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# STAR RESEARCH REACH

Inter - Intra Disciplinary Journal



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# Star Research Reach

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Peer Reviewed journal

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## ***Editorial***

*“Star Research Reach,” a multi-disciplinary, peer reviewed international journal publishes the latest research and review articles. The journal possesses an International Standard Serial Number, ISSN 0975-5101. Journal offers opportunity to the research scholars, faculty members and students to publish their research articles.*

*This issue deals with articles from Home Science and Zoology, This is a platform for researchers to publish the articles and create awareness among people regarding findings in the various fields.*

*Let me express my sincere gratitude to our management and staff for the sustaining support and motivation rendered to us. We are indeed grateful to our Principal, Dr.Sr.Shemi George., who had extended support in publishing this journal. Our appreciation also goes to all authors for the timely submission of articles. The peer reviews had helped in maintaining the quality of each article. Above all let me thank God Almighty for the overflowing blessings showered upon us.*

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# **STAR RESEARCH REACH**

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# **A COMPARATIVE STUDY ON NUTRITION DURING MENSTRUATION AMONG ADOLESCENT GIRLS AND ADULT WOMEN**

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## **ABSTRACT**

Adolescence is an important phase of transition between childhood and adult hood. It is a time for growth spurts and puberty changes. Adequate nutrient intake and nourishment are essential for adolescent girls for a healthy reproductive future. Adulthood, a period that comes after adolescent period is marked by several physiological and psychological changes in the human body. Menstruation is a normal physiological process of females occurring at the reproductive age. A balance diet is essential for proper growth, development and functioning of the body and this remains true even during the years of menstruation. Nutrition and menstrual cycle complement each other and certain foods could potentially help reduce and manage some of the symptoms that one might feel during each phase. The present study aims at comparing nutrition among adolescent girls and adult women during menstruation.

**Key Words:** Adolescent, adulthood, menstrual cycle, nutrition, nourishment.

## **INTRODUCTION**

Adolescence is an important phase of transition of physical and psychological development in every human being. Nutrition, a major component of health, plays a pivotal role in adolescents' growth and development. This period is very crucial since these are the formative years in the life of an individual when major physical, endocrinal and physiological development take place in terms of attainment of menarche, the onset of menstruation. Adequate nutrient intake and nourishment is essential for adolescent girls for a healthy reproductive future.

Adulthood is the period that comes after adolescent period. Adults experience age-related changes in body composition, including increased body mass and fat mass and decreased lean

mass, which includes skeletal muscle. During adulthood nutrients are required for energy, for replacement of worn out tissues and maintenance of body functions, though there is no growth during adulthood, protein is required for the replacement of worn out tissues. Age-related loss of skeletal muscle mass, or sarcopenia, is associated with impaired mobility, increased risk of morbidity, and reduced quality of life in older adults. So, nutritional requirement and better health care is very important like adolescents. Reproductive health is a universal concern, but is of special importance for women particularly during the reproductive years.

Menstrual cycle is a normal physiological process that is characterized by periodic and cyclic shedding of pro gestational endometrium accompanied by loss of blood. It is stated that the human menstrual cycle is characterized by both pro and anti-inflammatory processes. The human menstrual cycle involves the tight regulation of inflammatory processes that enable the implantation of a healthy embryo. It is characterized by both an ovarian cycle and a uterine cycle that are regulated by hormones. 28-day cycle idealized as an average cycle, however at least 30% of women experience shorter or longer cycles at some point in or during their entire reproductive history. The cycle starts with the first day of menstrual bleeding and ends the day before the onset of menstruation.

Adolescence and young adulthood, represented by the childbearing age range, particularly in women, are critical time periods wherein optimal health and nutritional status can be achieved. Women in the reproductive age have considerable physiological iron losses associated with menstruations and pregnancies. Both iron deficiency and iron overload will affect body functions in negative ways and impair quality of life and survival. So adequate nutrient intake and nourishment is essential for adolescent girls for a healthy reproductive future.

Nutritional inadequacy has been one of the main causes for the prevalence of malnutrition that can lead to higher incidences of diseases and menstrual disorders in females and especially in adolescents. Nutrition plays a very important role in the physical, mental and socio-emotional development of adolescents. Thus the nutritional status of adolescent girls, the future mothers, contributes significantly to the nutritional status of the community. So the present study entitled “A COMPARATIVE STUDY ON NUTRITION DURING MENSTRUATION AMONG

ADOLESCENT GIRLS AND ADULT WOMEN” was undertaken with the following objectives.

- To find out the socio-economic status of the selected samples.
- To assess the nutritional status and food habits during menstruation.
- To compare the awareness on nutrition of the selected samples.

## METHODOLOGY

The area selected for the study were Malappuram and Manjeri municipalities of Malappuram district, Kerala. 200 samples were selected by random sampling method. 100 adolescent girls belonging to the age group of 13-24 years and 100 adult women belonging to the age group of 25-45 years were the selected samples. A pre tested interview schedule was utilised for collecting information relating to the socio-economic background, health assessment, dietary pattern and the nutritional knowledge during menstruation.

