



## Life Style and Behavioural Treatment of Nutritional Disorder Mild Cognitive Impairment among Geriatrics

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### Abstract

*It was estimated that up to one third of elderly experienced a gradual decline in cognitive function known as mild cognitive impairment. Less severe than dementia, mild cognitive impairment is defined as cognitive defect that interfere with daily living. It may include slower thinking, a reduced ability to learn, and impaired memory. The nutritional factor also can be contributed in this problem that's why this impairment may be termed as "Nutritional Disorder Mild Cognitive Impairment". The increasing percent of mild cognitive impairment patients attract attention to researcher to conduct this paper. The objective of this paper is to assess the role of life style and behavioural treatment to nutritional disorder mild cognitive impairment among geriatric. The paper was prepared at Badsah Nagar Colony and Mahanagar of Lucknow City. The validation cohort n=50 (Interventional group) and 10 subjects in control group. The main finding of the paper was that a life style intervention such as exercise, yoga, worship, stress management, behavioral treatment such as stimulus control, eating and diet management including dietary antioxidant supplements, self monitoring techniques was reduced nutritional disorder mild cognitive impairment by 58% and fully controlled cured 26%. The calculated value of Chi-square was found 16.0, as compared to table value 3.841 at one degree of freedom and five percent significant level therefore null hypothesis rejected and alternate hypothesis accepted i.e. life style and behavioral treatment could be controlled or cured geriatrics nutritional disorder mild cognitive impairment.*

**Keyword:** Nutritional disorder, mild cognitive impairment, dementia, cognitive defect.

### Introduction

Life style treatment are considered to be the cornerstone of intervention in any neurodegenerative and cognitive disorder among geriatrics. Life style therapy components include specific behavioural modification strategies - Self monitoring, stimulus control, eating management, Contingent management

Diet i.e. low caloric diet, very low caloric diet, healthy or balanced –deficit diets, protective diets, (antioxidants – dietary), prepackaged food etc<sup>1</sup>.

Exercise i.e. aerobic, walking, calistrenics, life style exercise etc. Psychotherapy i.e. humanistic therapy, Psychodynamics Yoga etc.

It was estimated that up to one third of adults were experienced a gradual decline in cognitive function known as mild cognitive impairment as they aged<sup>2</sup>. Less severe than dementia, mild cognitive impairment is defined as cognitive defects that do not interfere with daily living. It may include slower thinking, a reduced ability to learn and impaired memory. The impairment may also contribute by nutritional factors that may be termed as 'Nutritional Disorder Mild Cognitive Impairment' among geriatrics. The 'Nutritional Disorder Mild Cognitive Impairment' may be defined as cognitive defects that do not

interfere with daily living that may include slower thinking, a reduced ability to learn and impaired memory with no discernible neurologic abnormality on examination. This is a degenerative disorder possibly related to protein caloric malnutrition, vitamin B-complex deficiency, multi-mineral deficiency, antioxidants deficiency or any other deficiency ultimate defects cognitive ability abnormalities among elderly. Physical changes that occur in the ageing brain are implicated in mild cognitive impairment. For example, the number of nerve impulses and nerve cells decreases with age. Also, levels of neurotransmitters such as serotonin and acetylcholine, a primary transmitter for learning and memory, decreases. This loss of acetylcholine was noticed three decades ago, giving rise to a theory that coupled the loss of acetylcholine with cognitive decline. Blood flow to the brain is also an important factor in brain health<sup>3</sup>. Blood delivers the oxygen and nutrients necessary for normal functioning. Unfortunately, even during normal ageing, blood flow to the brain may decrease by an average of 20%. The decrease blood flow that results from ageing and associated disease can cause nerve cells in the brain to be lost prematurely. This loss may contribute to the decline of cognitive function<sup>4</sup>. Possible strategies for treating mild cognitive impairment is to avoid it in the first place<sup>5</sup>. This means getting plenty of exercise and good sleep, eating a healthy diet<sup>6</sup> keeping body weight down, avoiding diabetes, and taking the right nutritional supplements before experience any signs of cognitive

decline<sup>7</sup>. The consumption of low-fat<sup>8-9</sup>, nutrient-rich food is recommended to help prevent nutrient deficiencies. Eating large quantities of foods rich in antioxidants, such as blueberries, may provide protection from mild cognitive impairment. The following supplements have also been shown to boost brain function directly

