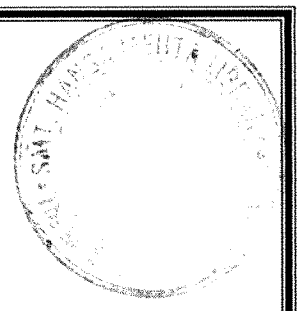
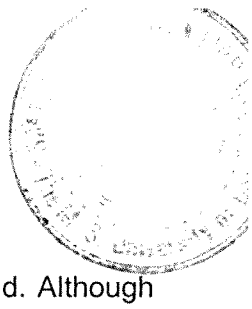


ABSTRACT



ABSTRACT

Depression is one of the most common mental disorders in the world. Although depression is said to affect anyone regardless of their age, gender, race, or class, research evidence shows higher rates of depression among women and older people. Studies have shown direct relationship between depression and estrogen levels in women which diminishes during aging process. Aging women face increasing obstacles to their mental health due to a number of various causes and factors. For improving the depression status, nutrition can play important role as an alternative treatment alone or along with the drug treatment. However, there is dearth of information on the Indian elderly women especially with regards to impact of depression on health and nutritional status. In this context, herbal intervention can play valuable role as more acceptable therapy in community setting. Keeping this in mind, the central objective of the study was to assess diet, disease and nutritional status of adult and older women with reference to depression. There is very scarce information available on herbal treatment of depression and cognitive impairment in ageing population.

Further as a part of the intervention therapy role of folic acid and brahmi supplementation was also evaluated for specific period in the depressed older women above the age of 60 years. The specific objectives included collection of baseline information of socio demographic attributes, nutritional status, dietary intake, psychosocial parameters along with lifestyle assessment in terms of activity pattern and addiction pattern, mental and physical health profile of adult and older depressed women (aged 40 years and above) selected for this study. As a part of intervention study, a sub sample was selected to evaluate the post intervention effect of folic acid and brahmi tablets supplementation on nutritional, mental and physical health status of older depressed women who were above the age of 60 years.

The study covered three phases. Phase I included data collection of baseline information on diet, nutrition and morbidity profile of depression in adult and aging women. Vadodara city was divided into 25 areas on the basis of the socio-

economic status. Using the snowball sampling technique, more subjects were identified from each locality of the city. The Beck's Depression Inventory (BDI) was used for screening women for depression. A total of 180 moderately depressed women were identified for the in-depth interviews. In-depth interviews were conducted among women above the age of 40 years who were identified from the free-living (non-institutionalized) population of Vadodara city. For the purpose of analysis, women were categorized into two age groups 40-60 years and above 60 years. In addition to the 180 women selected for in-depth interviews, 20 women over 60 years of age from the middle income group were selected from the non depressed group as controls primarily to compare their nutritional status with depressed older women above 60 years belonging to middle income group.

As a part of intervention study for phase II, sub samples of 30 subjects from middle income (above 60 years of age) were selected out of total 90 depressive older women. They were subjected to the intervention of folic acid for the period of eight weeks. Similarly for phase III, other set of thirty older depressed women having moderate scores on MMSE and CIT health assessment were selected for intervention with brahmi for a period of twelve weeks. Further they were categorized into experimental group receiving brahmi supplement (n=15) and control group (n=15) not receiving any therapy.

The data on socio demography of the subjects for the first phase was collected with respect to age, marital status, religion, ethnic group, educational qualification, occupational status, language used, family composition, family income, presence of physical ailments, history of mental illness and alcoholism within the family.