## RESULTS AND DISCUSSION

### 1. SOCIO-ECONOMIC PROFILE OF THE SUBJECTS

**Table 1**  
**Socio-economic Profile**

| Sl.no | Variables                 | Category         | Adult women |    | Adolescents |    | Total |
|-------|---------------------------|------------------|-------------|----|-------------|----|-------|
|       |                           |                  | No.         | %  | No.         | %  | %     |
| 1.    | Age                       | 13 -16           | 0           | 0  | 3           | 3  | 1.5   |
|       |                           | 17 – 19          | 0           | 0  | 60          | 60 | 30    |
|       |                           | 20-24            | 0           | 0  | 37          | 37 | 19.5  |
|       |                           | 25 -30           | 9           | 9  | 0           | 0  | 4.5   |
|       |                           | 31-35            | 21          | 21 | 0           | 0  | 10.5  |
|       |                           | 36 -40           | 34          | 34 | 0           | 0  | 17    |
|       |                           | 41 – 45          | 36          | 36 | 0           | 0  | 18    |
| 2.    | Religion                  | Muslim           | 78          | 78 | 77          | 77 | 77.5  |
|       |                           | Hindu            | 21          | 21 | 19          | 19 | 20    |
|       |                           | Christian        | 1           | 1  | 4           | 4  | 2.5   |
| 3.    | Educational qualification | Primary school   | 2           | 2  | 0           | 0  | 1     |
|       |                           | High school      | 56          | 56 | 6           | 6  | 31    |
|       |                           | Higher secondary | 36          | 36 | 34          | 34 | 35    |
|       |                           | Above            | 6           | 6  | 60          | 60 | 33    |
| 4.    | Type of family            | Nuclear          | 86          | 86 | 91          | 91 | 88.5  |
|       |                           | Joint            | 14          | 14 | 9           | 9  | 11.5  |

|    |                 |               |    |    |    |    |      |
|----|-----------------|---------------|----|----|----|----|------|
| 5. | Monthly income* | ≥78,063       | 0  | 0  | 0  | 0  | 0    |
|    |                 | 39,033-78,062 | 11 | 11 | 14 | 14 | 12.5 |
|    |                 | 29,200-39,032 | 29 | 29 | 39 | 39 | 34   |
|    |                 | 19,516-29,199 | 46 | 46 | 38 | 38 | 42   |
|    |                 | 11,708-19,515 | 9  | 9  | 5  | 5  | 7    |
|    |                 | 3,908-11,707  | 4  | 4  | 5  | 5  | 4.5  |
|    |                 | ≤3,907        | 1  | 0  | 1  | 0  | 0.5  |

\*Sheikh Mohd Saleem. Modified Kuppaswamy socioeconomic scale (2019).

The table above represents the socio-economic status of the subjects. The subjects were divided into seven groups and it was found that a maximum of the subjects were from age groups 17-19 years (30%). 18.5 percent of them were under the age group of 20-24 years. 18,17 and 10.5 percent of the subjects were under the age group of 41-45, 36-40 and 31-35 years. A minimum of 1.5 and 4.5 percent of the subjects were from the age groups which ranged from 13-15 and 25-30 years.

It was found that 77.5 percent of them were Muslims and among this 78 percent were adult women and 77 percentage were adolescent girls. 20 percent of them were Hindus and adult and adolescent percent of this were 21 and 19 percent respectively. 2.5 percent of the subjects were Christians. Among the 2.5 percentage, 1 percent was adult women and adolescent girls included 4 percent.

It was found that 35 percent of them had higher secondary education and 33 percent degree holders and above. 31 percent of them had high school education and minimum of 1 percent completed primary education.

88.5 percent of the subjects belong to the nuclear family system and 11.5 percent of them to joint family. Due to urbanization and changes in social values, joint family system is disintegrating in different community in Kerala.

42 percent of the subjects had an income level between Rs 19,516-29,199 and 34 percent of the subjects had an income of Rs 29,200-39,032. 12.5 percent of the subjects had a high income that is between Rs 30,033-78,062. 7 Percent of the samples belonged to the income group of Rs 11,708-19,515. A minimum of 4.5 and 1 percent of the subjects had an income between Rs 3,908-11,707 and lower than 3907.

## 2. HEALTH STATUS OF THE SUBJECTS

**Table 2**

### Body Mass Index

**N=200**

| Sl. No | Variables        | Category                               | Adult women |    | Adolescents |    | Total |
|--------|------------------|----------------------------------------|-------------|----|-------------|----|-------|
|        |                  |                                        | No.         | %  | No.         | %  |       |
| 1      | Body built (BMI) | Normal(18.5-24.9kg/m <sup>2</sup> )    | 53          | 53 | 45          | 45 | 49.0  |
|        |                  | Under weight (<18.5kg/m <sup>2</sup> ) | 21          | 21 | 49          | 49 | 35.0  |
|        |                  | Obese (30kg/m <sup>2</sup> )           | 26          | 26 | 6           | 6  | 16.0  |

From the above table it was clear that 49% had normal weight with a BMI between 18.5kg/m<sup>2</sup> and 24.9kg/m<sup>2</sup>. Among the 49 percent, 53 percent were adult women and 45 percent were adolescent girls. Around 35 percent of the subjects were underweight having a BMI below 18.5kg/m<sup>2</sup>. Most of the underweight subjects were adolescent girls (49%) and 21% were the adult women. 16 percent of subjects were obese having a BMI 30kg/m<sup>2</sup>. Among the obese subjects 26 percent were adult women and 6 percent were adolescent girls. The prevalence of malnutrition was calculated according to the critical limits of BMI and was found to be nil.