**Cognitex:** Glyceryl phosphoryl choline (GPC) 600 mg; Phosphatidylserine – 100 mg; Vinpocetine 20 mg; Phosphatidylcholine- Grape Seed Extract – 150 mg; Sensoril R Ashwagandha (with ania Somnifera) extract – 125 mg; Perluxan Hops (Humulus lupulus) Extract – 50 mg ; Ginger (Lingiver Officinale) extract – 25 mg; Rosemary (Rosmarinus Officinalis) extract 50 mg, Wild blueberry extract – 150 mg, Uridine – 5- monophosphate – 50 mg, Ginkgo Bilaba – 120 mg/day Panax ginseng- 200 mg/day, Acetyl- L-Cornitine and acetyl-L-cornitine argenate- 1500 to 3000 mg early in the day, Huperzine A – 50 to 100 mg daily, Vitamin B<sup>6</sup>- 100 to 750 mg/day, Methylcobalamin (B<sup>12</sup>)-1000 to 5000 mg/day, Folic Acid – 800 mg/day, Vitamin C – 2000 mg/day, Mixed Vitamin E – 400 Iu/day, Vinpocetine – 15 to 30 mg/day, Bacopa, EPA/DHA- 700 to 2100 mg EPA and 500 to 1500 mg DHA daily.

**Criteria for mild Cognitive Impairment (MCA):** Subjective complaints of memory loss, Objective impairment of memory for age with standardized memory test with score 1.5 standard deviations or more below the mean for education and age-adjusted scores, Generally preserved other cognitive ability, Preserved day to day functioning, No other obvious medical, neurologic or psychiatric explanation for the memory problems, Individual does not meet criteria for dementia<sup>10</sup>

The Indian Studies has shown that mild cognitive impairment in India was 14.89% where as at Calcutta it was estimated 15%. As stated by the American Dietetic Association (1996) food and nutrition add an important dimension to improve health. Therefore, the most practical outcome of research is the relationship between diet and nutrition to ageing would be a better understanding of how nutrition related behaviors can help to maintain an optimal quality of life.

**Objective:** The objective of this paper is to assess the role of life style and behavioral treatment to cure nutritional disorder mild cognitive impairment among geriatrics.

**Methodology**

The paper was prepared at Badsah Nagar Colony of Lucknow city. The validation cohort n=50 Intervention group (male = 30 , female = 20) control group (n=10)

**Results and Discussion**

**The main findings of the paper:** The overall reduced in nutritional disorder mild cognitive impairment due to life style

and behavioral intervention such as self monitoring, stimulus control, eating and diet management including dietary antioxidants (nuts-almond and walnut) supplementation partially control 58% and fully control 26%. The calculated Value of chi square was found much more higher; 160 as compared to table value; 3.841 at one degree of freedom and five percent significant level i.e. null hypothesis rejected and alternate hypothesis i.e. life style and behavioral modification can control and cure nutritional disorder mild cognitive impairment among elderly.

**Intervention Guideline: Self monitoring:** Monitor own behavior by himself. Monitor behavior by own family member. Changes behavior in accordance to environment, family and society as a whole

**Self control:** Strategies designed to alter cues leading to inappropriate activities in daily life. Control inappropriate eating such as eating while watching television etc. Yoga. Morning/evening walking stress management.

