. Nutritional counseling with emphasis on the intake of a balanced diet can result in the enhancement of nutritional status, which would help in more effective stress management strategies. The subjects of the present study were counseled about the benefits of reducing weight in the form of improved cardio-respiratory fitness, general health and well-being and increased immunity. Despite the bare minimum reduction in weight, the subjects in the present study admitted that losing weight had a positive effect on their life by bringing an overall feeling of health and wellness. These findings are in accordance with the observations made in the present study that as the intake of vegetables, fruits and milk and milk products increased, the weight and BMI reduced along with reduction in the stress levels along with increase in coping levels. On the other hand weight, BMI, stress increases as the intake of fats, oils, sugar and jaggery in the diet increases. This is in concurrence with the findings of the present study that as the nutritional status of the subject improves, the stress of the person reduces along with an improvement in the coping levels.

Abpal
(*Abha Khetarpal*)