**Table 3**

### Biochemical Assessment

**N=200**

| Sl. no | Variables   | Category     | Adult women |    | Adolescents |    | Total | Chi square | P value |
|--------|-------------|--------------|-------------|----|-------------|----|-------|------------|---------|
|        |             |              | No.         | %  | No.         | %  |       |            |         |
| 1      | Haemoglobin | Below normal | 23          | 23 | 35          | 35 | 34    | 5.213      | 0.043*  |
|        |             | Normal       | 77          | 77 | 65          | 65 | 66    |            |         |
|        |             | High         | 0           | 0  | 0           | 0  | 0     |            |         |

|   |      |              |    |    |    |    |      |       |        |
|---|------|--------------|----|----|----|----|------|-------|--------|
| 2 | Iron | Below normal | 16 | 16 | 33 | 33 | 24.5 | 7.812 | 0.005* |
|   |      | Normal       | 84 | 84 | 67 | 67 | 75.5 |       |        |
|   |      | High         | 0  | 0  | 0  | 0  | 0    |       |        |

The above table indicates the level of haemoglobin and iron in the body. 77 percent adult women had the normal haemoglobin level. Haemoglobin level below normal were higher in adolescent girls (35%). P value is <0.05, hence it is significant.

It was found that most adult women had normal iron level. Iron level below normal were greater in adolescent girls. P value is <0.05, hence it is highly significant.

**Table 4**

**Health Problems**

**N=200**

| Sl. No | Variables           | Adult women |    | Adolescents |    | Total |
|--------|---------------------|-------------|----|-------------|----|-------|
|        |                     | No.         | %  | No.         | %  | %     |
| 1      | Health problem      |             |    |             |    |       |
|        | Yes                 | 45          | 45 | 23          | 23 | 37.0  |
|        | No                  | 51          | 51 | 75          | 75 | 63.0  |
| 2      | Disorders (if yes,) |             |    |             |    |       |
|        | Anaemia             | 13          | 23 | 13          | 23 | 18.0  |
|        | Osteoporosis        | 15          | 0  | 15          | 0  | 8.0   |
|        | Hypertension        | 7           | 0  | 7           | 0  | 3.5   |
|        | Diabetes            | 6           | 0  | 6           | 0  | 2.5   |
|        | Thyroid             | 4           | 0  | 4           | 0  | 2.0   |
|        | Obesity             | 4           | 2  | 4           | 2  | 3.0   |

The above table represents various diseases of the subjects. 63% were without any disease. Among the 37 percent subjects, 18 percent of them had anaemia. Most of them (23%) were adolescents. 8 percent of the subjects had osteoporosis, 3.5 percent had hypertension, 2.5 percent had diabetes and 2.0 percent of them had thyroid. All these diseases were in adult women. 3 percent of the subjects were obese. Among this 4 percent were adult and only 2 percent were adolescents.

### 3. FOOD PATTERN AND DIETARY HABITS

**Table 5**  
**Food Pattern of the Subjects**

**N=200**

| Sl.no | Variables     | Category   | Adult women |    | Adolescents |    | Total |
|-------|---------------|------------|-------------|----|-------------|----|-------|
|       |               |            | No.         | %  | No.         | %  | %     |
| 1.    | Food pattern  | Veg        | 3           | 2  | 3           | 2  | 2.5   |
|       |               | Non-veg    | 97          | 98 | 97          | 98 | 97.5  |
| 2.    | Meal consumed | Twice      | 23          | 6  | 23          | 6  | 14.5  |
|       |               | Thrice     | 63          | 62 | 63          | 62 | 62.5  |
|       |               | Four times | 14          | 32 | 14          | 32 | 23    |

Diet is a vital determinant of health and nutritional status of people. The dietary habit of individuals/families/ communities vary according to the socioeconomic factors, regional customs and traditions. 97.5% of the subjects were non-vegetarians. 62.5% of the samples take meals thrice a day. Among the 62.5%, 63 percent were adults and 62 percent were adolescent girls. Subjects who take their meals four times a day were 23 percent. Most of them were adolescents (32%). A minimum of 14.5 percent of the subjects take their meals twice a day and 23% of them were adults. A diet survey provides the dietary pattern of specific food consumed and estimated nutrient intakes. According to WHO dietary assessment is the key part of nutritional surveys.

**Table 6**  
**Frequency of Intake of Foods**

N=200

| Sl.no | Variables              | Food frequency (%) |                 |                      |                  |                       |
|-------|------------------------|--------------------|-----------------|----------------------|------------------|-----------------------|
|       |                        | Daily<br>No./%     | Weekly<br>No./% | Fortnightly<br>No./% | Monthly<br>No./% | Occasionally<br>No./% |
| 1.    | Cereals                | 88(176)            | 8.0(16)         | 2(4)                 | 0.5(1)           | 1.5(3)                |
| 2.    | Pulses                 | 38(76)             | 28.5(57)        | 25(50)               | 6.0(12)          | 2.5(5)                |
| 3.    | Green leafy vegetables | 32(64)             | 44 (88)         | 12 (24)              | 2 (4)            | 6(12)                 |
| 4.    | Root and tubers        | 30(60)             | 22(44)          | 30(60)               | 9.5(19)          | 8.5(17)               |
| 5.    | Other vegetables       | 60(120)            | 13(26)          | 14.5(29)             | 5.5(11)          | 7(14)                 |
| 6.    | Fruits                 | 19(38)             | 47(94)          | 16(32)               | 9.5(19)          | 8.5(17)               |
| 7.    | Fish                   | 46(92)             | 28(56)          | 11(22)               | 8(16)            | 7(14)                 |
| 8.    | Meat                   | 3.5(7)             | 28.0(56)        | 26.5(53)             | 20.0(40)         | 13.5(27)              |
| 9.    | Egg                    | 2.0(4)             | 33.0(66)        | 26.5(53)             | 22.5(45)         | 7.5(15)               |
| 10    | Dairy products         | 43(86)             | 22.0(44)        | 15.0(30)             | 14.5(29)         | 5.5(11)               |
| 11    | Nuts and oil seeds     | 24(48)             | 49(98)          | 11.5(23)             | 12.5(25)         | 3.0(6)                |
| 12    | Preserved foods        | 3.0(6)             | 25.5(51)        | 27.0(54)             | 24.0(48)         | 20.5(41)              |
| 13    | Bakery                 | 9.0(18)            | 19.0(38)        | 23.5(47)             | 24(48)           | 24.5(49)              |
| 14    | Junk foods             | 6.0(12)            | 26.5(53)        | 23.5(47)             | 22.0(44)         | 22.0(44)              |

The frequency of consumption will give information on the type of food and frequency of food consumption. The diet history can be obtained by the frequency of food consumption by the subjects. The above table reveals that 88 percent of the samples consumed cereals daily. 38 percent of the selected subjects consume pulses daily and 28.5 and 25 percent of them consume it weekly and fortnightly.

