

## SELF MONITORING IN THE CHANGE OF DIETARY HABITS

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### *Abstract*

*Dietary habits form an important aspect of health promotive behaviour among people at risk for cardiac diseases. The change in eating habits, with self monitoring and without self monitoring was assessed before, during and after the dietary intervention among the sample (n-18) of subjects who were at risk for coronary heart diseases. The specific changes in their eating habits are discussed at different stages of intervention for self-monitored group and comparison group.*

One of the major risk factors associated with health issues is diet on particular food. Adapting a particular diet pattern or dietary lifestyle forms a major intervention strategy in health promotion and prevention of degenerative diseases like CHD, Cancer, Ulcer etc. These interventions aim at:

- i) Those activities which produce dietary change among participants.
- ii) The change in the eating behaviour should affect the indices of risks for diseases.
- iii) Finally such reduction of risks should also result in decreased morbidity and mortality.

The aim of this study is to develop nutritional activities that will succeed in producing changes in eating habits. The eating behaviour, which consists of constellation of habits which are acquired over years, can be modified using learning principles. It is not only the quantity and type of food that is consumed, the place and time are also

multifold factors which come under the pervuew of Diet Counselling.

According to the social learning theory, behaviour change requires social and environmental support and mastery of experience to sustain new behaviours. Eating habits are highly resistant to changes because they are imbibed from childhood. The behaviourally oriented approach to change the dietary lifestyle was also aimed at. Exposure to information on appropriate social reinforcement is not the only condition which facilitates the desired changes but, self regulation and mastery over ones own habit with good social support can sustain the changes for longer duration (Carmody et.al. 1986) Self-monitoring and self-observation are basic control procedures. The systematic recording and monitoring provides an information feedback to the individuals to regulate their behaviour. Thus, self-monitoring through records has reinforcing property and enables the individual to modify the

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undesirable behaviour. This technique has been successfully applied in modification of eating behaviour, smoking and exercise behaviour, obsessive compulsive disorder, marital relationship. (Foreyt, et al 1979; Carmody et al 1986, Hunt and Matarazzo 1973; Hall 1975). This article reports the evaluation of self-monitoring procedure in influencing the dietary habits.

#### **METHOD**

The sample of the study consisted of 18 subjects who were a part of long term intervention on "Life style changes in promoting health and personality development". These subjects were extensively screened on biomedical and psychological parameters. The Bio-medical parameters were height, weight, BP, cardiovascular status, assessment by a cardiologist. The psychological status included assessment of stress level, coping preference, Type 'A' behaviour, and anger expression.

The nutritional programme formed an important strategy in reducing health risks and promoting health and positive attitudes among these participants. The observations of this programme have been outlined in this article.

The mean age of the sample was 46.5 years with a standard deviation of 3.05. Counselling involved different phases, each phase having a rationale.

#### **PHASE I (3 WEEKS)**

Base line data on diet habits for the total subjects, including dietary re-

call charts, were collected. Three weeks data were obtained on each subject prior to starting actual counselling.

#### **PHASE II (4 WEEKS)**

During this period all the subjects were given the information on role of nutrition in health, ideas about compatible food, appropriate eating habits etc. The information was disseminated through lectures and literature.

#### **PHASE III (8 WEEKS)**

Individualised counselling on appropriate diet and if necessary substitutes recipes were provided.

#### **PHASE IV (12 WEEKS)**

Three follow-up nutritional counselling sessions were conducted in a span of nine months, wherein the dietary habits recall was obtained and further counselling was given to each subject. All the subjects had uniform exposure to lectures, information brochures and counselling sessions.

The adherence to the intervention was requested by asking them to maintain dietary charts. The participants differed only in their self-monitoring habits. The self-monitoring procedure used in the study was behavioural dairy of daily food intake in terms of quantity and quality of food. The self-monitored group also studied their consumption pattern each day and evaluated its content and appropriateness. Thus, they had an access to change or substitute the food or a particular item in the later part of the day or next day. They were asked

to follow specific time in recording their food intake and also plan their next day meals and adhere to it. Twenty-four hours dietary recall and dietary charts were also used to check adherence to dietary instructions. The 9 subjects who were regularly maintaining the dietary charts for a period of 82 weeks formed the self-monitored group. The comparison group consisted of 9 participants who were not maintaining any diet charts, who just recalled dietary intake at the appropriate interval when requested by the investigator. They were exposed only to information and counselling.

Thus experimental group had self-monitoring charts for 82 weeks, whereas the comparison group had 21 charts spanning for a period of one and half years.

The participants were evaluated on health risk indices such as BP, ECG, Blood Sugar and on somatic symptom checklists, at the end of Nutritional Counselling Programme.

The dietary charts of self-monitored group and comparison groups were analysed by a dietician and 15 variables were identified for further statistical analysis.