Nutritional status for all the three phases were assessed using anthropometric measurements such as height, weight, mid upper arm circumference (MUAC) and body mass index (BMI). The diet related information was collected using 24 hour dietary recall method along with food frequency. For phase I, diet survey was carried out with respect to data collection on general dietary aspects using pre-

tested questionnaire to obtain information such as: water intake, meal pattern, fasting practices, skipping meals, intake of special health foods, craving for special food, reduction in food consumption, changes in food consumption pattern, food causing allergy, and food preference. The morbidity profile was assessed by collecting prevalence of major and minor illnesses using checklist method among adult and elderly women. Additionally pre tested questionnaire was used to get the information on the menopausal aspects. The psychosocial parameters were evaluated in terms of power structure, loneliness and isolation, life's stressful events and self esteem. In order to explore the interplay between psychosocial parameters and caloric intake of the depressed subjects a correlation was carried out. The lifestyle pattern was assessed by collecting information on activity pattern and addiction pattern. Biochemical estimations for phase II and III were carried out with respect to hemoglobin using cynamethaemoglobin method and serum folic acid using elecsys kit for getting the information on pre and post intervention data. Data on mental health status was obtained using scales such as mini mental state examination scale, cognitive impairment scale and beck's depression inventory for phase II and III respectively.

The student's 't' test, percentages, chi square, 'f' test for trend were used at appropriate places for the analysis of the data using SPSS software.

With regards to socio demographic profile of adult and older moderately depressed women (aged 40 years and above) from free living population, it was found that majority of the women were married, homemakers and belonged to Hindu community. Forty percent of the women from 40-60 years age group had completed their post graduation level. Majority of the women complained for having an arthritis and blood pressure and having no history of any mental illness amongst their families.

With respect to nutritional status, there was no significant difference ($p \leq 0.05$) by income or age in the case of weight, height, MUAC and BMI in adult and older

moderately depressed women (aged 40 years and above). The mean BMI of non depressed women was found to be 27 Kg/M^2 which was in the category of overweight.

With respect to consumption of nutrients, a significant difference was obtained amongst both the age groups of moderately depressed subjects. The mean nutrient intake of iron, calcium, vitamin-C and vitamin B6 were significantly lower ($p \leq 0.05$) in moderately depressed older women (aged 60 years and above) compared to their younger counterparts. The folic acid intake was found to be lower amongst older depressed women compared to younger depressed subjects and non depressed counterparts. The nutrients having a role-play in mental health viz., selenium, choline, omega 3- fatty acids and vitamin B 12 were found to be deficient in both adult and older moderately depressed women (aged 40 years and above). Overall the intake of all the nutrients was found to be better amongst the non depressed women as compared to depressed women. With respect to food frequency, depressed women belonging to both the age groups (40-60 years and above 60 years) from higher and middle income showed frequent intake of all the food groups compared to lower income group. Milk and milk products were frequently consumed by adult depressed middle income women 63.3 percent compared to older depressed women where the frequency was only 30 percent. Majority of the depressed women from both the age groups showed non-frequent consumption of animal foods and sea foods, green leafy vegetables, fats, oils and nuts.

The findings obtained from diet survey showed that women did not regularly take breakfast. Fasting practices were followed more (63.3 %) by women over 60 years of age than by non-depressed women (40 %). Most of the women (age 40-60 years and over 60 years) with depression had shown craving for foods like sweets, salty and crispy food items, and chocolates. Reduction in food consumption was reported by majority of non depressed women (above age 60 years) within past 5-10 years for fried foods, pickles, ghee based items and sweets. Amongst depressed women aged 40-60 years, consumption of special

health foods was found to be highest in the high income group (62.1 percent) and lowest in the low income group (16.7 percent) similar results were seen in their counterparts. A comparison of the health and nutritional status of depressed and non-depressed women showed that non-depressed women had: more regular meal pattern, less craving for certain food items, and reduced food intake on account of health related reasons.

The prevalence of major health problems in terms of morbidity profile was higher in women over 60 years of age from middle income families. Locomotor problems (53.3%) ranked first in all the income groups, followed by oral cavity problems (43.3%) and cardiovascular problems (31%). Minor health complaints in terms of psychological complaints (aged 40-60 years) and complaints related to the digestive system (> 60 years) were prevalent in most of the depressed women. Also, physical complaints like ulcers (60.7%), headache (53.3%) and dryness of skin (56.7%) were reported more by older depressed women. Conversely, in younger group acidity, psychosomatic problems (46.7%), dizziness (69%) and headaches (60%) were reported by more number of subjects.