Daily consumption of green leafy vegetables, root and tuber and other vegetables were 32 percent, 30 percent and 60 percent respectively. In case of fruits 38 percent of the subjects consume daily, 47 and 16 percent of the subjects consume it weekly and fortnightly.

46 and 28 percent of the subjects consume fish daily and weekly. 28.5 and 26.5 percent of the subjects consume meat weekly and fortnightly respectively. 33 percent of the subjects consume egg weekly and also 26.5 percent of the subjects consume egg fortnightly. A minimum of 2 percent of the subjects consume egg daily.

24 percent of the selected samples consume nuts and oil seeds daily. In case of dairy products, 43 percent of the subjects consume it daily, 22 and 15 percent of the subjects consume it weekly and fortnightly.

23.5 percent of the subjects consume preserved foods fortnightly. 25.5 and 24 percent of the subjects consume preserved foods weekly and monthly.

24.5 and 24 percent of the subjects consume bakery occasionally and monthly and also 23.5 percent of subjects consume it fortnightly. 26.5 and 23.5 percent of the subjects consume junk foods weekly and fortnightly.

**Table 7**  
**Food Pattern during Menstruation**

**N=200**

| Sl.no | Variables                | Category               | Adult Women |    | Adolescents |    | Total |
|-------|--------------------------|------------------------|-------------|----|-------------|----|-------|
|       |                          |                        | No.         | %  | No.         | %  | %     |
| 1.    | Food preference          | Yes                    | 10          | 10 | 17          | 17 | 13.5  |
|       |                          | No                     | 90          | 90 | 83          | 83 | 86.5  |
|       | Food preference (if yes) | Low fat diet           | 8           | 9  | 8           | 9  | 4.5   |
|       |                          | Protein rich diet      | 0           | 0  | 6           | 6  | 3.0   |
|       |                          | Green leafy vegetables | 3           | 3  | 2           | 2  | 2.5   |
| 2.    | Food restrictions        | Yes                    | 38          | 38 | 56          | 56 | 47.0  |
|       |                          | No                     | 67          | 67 | 39          | 39 | 53.0  |
|       | Restrictions (if yes)    | Fried foods            | 13          | 13 | 10          | 10 | 11.5  |
|       |                          | Spicy foods            | 2           | 2  | 8           | 8  | 5.0   |

|    |                          |                   |    |    |    |    |     |
|----|--------------------------|-------------------|----|----|----|----|-----|
|    |                          | Junk foods        | 2  | 7  | 7  | 7  | 4.5 |
|    |                          | Pickles           | 17 | 17 | 23 | 23 | 20  |
|    |                          | Sugary snacks     | 4  | 4  | 8  | 8  | 6   |
| 3. | Food cravings            | Yes               | 3  | 3  | 7  | 7  | 5   |
|    |                          | No                | 97 | 97 | 93 | 93 | 95  |
|    | Food cravings(if yes)    | Sugary snacks     | 3  | 3  | 6  | 6  | 4.5 |
|    |                          | Salty foods       | 0  | 0  | 1  | 1  | 0.5 |
| 4. | Skipping of meals        | Yes               | 16 | 16 | 38 | 38 | 27  |
|    |                          | No                | 84 | 84 | 62 | 62 | 73  |
| 5. | Reason for skipping meal | Don't like to eat | 11 | 11 | 26 | 26 | 18  |
|    |                          | Food is not tasty | 5  | 5  | 12 | 12 | 8.5 |

Among the selected samples 13.5 percent of the subjects had food preferences during menstruation. Among this 10 percent from adults and 17 percent from adolescents. 4.5 percent of the samples prefer low fat diet, 3 percent of subjects had protein rich diet and minimum of 2.5 percent had the preference for green leafy vegetables.

It was found that 47 percent of the subjects had food restrictions. Most of them (56%) were adolescents. 20 percent of the subjects avoided the intake of pickles and 11.5 percent restricted the intake of fried foods. A minimum of 6, 5 and 4.5 percent of the selected samples restricted sugary snacks, spicy foods and junk foods respectively during their periods.

A minimum of 5 had the food cravings. 27 percent of the samples skip meals during their periods and 38 percent of it was adolescents and 16 percent were adult women. The main reason for skipping meals was the subjects did not like to eat (18%) and due to the low taste of food. (8.5%).

