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Physical Status, Dietary Pattern and Nutrient Intake of the Female Adolescent Garment Workers in Tirupur District

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Abstract

Adolescence is the period of development that begins at puberty and ends at adulthood. The World Health Organization (WHO) defines adolescence as between 10 and 19 years. The present study is aimed to explore socio-economic status, anthropometric measurement and clinical signs of female adolescent garment workers in Tirupur district. Data was collected from 200 female adolescent garment workers using questionnaire. The data regarding socio economic status, anthropometric measurement, dietary practices, nutrient intake and biochemical profile of the selected female adolescent subjects were collected. From the results it shows that the overall health and nutritional status of all the selected adolescent female subjects are not satisfactory.

Keywords: Biochemical Profile, Dietary Practices and Impact of Nutrition Knowledge, Female Adolescents, Garment Workers, Health and Nutritional Status, Nutrient Intake

1. Introduction

Economic growth is one of the primary goals of the national economic policies. India is one of the fast growing economies in the world. The textile industry in India is an area which contributes to the economic growth[1]. In India, the readymade garment industry is providing employment to more than 3 million people and the majority is from low socio-economic status covering both men and women[2]. Adolescence is the period of development that begins at puberty and ends at adulthood. The World Health Organization (WHO) defines adolescence as between 10 and 19 years and youth as between 15 and 24 years, while young people encompass the entire age group of 10 to 24 years old.

The effects of long work-hours and monotonous, stressful work can be deleterious to both mental and physical health[3]. Hence the present study was carried out with the objectives of, to identify the nutritional and health status, dietary practices and nutrient intake of the selected female adolescent garment workers and also assess the biochemical profile and impact of nutrition knowledge of selected 20 subjects.

2. Methodology

2.1. Selection of Area

The areas selected for present study were Kanak-kampalayam, Pooluvapatti, Kuthampalayam, Thattankuttai, Velampalayam, Mariyapuram and Kunnathur of Tirupur District.

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2.2. Selection of Subjects

The investigator selected 200 female adolescent garment workers in the age group of 16 – 19 years, for assessing general information, dietary assessment and anthropometric measurements. From this, sub samples of 20 were selected for biochemical analysis by convenience sampling method.

2.3. Formulation of the Interview Schedule

The questionnaire formulated for this study included the following details.

i. General Information

General information like name, age, religion, educational qualification, type of family, marital status, total number of members in the family, family income, financial status, type of work, age at which starting work, number working hours per day, total number of working days per year and type of wages were collected with the help of the formulated questionnaire

ii. Dietary Survey

Dietary intake of selected female adolescent garment workers can be estimated using dietary records, 24-hour recalls and food frequency questionnaire. Qualitative and quantitative assessment of food intake is a technique used for the assessment of nutritional status, as it furnishes useful indication about dietary inadequacies, by undertaking dietary survey of individuals or groups, their dietary deficient or excessive intakes can be identified[4].

2.4. Assessment of Nutritional Status

The nutritional status of the selected subjects was assessed through the following methods.

i. Anthropometric measurement
ii. Clinical assessment
iii. Biochemical assessment

i. Anthropometric measurement

Anthropometric measurements like height and weight were measured for all the subjects and also calculate the Body Mass Index (BMI) of all the subjects.

ii. Clinical examination

Clinical examination is used to assess the health status of individuals. It is the simplest and practical method. When two or more clinical sign characteristic of a deficiency disease are present simultaneously, their diagnostic significance is greatly enhanced[5].

iii. Biochemical assessment

A sub sample of female adolescent garment workers were selected based on their clinical symptoms such as loss of hair, brittle nail, poor appearance, bleeding gums and paleness of eye. They were subjected to analyze their biochemical profile, after getting consent from them. The mean blood haemoglobin, serum protein and serum iron level of the selected adolescent female garment workers were analysed.

2.5. Imparting Nutrition Education

The nutritional awareness regarding adolescent nutrition and health related problems, causes and symptoms of anaemia, malnutrition and their risk in adolescent pregnancy, importance of adequate food and nutrient intake consumption during menstruation and also required nutrient intake, balanced diet and its importance, role of iron in functioning of the body are given through lecture method using power point to the selected twenty female adolescent garment workers using local language.

2.6. Analysis the Data

The collected data were consolidated, tabulated and statistically analyzed and the results were discussed and concluded.

3. Results and Discussion

3.1 General Information and Socio-Economic Status of the Selected Subjects

Majority of the subjects (35 and 37.5 percent) were in the age of 18 and 19 years and most of them were educated up to higher secondary level. Majority of the selected female adolescent garment workers (82 percent) were unmarried and 73.5 per cent of them were belonging to nuclear family. More number of families was containing 3-6 members and majority of subjects were belonged to high income group. Most of the (68.5 per cent) subjects engaged in working sector for about 6 to 8 hours per day and 75.5 percent of subjects worked about 200-250 days

per year. Majority of the selected subjects (87.5 percent) were received their wages weekly.

3.2. Anthropometric Measurements of the Selected Subjects

The mean height, weight and BMI for the age group of 16-17 years were found to be 150.296±4.24 cm, 40.81±4.78 kg and18.05±1.48 kg/m^2 respectively and the values are found to be low when compared to standard values.

