Nutritional and Pulmonary Health Status of Textile Women Workers of Tamil Nadu and the Impact of Micronutrient Fortified Food Supplement on Moderate Anaemic Cotton Ginters

ABSTRACT

Textile industry is one of the sectors which furnish semiskilled jobs to women population in our country. Inspite of the improvement in textile technology the work environment has not changed much. Research reports have highlighted that women working in textile industry suffer from musculoskeletal aches, respiratory problems and anaemia etc. Considering this, an attempt has been made to assess the nutritional and health status of textile women workers. The investigation was carried out in the urban areas of Tirupur and Erode Districts of Tamilnadu. Totally 300 nonpregnant, nonlactating adult women performing varied textile tasks and women aged between 20 to 60 years were identified randomly from ginning (n=150) (gin house, gutter, and sorting sections) and spinning (n=150)(carding, blowing and spindle sections) industries. Socio demographic, work pattern and nutritional status were assessed by administering a pretested questionnaire. Morbid conditions including respiratory problems (Medical Research Council Respiratory Questionnaire) and musculoskeletal aches were assessed. Further, to correct micronutrient deficiency, iron and folic acid fortified soy biscuits were formulated. Intervention study was conducted among the selected moderate anaemic ginters (n=20) by providing 100 g of soy biscuits per day as midmorning and midevening snack for 120 days. Therapeutic efficacy of food supplement was studied by assessing their anthropometric, haematological, respiratory conditions and pulmonary function at pre and post supplementation period. Further, to create nutritional knowledge among ginters, education was imparted through lecture, power point presentation and by distribution of booklets.

Socio demographic data showed that, of the total, 79 and 70 per cent of women selected from ginning and spinning industries respectively were in the age group of 20 to 40 years. About 90.7 per cent of their individual monthly income ranged between Rs.1000 to Rs.3000 and 40 to 50 per cent of their family income all spent on food. Majority of them included nonvegetarian food in their menu. The mean calorie intake of giners and spinners was 1623±155 and 1679±109 kilo calories respectively and the average protein intake was less than 40g per day. Anthropometric indices of giners and spinners showed that the mean height was 157.1 cm and 154.8 cm and weight was 52.8 and 53.12 kg with the Body Mass Index of 21.4 and 24.6 respectively. About 43 and 18 per cent of giners and spinners respectively showed symptoms for protein calorie malnutrition. About 85 and 68 per cent of workers from ginning and spinning industries
respectively suffer from anaemia. Respiratory symptoms classified under mild and moderate degree were prevalent among less than 50 per cent of textile women workers. Similarly, 20-40 per cent of them had symptoms for musculoskeletal aches. Preliminary testing performed on quality characteristics of cookies showed that of the 18 combinations one with 70 per cent wheat flour and 30 per cent untoasted defatted soy flour, fortified with 8 mg of ferrous fumarate and 175 µg of folic acid had attained maximum score for organoleptic characteristics and provided 482 kilocalories, 13.5g protein, 8mg iron and 120µg folic acid. Intervention study indicated that increment in body weight was observed in experimental group of ginners. About 20 to 30 and 10 to 20 per cent of them with mild and moderate degree of respiratory symptoms respectively were relieved from such conditions. Increase of 1.94 g per cent in haemoglobin, 3.1 µg /dl in serum iron, 10.8 mg/ dl in serum transferrin, 3.3 ng /dl in serum ferritin and 3.2 ng / dl in serum folic acid were noticed among supplemented group of women. Similarly significant reduction in lymphocyte and eosinophil counts were noticed. Pulmonary Function Test showed considerable changes after intervention period. The initial mean value of FVC was 1.94±0.14 and increased to 2.13±0.42. Similarly, improvement in FEV1, value from 1.65±0.31 to 1.79 ±0.42 was noticed. The mean observed value of PEFR, PEF_{25-75} were reduced slightly in selected women of ginning workers after intervention. Majority of women benefited by the nutrition education programme and gained knowledge on significant components of nutrition and health. The present study suggested that the ginning unit women workers exhibited significant changes in the level of biochemical indices apart from pulmonary function changes on food supplementation. Hence a specific strategy should be developed for improving their nutritional status and periodic health check up is also advisable to monitor their health and nutrition.