**4. KNOWLEDGE ON NUTRITION**

**Table 8**  
**Knowledge on nutrition**

N=200

| Sl.no | Variables                                  | Category | Adult women |    | Adolescents |    | Total | Chi square | P value |
|-------|--------------------------------------------|----------|-------------|----|-------------|----|-------|------------|---------|
|       |                                            |          | No.         | %  | No.         | %  | %     |            |         |
| 1.    | Knowledge on the intake of nutritious food | Yes      | 40          | 40 | 58          | 58 | 49    | 12.835     | 0.001   |
|       |                                            | No       | 62          | 62 | 40          | 40 | 51    |            |         |
| 2.    | Reason for the intake of nutritious food   | Yes      | 32          | 32 | 55          | 55 | 43.5  | 32.291     | 0.000   |
|       |                                            | No       | 68          | 68 | 45          | 45 | 56.5  |            |         |
| 3.    | Mineral lost during bleeding               | Yes      | 52          | 52 | 63          | 63 | 57.5  | 3.959      | 0.041   |
|       |                                            | No       | 48          | 48 | 37          | 37 | 42.5  |            |         |
| 4.    | Knowledge about iron rich foods.           | Yes      | 48          | 48 | 62          | 62 | 55.0  | 4.305      | 0.038   |
|       |                                            | No       | 52          | 52 | 38          | 38 | 45.0  |            |         |

From the table it is important to note that 58% of the adolescent girls are aware of the importance of nutritious food consumption during menstruation and majority of adult women lack knowledge on the intake of nutritious food. Statistical analysis shows that it is highly significant.

Majority of adolescent girls know the reason and most of the adult women were unaware of it.

57.5 percent of the selected samples had knowledge on the minerals that is lost through the blood during menstruation. Among this 63 percent were adolescent girls and 57 percent were adult women. 42.5 percent have no knowledge on the loss of minerals during menstruation. 55 percent of the selected samples know the source of iron rich food. Among this 62% were adolescent girls and 48% are adult women. 45 percent lack of knowledge on the iron rich sources of food. Thus the table above indicates that the awareness on iron source of adult women and adolescent girls have significant value.

## CONCLUSION

Menstruation thus is an integral part in every woman's life. The phases of menstrual cycle are associated with hormonal fluctuations and can affect the physiology of the women's body. A woman usually experiences pain, fatigue, bloating and cramps while going through menstruation. Hence it is very important to follow a healthy lifestyle and a balanced diet to reduce menstrual pain as it can severely impact mood and bring other changes. Good nutrition ensures that a woman experiences periods with fewer cramps, irritability and fatigue and can have smoother and easier periods.

The study shows a variation in the health status of adolescent girls and for women of all ages physical benefits can be achieved by tailoring the food choices and over all nutrition to support the menstrual cycle. Being intentional about eating nutrient dense foods can provide nutritional and energetic benefits supporting each specific stage of the cycle.

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## **A STUDY ON THE RELATION BETWEEN LIFESTYLE DISEASES AND FOOD HABITS OF REGULAR EATERY CONSUMERS IN MALAPPURAM DISTRICT**

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### **ABSTRACT**

The WHO has recognized India as one of the nations with maximum number of lifestyle-related disorders in the near future. The prevalence of lifestyle diseases is high and alarmingly increasing in Malappuram district of Kerala. So, the study was conducted in Manjeri municipality of Malappuram district. In this study the prevalence of life style diseases like diabetes, hypertension and cancer among regular eaters of food from food outlets were analyzed and an awareness of food safety and food quality among the regular eaters of food outlets were also conducted by using questionnaire. Among the selected samples, 69% of Subjects had the incidence of lifestyle diseases. Among them majority was 40–49-year aged people. 67% people like fast foods and remaining 33% subjects did not prefer fast food. Diabetes was the most prevalent lifestyle disease among the selected sample (49%of the samples), 39% of the subjects had hypertension and 22.5% subjects had cancer in the selected sample. 20.6% of sample below 30 years consumed hotel food regularly. Visited food outlets once in a week, 33.5% of sample visited twice in a week, 28.5%of subjects visited thrice in a week, 21.5% subjects visited more than three times in a week. The results of the study had well proved that there is strong relationship between the habit of having food from food outlets and development of lifestyle diseases.

**Keywords:** Lifestyle diseases, food habits, regular eatery consumers, diabetes, hypertension, cancer.

### **INTRODUCTION**

Health as a social concept is very important in medical sociology, perhaps even the central concept in the field. Definitions of health and the concept are not limited to medical sociology alone; all fields that deal with health, illness and health care have to comprise some

ideas and conceptualizations of what they mean by health. More complicated conceptions of health as a multi-dimensional concept have been discussed both in the social sciences and in the medical and public health literature over past decades. Often, these approaches have emphasized not only physical health status, but also mental health status and aspects of overall well-being.

Lifestyle diseases (also called diseases of longevity or diseases of civilization) are diseases that appear to become ever more widespread as countries become more industrialized. Lifestyle diseases are a result of an inappropriate relationship of people with their environment. The onset of these lifestyle diseases is insidious, they take years to develop, and once encountered do not lend themselves easily to cure. Non-communicable diseases (NCDs), especially cardiovascular diseases, cancers and type 2 diabetes mellitus, account for 53 and 44% of all deaths and disability-adjusted life years (DALYs) respectively in India.

Diabetes mellitus (DM) is the most common metabolic disorder affecting nearly 20% of global population today and expected to double the figure by 2030. Diabetes is regarded as one of the main causes of death across the globe and has become one of the most challenging health disorders of the 21st century. The increasing prevalence of hypertension in developing countries is of great concern [3]. According to a report from the World Health Organization, there was an estimated 972 million people with hypertension in the year 2000. 65% lived in developing world with the number predicted to grow to 1.5 billion by 2025. The increasing prevalence is well reflected in the increase in cardiovascular disease mortalities. Cancer is predicted to become the most lethal disease in the next few decades causing highest morbidity and mortality across the world. The WHO reported 12.7 million new cancer cases reported in the year 2008 and forecasted 21.4 million new cases by 2030, with nearly two thirds of all cancer incidences reported from low- and middle-income countries.