**Eating Management:** Modifying the act of eating, Eating Slowly, Healthy diet intake- Energy requirement, RDA ∝ RDI, Carbohydrate 55-60%, Protein 0.6 - 0.8 gm/ kg body wt. , Fat 30% of total cal. , 10% saturated, 20% unsaturated oil / preferably rice bran oil, Fruits- two to three, Vegetables- Preferably green vegetables, Indigenous antioxidants- nuts wall nut= 25gm, Restricted intoxicants such as :- Nicoline, Caffeine, Alc. Liquor, Smoking.

**Conclusion**

Ages of Subjects Table-1, Academic Status – Table 2, Economic Status of Family – Table 3, Self Occupation-Table 4, Religion and Caste- Table 5, Obesity Status-Table 6, General Hygiene-Table 7, Diseased Status – Table 8, Intoxicant Users- Table 9, Dentine-Table 10, Nutritional Status-Table 11, Average Intake of Food Nutrients-Table 12, Liking of Foods – Table 13, Anaemia and PEM status – Table 14, Acceptance of Behavioral Modification– Table 15, Mild Cognitive Impairment Before Intervention-Table 16, Mild Cognitive Impairment-Table 17, Changes in Mild Cognitive Impairment – Table 18, Acceptance in Beh. mod. VS Changes in MCI –Table 19, Acceptance in Life Style Components-Table 20

**Table-1**  
**Ages of Subjects**

Age group	Male		Female		Total	
	No.	%	No.	%	No.	%
60-65	12	24	8	16	20	40
65-70	7	14	6	12	13	26
70-75	8	16	4	8	12	24
75 +	3	6	2	4	5	10
	30	60	20	40	50	100

**Table-2**  
**Academic Status**

Academic status	No.	%
Illiterate	3	6
Literate	2	4
School	5	10
College	11	22
Graduate	13	26
Post Graduate	11	22
Technical Education	2	4
Any other	3	6

**Table-6**  
**Obesity Status**

Obesity Status	No.	%
Underweight	18	36
Healthy	16	32
Overweight	11	22
Obese Gr1	3	6
Gr2	2	4
Gr3	-	-

**Table-3**  
**Economic Status of Family**

Trade	No.	%
House Wife	11	22
Govt. Servant	21	42
Pvt. Servants	7	14
Businessmen	5	10
Farming/ Ag. Lab.	2	4
Any other Lab.	4	8

**Table-7**  
**General Hygiene**

	After Intervention up to mark			
	No.	%	No.	%
Up to Mark				
Mouth Wash	21	62	34	68
Bathing	28	56	39	78
Wearing Clean Clothes	34	68	45	90
Environment	40	80	44	88

**Table-4**  
**Self occupation**

Self occupation	No.	%
Retd. from govt. jobs	24	48
Businessmen	4	8
Farmer/ Ag. Lab.	2	4
Housewives	11	22

**Table-8**  
**Diseased Status**

Diseases	No.	%
Diabetes	3	6
Hypertension	8	16
Kidney	3	6
Arthritis /Gout	4	8
Cancer	1	2
Asthma	12s	24
T.B.	3	6

**Table 5**  
**Religion and Caste**

Religion and Caste	No.	%
Hindus	29	58
Upper	7	14
Middle OBC	16	32
Lower SC/ST	6	12
Muslim	18	36
Upper	9	18
Middle OBC	6	12
Lower SC/ST	3	6
Other Religion	3	6
Upper	2	4
Middle OBC	1	2
Lower SC/ST	-	-

**Table-9**  
**Intoxicant users**

Intoxicant users	After Intervention				Change	
	No.	%	No.	%	No.	%
Before Intervention						
Tobacco	8	16	4	8	4	8
Panmasala Tobacco	16	32	9	18	7	14
Smokers	9	18	6	12	3	6
Alc. Liquor	11	22	10	20	1	2