Regarding psychosocial aspects, data on power structure revealed that although many women reported themselves as the head of the household and partaking in the decision-making on various family related matters, many of them did not take decisions independently, they generally consulted their husbands in decision making. Decisions on financial matters were taken by male members of the family.

Lifestyle factors in terms of activity pattern showed significant difference ($P \leq 0.05$) between adult moderately depressed women (40-60 years) and older depressed women (above 60 years) in the middle income group with regard to the time spent on physical activities in a day. Involvement of adult women was higher in daily household chores, outdoor activities, gardening and going for

walk. A greater percentage of older women in the high and middle income groups were not independent in their daily activities as compared to their counterparts due to health problems and advancing age. Data on addiction pattern of the adult and older depressed women (aged 40 years and above) showed no addictions being practiced.

Among adult depressed women in the 40-60 years age group, satisfaction with existing social support was highest in middle income (73.3 percent), followed by lower income women (60 percent) and high income women (56.7 percent). The level of satisfaction among lower income older women (above 60 years) was found to be least (50 percent). Corresponding to that, the level of self-esteem of older women in the low income group was also less, with only 46.7 percent women in this group having high self-esteem.

Women across age and income groups had experienced highly stressful life events, With respect to loneliness, in case of older women over 60 years of age, 96.7 percent of the women from high income group reported feeling of loneliness followed by middle income women (93.4 percent) and lower income women (83.3 percent). With regard to feeling of isolation, about two-thirds of lower and high income women in the (40-60 years age group) and 70 percent (above 60 years of age) reported feeling of isolation. Coping strategy in terms of 'finding solutions' was most frequently reported by middle income women over the age of 60 years (25 percent).

Correlation between caloric intake of depressed women and psychosocial factors showed that, women who were satisfied with the existing power structure within the family had better calorie intake. A significant difference ($p< 0.05$) was observed amongst women who ranked higher for isolation on the BDI scale and life event stress scale had lower calorie intake. Women with positive self-esteem had better caloric intake compared to those who had negative self-esteem.

In phase II, Folic acid supplement intervention showed beneficial effects on severity of depression, nutritional status, dietary intake, and minor health complaints. The level of depression decreased to a greater extent after supplementation from a moderate score 45 (45.96 $\pm$ 3.49) to mild score 6 (6.131 $\pm$ 2.59). Assessment of biochemical parameter for hemoglobin showed marginal difference. Highly significant difference ($p \leq 0.05$) was observed in folic acid levels where serum values increased from 3mg to 16mg after the intervention. A significant difference ($p<0.05$) was observed on comparison of nutrient intake of depressed women (using the 24-hour dietary recall method) for before and after intervention data. Increased intake of folic acid, iron, vitamin B12, calcium and amino acids was obtained after intervention. Analysis of the morbidity profile showed a highly significant difference ($p \leq 0.05$) in majority of the minor health complaints reported by depressed elderly women after intervention. A marked difference was observed in complaints related to digestive system.

Intervention with brahmi supplementation in phase III showed improvement in memory and overall mental health status after the period of twelve weeks. A significant decrease ($p \leq 0.05$) was found in the depression level in the experimental group. The levels of depression reduced from moderate score (100%) to mild (93%) and in normal category (7%). Similar findings were obtained with respect to Mini Mental State Examination (mild levels 66% reduced to normal category 7%) and Cognitive Impairment Scale Scores showed a shift in depressed group from abnormal category to (33%) to normal category (93 %).There was no significant change observed in the anthropometric measurements of the depressed subjects in experimental as well as control group. A significant increase ($p \leq 0.05$) was found in the mean intake of choline, folic acid, tryptophan and vitamin C in the subjects belonging to experimental group whereas significant reduction ($p \leq 0.05$) in the mean intake of vitamin C was observed in the control group. Morbidity profile revealed a significant reduction ($p \leq 0.05$) in the number of minor health complaints after intervention period.

Thus, it can be concluded from the present study that nutrition is one of the determinant of mental health. The study has further indicated marked beneficial effect of intervention with folic acid as well as brahmi; perhaps these interventions can prove to be more acceptable and effective in community settings.