Incidence of lifestyle diseases is high in Kerala. As reported by department health and family welfare Kerala 27% of adult males and 19 % of adult females are diabetic and Kerala can be considered as the diabetic capital of India. Quality of diet is one of the major causes of lifestyle diseases. Hence the present study was designed to assess the correlation between lifestyle diseases and food habits of regular eatery consumers in Malappuram district with the objectives to find out the prevalence of life style diseases among regular eaters from food

outlets, to assess the incidence of diabetes among regular eaters of food from food outlets, to assess the incidence of hypertension among regular eaters of food outlets and to assess the incidence of cancer among regular eaters of food from food outlets.

## **MATERIALS AND METHODS**

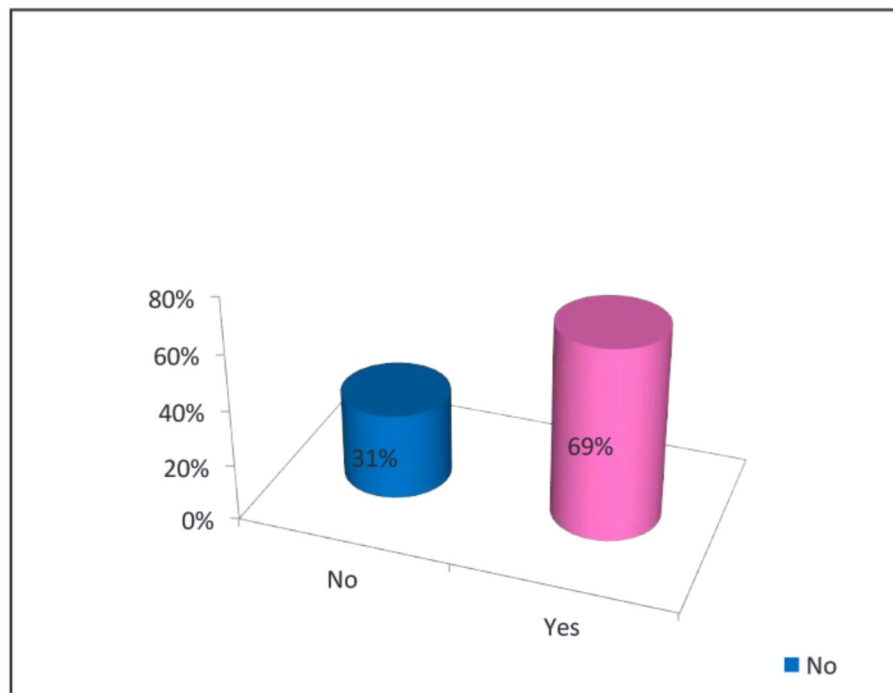
The present study was conducted in Manjeri municipality of Malappuram district. The area was selected as it was the convenient and familiar for the investigator. The selected municipality contains 32 wards. These wards contain 117 shops each shop contains an average of 47 bakery, and 70 hotels.

200 sample of individual in the age group 20 years above were selected randomly by cluster sampling method. Each ward of Manjeri municipality was considered as a cluster and each ward was selected randomly. The selected ward consists of 70 hotels and 47 bakery and hence 200 individuals were selected randomly. From the selected individuals, all the adult with the age of 20 year or above were include in the study until 200 sample were obtained. Non-residents, people who were cognitively impaired and bedridden, were excluded from the study.

Interview schedule is used to collect information on socio economic background, incidence of lifestyle diseases, family history, lifestyle, food habits, types of food outlet etc. of the selected samples. Behavioural aspect like self-reported smoking and alcohol use were obtained. Health statuses were documented based on self-reports of diabetes, hypertension, and cancer diseases.

## **RESULTS AND DISCUSSION**

While assessing the prevalence of lifestyle diseases among regular eatery consumers, 69% of Subjects had the prevalence of lifestyle diseases. Among the remaining 31% of subjects, researcher could not identify any diseases.



**Figure 1**  
**Prevalence of Lifestyle Diseases**

**Table 1**  
**Types of Lifestyle Diseases**

| Life Style Diseases |     | Number | Percentage (%) |
|---------------------|-----|--------|----------------|
| Diabetes            | Yes | 98     | 49             |
|                     | No  | 102    | 51             |
| Hypertension        | Yes | 78     | 39             |
|                     | No  | 122    | 61             |
| Cancer              | Yes | 45     | 22.5           |
|                     | No  | 155    | 77.5           |

Diabetes was the most prevalent lifestyle disease among the selected sample. 49% of the samples were affected with diabetes. 39% of the subjects had hypertension. 22.5% subjects had cancer in the selected sample.

**Table 2****Family History and Lifestyle Diseases**

| Life Style Disease |     | Number | Percentage (%) |
|--------------------|-----|--------|----------------|
| Diabetes           | Yes | 149    | 74.5           |
|                    | No  | 51     | 25.5           |
| Hypertension       | Yes | 78     | 39.0           |
|                    | No  | 122    | 61.0           |
| Cancer             | Yes | 97     | 48.5           |
|                    | No  | 103    | 51.5           |

Among the selected sample 74.5% of diabetic patients had family history of diabetes and 48.5% of samples had family history of cancer.

**Table 3****Frequency of the visit to Food Outlets**

| Frequency of visit / week | Number of persons | Percentage (%) |
|---------------------------|-------------------|----------------|
| Once                      | 33                | 16.5           |
| Twice                     | 67                | 33.5           |
| Thrice                    | 57                | 28.5           |
| More than that            | 43                | 21.5           |

16.5% of sample visited food outlets once in a week, 33.5% of sample visited twice in a week, 28.5% of subjects visited thrice in a week, 21.5% subjects visited more than three time in a week.