The mean height, weight and BMI for the age group of 18-19 years were found to be 154±5.18 cm, 42.78±4.81 kg and 17.89±1.78kg/m^2 respectively and the values are found to be low when compared to standard values.

3.3. Information Pertaining to Dietary Pattern of the Selected Subjects

Majority (70 percent) of the subjects were consuming non-vegetarian diets and 83.5 percent consumed three meals per day.

From the above table 1, it was noted that the mean intake of energy, protein, calcium and iron for the age group of 16-17 years were found to be 1585.03±150.65 kcal, 45.06±2.89 g, 554.65±76.90 mg and 16.62±2.96 mg respectively and the intake of the selected subjects were found to be low when compared to normal value. The mean intake of fat and vitamin C were found to be 37.75±10.03g and 55.24±16.67 mg respectively and was higher compared to the recommended dietary allowances.

The mean intake of energy, protein, calcium and iron for the age group of 18-19 years were found to be 1616.68±205.69 kcal, 46.58±7.59 g, 576.95±91.55 mg and 17.34±3.93 mg respectively and the intake of the selected subjects were found to be low when compared to normal value. The mean intake of fat and vitamin C were found to be 37.72±10.58 and 53.10±15.85 respectively and was higher compared to the recommended dietary allowances.

3.4. Clinical Picture of the Selected Subjects

Majority of the selected female adolescent garment workers (42 per cent) have poor general appearance and 18.5 per cent of them were having dry and rough skin.

Table 1. Nutrient intake of the selected subjects

Nutrient intake	16-17 years			18-19 years		
	RDA*	Mean ± SD	Difference	RDA*	Mean ± SD	Difference
Energy (kcal/day)	2440	1585.03±150.65	-35.04	1900	1616.68±205.69	-14.91
Protein (g/day)	55.5	45.06±2.89	-18.81	55	46.58±7.59	-15.30
Fat (g/day)	35	37.75±10.03	+7.85	20	37.72±10.58	+17.72
Calcium (mg/day)	800	554.65±76.90	-245.35	600	576.95±91.55	-23.05
Iron (mg/day)	26	16.62±2.96	-9.38	21	17.34±3.93	-3.66
Vitamin C (mg/day)	40	55.24±16.67	+38.1	40	53.10±15.85	+13.1

*ICMR 2010

3.5. Medical History of Selected Subjects

Table 2. Medical History of Selected Subjects

Common Health problems	Numbers	Per cent
Musculoskeletal problem	92	46
Cardiovascular problem	2	1
Gynaecological problem	20	10
Respiratory problem	54	27
Neurological problem	13	6.5
Ophthalmic problem	19	9.5
TOTAL	200	100

From the Table 2, it is evident that majority (46 per cent) of the selected subjects were having musculoskeletal problem, 27 per cent were having respiratory problem, 10 per cent, 9.5 per cent and 6.5 per cent of the female adolescent garment workers were having gynaecological, ophthalmic and neurological problems respectively.

3.6. Data on Biochemical Parameters of the Selected Subjects

The mean blood haemoglobin, serum protein and serum iron level of the selected adolescent female garment workers are presented in Table 3.

Table 3. Comparison of Mean Blood Hb, Serum Protein and Serum Iron Level of the Selected Subjects with ICMR Standard Value

Biochemical parameter	16-17 years			18-19 years		
	ICMR	Mean	't' value	ICMR	Mean	't' value
Blood haemoglobin (g/dl)	12-15.5	11.27±1.118	2.062^{NS}	12-15.5	11.5±1.099	1.95^{NS}
Serum protein (g/dl)	6.0-8.0	6.489±0.742	0.749^{NS}	6.0-8.0	6.598±1.489	2.062^{NS}
Serum iron (mcg/dl)	50 – 140	50.487±2.476	0.589^{NS}	50 – 140	51.157±2.858	1.213^{NS}

NS – Not significant

Table 3 shows biochemical parameters of selected adolescent garment workers. The mean blood haemoglobin level of the selected subjects in the age group of 16 – 17 years and 18 – 19 years were found to be 11.27±1.118 g/dl and 12.2±1.099 g/dl respectively. On statistical analysis reveals that there was not significant statistically when compared with ICMR standard blood haemoglobin level. It was noted that the haemoglobin level of selected 16-17 years and 18-19 years of adolescent female garment workers nearer to the ICMR standard value.

At the same time, the mean serum protein level of the 16 – 17 years and 18 – 19 years of selected subjects was found to be 6.489 g/dl and 6.598 g/dl respectively. The mean serum iron level of the 16 – 17 years and 18 – 19 years of selected adolescent female garment workers was found to be 50.487mcg/dl and 41.61±2.858 mcg/dl respectively. On statistical analysis revealed that there was not significant between the standard ICMR values.

4. Conclusion

From the above findings it can be understood that the overall health and nutritional status of all the selected subjects are not satisfactory. It is evident from the literature review that the garment factory workers are exposed to various health problems. The prevalence of musculoskeletal disorder was higher in garment workers.

Future life of adolescents is highly dependent on healthy nutrition. So, an effective measures should be undertaken to improve their nutritional status.

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