**Table-10**  
**Dentine**

Dentine	No.	%
Full artificial	20	40
Incomplete	17	34
Original	13	26

**Table-11**  
**Nutritional Status 24 hrs. Dietary recall**

Foods	Upto 25gm	25-50gm	50-100gm	100-150gm	150-200gm	200-250gm
Cereal	-	5(10%)	2(4%)	14(28%)	19(38%)	10(20%)
Pulses	2(40%)	48(96%)	-	-	-	-
Oil and Fats	4(8%)	46(92%)	-	-	-	-
Milk	-	-	5(10%)	41(82%)	3(6%)	1(2%)
Other dairy products	-	22(44%)	28(56%)	-	-	-
Meat	-	-	12(24%)	-	-	-
Poultry	6(12%)	-	-	-	-	-
Fruits	-	-	-	50(100%)	-	-
Vegetables	-	-	-	26(52%)	24(48%)	-
Sweets	-	11(22%)	21(42%)	-	-	-
Beverages	-	-	-	22(44%)	24(48%)	4(8%)
Fast and Junk Food	-	-	-	-	-	-
Any others	-	-	-	-	-	-

**Table-12**  
**Average Intake of Food Ingredients**

Ingredients	Before Intervention gm	After Intervention	Change gm
Cereal	118	175	+37
Pulses	35	45	+10
Oils and Fat	35	40	+5
Milk and Dairy products	150	225	+75
Fruits	100	200	+100
Vegetables	150	250	+100
Meat and Poultry	25	35	+10
Sweets	35	25	-10
Beverages	150	100	-50
Fast and Junk Food	60	25	-35
Nuts and Wall nuts	-	25	+25
Any other sp.	-	-	-

**Table-13**  
**Liking of Foods**

Foods	No.	%
Milk	6	12
Snacks	42	84
Sweets	36	72
Fruits	17	34
Cheese	26	52
Vegetable	18	36
Egg	20	40
Meat	12	24
Fish	12	24
Alc. Liquor	6	12
Tea	26	52
Coffee	26	52
Beverages	32	64

**Table-14**  
**Anaemia and PEM Status**

	No.	%	No.	%
Anaemia				
By HG%	12	24	3	6
By Physical examination	17	34	5	10
PEM	6	12	1	2

**Table-15**  
**Acceptance of Behavioral Modification**

	No.	%
Self Monitoring	17	34
Stimulus Control	14	28
Eating Management	18	36
Diet Management	16	32
Rewarding Behavior	14	28

**Table-16**  
**Mild Cognitive Impairment (Before Intervention)**

Traits (MCI)	No.	%
Subjective memory loss	50	100%
Objective impairment of memory loss	48	96%
Preserved Other Cognitive ability	22	44%
Preserved day to day functioning	19	38%

**Table-17**  
**Mild Cognitive Impairment**

After Intervention	No.	%
Subjective memory loss	30	60
Objective impairment of memory loss	26	52
Preserved Other Cognitive ability	20	40
Preserved day to day functioning	19	38

**Table-18**  
**Changes in Mild Cognitive Impairment**

	No.	%
Subjective memory loss	20	40
Objective impairment of memory loss	22	44
Preserved Other Cognitive ability	02	04
Preserved day to day functioning	-	-

**Table-19**  
**Acceptance in Beh. mod. VS Changes in MCI Behavioral Modification**

MCI	Self Monitoring		Stimulus Control		Eating Management		Diet Management		Rewarding Behavior	
	No.	%	No.	%	No.	%	No.	%	No.	%
Subjective loss of memory	17	34	14	28	18	36	16	32	14	28
Objective loss of memory	14	28	14	28	18	36	12	24	-	-
Preserved other cognitive ability	-	-	02	04	-	-	-	-	-	-
Preserve day to day functioning	-	-	-	-	-	-	-	-	-	-

**Table 20**  
**Acceptance in Life Style Components**

	No.	%
Diet	18	36
Exercise	22	44
Psycho therapy	16	32
Yoga	-	-
Worship	15	30

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