**Table 4****Age of Sample**

| Age in years | Outlets |        | Total percentage (%) |
|--------------|---------|--------|----------------------|
|              | Hotel   | Bakery |                      |
| Below 30     | 26      | 12     | 38                   |
|              | 20.6%   | 16.2%  | 19.0%                |
| 30-39        | 31      | 17     | 48                   |
|              | 24.6%   | 23.0%  | 24.0%                |
| 40-49        | 33      | 26     | 59                   |
|              | 26.2%   | 35.1%  | 29.5%                |
| 50-59        | 26      | 13     | 39                   |
|              | 20.6%   | 17.6%  | 19.5%                |
| 60 & above   | 10      | 6      | 16                   |
|              | 7.9%    | 8.1%   | 8.0%                 |
| Total        | 126     | 74     | 200                  |
|              | 100.0%  | 100.0% | 100.0%               |

20.6% of sample below 30 years consume hotel food regularly. 16.2% of the sample below 30 years consume bakery food stuffs regularly. 24.6% of the sample below 30-39 years consumes hotel food regularly. 23% of sample below 30-39 years consume bakery foods regularly. 26.2% of the sample below 40-49 years consumes hotels foods regularly and 35.1% of sample below 40-49 years consume bakery foods. 20.6% of sample below 50-59 years consume hotels foods regularly, 17.6% of sample below 50-59 years consume bakery foods regularly. 7.6% of sample below 60 and above years consume hotel foods regularly and 8.1% were consume bakery foods regularly. Majority (29.5%) of the sample under the age of 40-49, they consume hotel and bakery foods regularly.

**Table 5****Preference of Fast Foods**

| <b>Preference</b> | <b>Number</b> | <b>Percentage (%)</b> |
|-------------------|---------------|-----------------------|
| YES               | 134           | 67.0                  |
| NO                | 66            | 33.0                  |

About 67% people like fast foods and remaining 33% subjects did not prefer fast food.

**Table 6****Types of meal selection**

| <b>Meals</b> | <b>Frequency</b> | <b>Percentage (%)</b> | <b>Valid percentage (%)</b> | <b>Cumulative percentage (%)</b> |
|--------------|------------------|-----------------------|-----------------------------|----------------------------------|
| Break fast   | 14               | 7                     | 7                           | 7                                |
| Lunch        | 76               | 38                    | 38                          | 45                               |
| Dinner       | 69               | 34.5                  | 34.5                        | 79.5                             |
| Snack        | 41               | 20.5                  | 20.5                        | 100                              |

About 38% of subject eats lunch from food outlets. Almost 34.5% of subject eat dinner from outlet. Only 7% were eating breakfast from food outlets and remaining 20.5% were eating snacks only. the reason for having food from food outlets. 23% of the samples liked the taste of the foods from food outlets. 22% of the sample were having food to have fun with their friends, 21% subjects eat food from food outlets because they have less time to cook, 15% were liked the variety of the menu in the food outlets, 14% were away from home and 5% were attracted by the advertisements given by the outlets.

**Table 7**  
**Frequently visited food outlets**

| Frequency of outlet |     | Number |        | Percentage (%) | Chi-square value   | P value |
|---------------------|-----|--------|--------|----------------|--------------------|---------|
|                     |     | Hotel  | Bakery |                |                    |         |
| Once in a while     | Yes | 42     | 27     | 34.5           | .205 <sup>a</sup>  | .651    |
|                     | No  | 84     | 47     | 65.5           |                    |         |
| Often               | Yes | 21     | 8      | 14.5           | 1.289 <sup>a</sup> | .256    |
|                     | No  | 105    | 66     | 85.5           |                    |         |
| Always              | Yes | 42     | 22     | 32             | .278 <sup>a</sup>  | .598    |
|                     | No  | 84     | 52     | 68             |                    |         |
| Weekly              | Yes | 17     | 9      | 13             | .073 <sup>a</sup>  | .787    |
|                     | No  | 109    | 65     | 87             |                    |         |
| Monthly             | Yes | 25     | 11     | 18             | .782 <sup>a</sup>  | .376    |
|                     | No  | 101    | 63     | 82             |                    |         |

Frequency of visits made by the subjects to food outlets varies. 34.5% of the subjects visited hotels and bakery once in a while. 14.5% of the sample visited outlets quiet often. 32%of the people visited food outlets almost every day. 13% of the subjects visited food outlets weekly. 18%visited once in a month.

**Table 8**  
**Reason for having food from outlets**

| Reasons             | Frequency | Percentage (%) | Valid percentage (%) | Cumulative percentage (%) |
|---------------------|-----------|----------------|----------------------|---------------------------|
| Away from home      | 28        | 14             | 14                   | 14                        |
| Less time to cook   | 42        | 21             | 21                   | 35                        |
| Variety of the menu | 30        | 15             | 15                   | 50                        |
| Enjoy the taste     | 46        | 23             | 23                   | 73                        |
| Have fun            | 44        | 22             | 22                   | 95                        |
| advertisement       | 10        | 5              | 5                    | 100                       |

The reason for having food from food outlets. 23% of the samples liked the taste of the foods from food outlets. 22% of the sample were having food to have fun with their friends, 21% subjects eat food from food outlets because they have less time to cook, 15% were liked the variety of the menu in the food outlets, 14% were away from home and 5% were attracted by the advertisements given by the outlets.