1. Calorie intake in terms of the caloric value of each food item consumed
2. Protein (gms)
3. Fat (gms)
4. Calcium (mg)
5. Vitamin A (I.U.)
6. Vitamin D (mg)

7. Iron (mg)
8. Sodium (gms)

Further the food items were classified on 6 categories based on the desirability and undesirability of its consumption and its consequences on health, namely,

1. Energy and carbohydrate rich foods
2. Protein and calcium rich foods
3. Minerals and Vitamin rich foods such as vegetables.

The following three categories were considered as undesirable food items which would increase the dietary risks for diseases. They were

1. Rich snacks and fried foods - food items fried, grilled and had more oil content contributed more to the risk.
2. Carbonated and caffeinated drinks - soft drinks, and coffee fell into this category.
3. Pickles and chutneys - the ingredient of oil, coconut and salt being high in these types of food items; was undesirable for people who are at risk for coronary diseases.

## RESULTS & DISCUSSION

The diet charts were subjected to homogeneity tests. The homogeneity of the 2 groups was established on all variables except for Calorie, Calcium, Vitamin and Iron intake. The MANOVA and ANOVA revealed a significant difference between the two groups on all variables. Then the data were subjected to Duncan's procedure.

**Table I Mean Values of Food Types Consumed over Different Time Interval**

Food Value	Self Monitored Group			Comparison Group		
	Before	During	After	Before	During	After
Calorie	1658.66	1343.33	1480.88	1558.44	1710.22	1463.00
Protein	43.22	30.00	32.55	25.33	22.33	23.33
Fat 33.93	27.35	21.55	33.33	37.44		40.00
Calcium	1575.11	906.66	3347.77	707.33	1074.44	653.41
Vitamin-A	3405.77	1615.22	3884.11	2020.55	1129.22	1109.77
Vitamin-C	35.47	19.44	24.33	27.66	17.66	30.66
Iron 14.00	12.77	16.00	9.44	11.16		11.44
Sodium	286.77	297.11	225.33	283.11	257.00	315.11

Mean caloric intake of the comparison group during the intervention period was significantly higher (1710.22) than the self-monitored group (1343.33) with all other means inbetween. The mean protein intake of the self-monitored group (43.22 gms) was significantly higher than the other groups at various time intervals. However, their intake reduced slightly (32.55 gms) after the intervention. In the comparison group protein intake remained the same. The mean fat intake of the comparison group (40.00 gms) after the dietary intervention was significantly higher than self-monitored group. Whereas the Mean fat intake for the latter group before and after intervention (27.35 mgs & 21.55 mgs) respectively remained lower. The mean calcium consumption of the self-monitored group was highest after the intervention (3347.77) and lowest for comparison group (653.41) during the same period.

Though self-monitored group had relatively higher vitamin A consumption they maintained it and for the comparison group it decreased significantly. Both the groups were homogeneous in the intake of calcium and sodium during the period of intervention and after the training. However the mean intake of Iron was significantly higher (16 mgs) for the self-monitored group after intervention when compared to mean values of comparison group throughout the period of observation (9.04, 11.16 & 11.44 mgs respectively).

The mean frequency of consumption of food, which were classified into different kinds was also compared for the two groups (Table II). The self-monitored subjects had consumed significantly higher level of rich fried snacks during their baseline level 16.44 & 11.88 respectively). The consumption of protein and calcium rich foods among

**TABLE - II****Mean Frequency (Per Week) Consumption of different food items**

	Self-Monitored Group				Comparison Group			
	Before	during	after	follow-up	before	during	after	follow-up
Energy & Carbohydrate	26.8	33.00	34.77	36.55	37.22	30.33	30.33	29.11
Protein & Calcium	30.11	29.77	29.33	32.44	28.33	30.33	29.55	53.11
Minerals & Vitamin	14.0	17.11	14.44	15.11	9.55	9.77	11.88	10.44
Rich Snack & Fried	16.44	13.88	11.66	11.88	15.88	11.33	12.11	11.66
Carbonated Caffeinated Drinks	2.1	2.2	2.00	1.44	1.11	2.55	1.22	1.11
pickles & Chutneys	5.6	4.6	3.2	3.2	5.0	4.7	5.8	5.0

self-monitored group during the intervention period was higher than the mean frequency of comparison subjects, after the training and on follow-up. The consumption of energy and carbohy-

drate rich foods, mineral and vitamin rich foods, carbonated and caffeinated drinks, pickles and chutneys remained homogeneous for both groups over the intervention period.

**Table - III**  
**Calorie Intake Per Day (Kcals) of Two Groups**

<u>Interventions</u>	<u>Self-Monitored Group</u>	<u>Comparison Group</u>
Before	1658.66	7089.55
During	1343.33	1558.44
After	1480.88	1710.22
Follow up (1)	1339.33	1463.00
Follow up (2)	1483.22	4422.00
Follow up (3)	1303.77	7253.00

The maintenance of change in the calorie intake upto three follow-up periods were also analysed. Though the mean calorie intake of the comparison group was significantly higher on the

Baseline mean (7080.55 k. cal) it reduced during and after the dietary intervention. But, there was no maintenance on the follow-up period because the mean calorie consumption of the com-