**Table 9****Assessment of food quality by samples**

| Variables          |     | Outlets |        | Percentage (%) | Chi-square value   | P value |
|--------------------|-----|---------|--------|----------------|--------------------|---------|
|                    |     | Hotel   | Bakery |                |                    |         |
| Taste              | Yes | 68      | 37     | 52.5           | .294 <sup>a</sup>  | .587    |
|                    | No  | 58      | 37     | 47.5           |                    |         |
| Hygiene            | Yes | 100     | 60     | 80             | .086 <sup>a</sup>  | .770    |
|                    | No  | 26      | 14     | 20             |                    |         |
| Cost               | Yes | 17      | 10     | 13.5           | .000 <sup>a</sup>  | .997    |
|                    | No  | 109     | 64     | 86.5           |                    |         |
| Nutritional values | Yes | 41      | 21     | 32             | .292 <sup>a</sup>  | .589    |
|                    | No  | 82      | 50     | 68             |                    |         |
| Colour             | Yes | 20      | 14     | 17             | .307 <sup>a</sup>  | .580    |
|                    | No  | 106     | 60     | 83             |                    |         |
| Appearance         | Yes | 31      | 24     | 27.5           | 1.433 <sup>a</sup> | .231    |

Most of subjects (80%) assessed food from food outlets in the basis of hygienic quality. 52 %assessed food on the basis of taste, 13.5% assessed the quality on the basis of cost and 27.5% assessed on the basis of appearance. 32% assessed the quality on the basis of nutritional values, and 17% on the basis of colour.

## CONCLUSION

The results of the study have well proved that the relationship between outlet food habits is major factor for the development of lifestyle diseases. Subjects in the age group of 40–49 years consumed food from food outlet mostly. Most of them enjoy the taste of the food from food outlets.

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# **A STUDY ON THE RISK FACTORS AND FOOD HABITS IN GASTRITIS PATIENTS**

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## **ABSTRACT**

Gastritis is the histological presence of gastric mucosal inflammation. This study examines the risk factors and food habits associated gastritis patients. Significant risk factors for gastritis, including smoking, excessive alcohol consumption, and the use of non-steroidal anti-inflammatory drugs (NSAIDs). Additionally, a high intake of spicy and acidic foods was found to be strongly associated with gastritis development. Individuals who adhered to a balanced diet consisting of low-fat and non-irritating foods experienced fewer gastritis symptoms and had better outcomes. Conversely, those with poor dietary habits, such as frequent consumption of fried and processed foods, exhibited more severe gastritis symptoms. The study aims at finding the prevalence of gastritis, analysing the risk factors and assess the food habits of selected subjects.

**Keywords:** Gastritis, Risk factors, balanced diet, food habits

## **INTRODUCTION**

Gastritis is a medical condition that refers to inflammation of the lining of the stomach. It can be caused by a variety of factors, including bacterial infections, excessive alcohol consumption, chronic use of nonsteroidal anti-inflammatory drugs (NSAIDs), autoimmune disorders, and stress. Gastritis can also be caused by the presence of a specific bacteria called *Helicobacter pylori*, which is responsible for more than half of all cases of gastritis.

Symptoms of gastritis can vary depending on the cause and severity of the inflammation, but they often include abdominal pain, bloating, nausea, vomiting, and a feeling of fullness or

discomfort in the upper abdomen. Other symptoms may include loss of appetite, indigestion, and black or tarry stools.

Diagnosis of gastritis typically involves a physical examination, a review of the patient's medical history, and various tests, such as blood tests, stool tests, and imaging tests like an upper endoscopy. Treatment of gastritis depends on the underlying cause, but may include medications to reduce inflammation and acid production in the stomach, antibiotics to treat bacterial infections, and lifestyle changes such as avoiding alcohol and acidic foods.

It is important to treat gastritis promptly to prevent complications such as stomach ulcers, bleeding, and an increased risk of stomach cancer. Prevention measures include avoiding or limiting the use of alcohol and NSAIDs, treating underlying medical conditions that may contribute to gastritis, and practicing good hygiene to prevent bacterial infections. The present study entitled “A Study on the Risk Factors and Food Habits in Gastritis” was undertaken with the following objectives;

- To find out the prevalence of gastritis
- To analyze the risk factors of Gastritis
- To assess the food habits of selected subjects

## **METHODOLOGY**

The survey was conducted in the 5th and 18th wards of Thrikkalangode panchayath, which belongs to Wandoor block in Malappuram district. The study was conducted among 200 adults in the age group between 30 and 60 years, both male and female. Samples were selected using a simple random sampling method. The interview schedule was used for the data collection in this study. A validated questionnaire with information on personal data, anthropometric measurements, socio-economic background, dietary habits, health and lifestyles, and risk factors and complications of all the selected subjects was collected. The collected data were consolidated, analysed, and interpreted using various statistical tools.

## **RESULTS AND DISCUSSION**

### **A. Prevalence of gastritis**

Prevalence of gastritis among the subjects is given in table 1

**Table 1**  
**Prevalence of gastritis**

| <b>Prevalence</b> | <b>No. of respondents<br/>(N= 200)</b> | <b>Prevalence (%)</b> |
|-------------------|----------------------------------------|-----------------------|
| Gastritis         | 121                                    | 60.5                  |
| Non- gastritis    | 79                                     | 39.5                  |

The prevalence of gastritis in the study population was 60.5%. 39.5% of the subjects had no gastritis in the present study. So, it is clear that the prevalence of gastritis is very high in the 200 selected samples.

### **B. Demographic Information**

Demographic information's like age, gender, religion and marital status are given below.

**Table 2**  
**Age of the subjects**

| <b>Sl. No</b> | <b>Age</b> | <b>Gastritis</b> | <b>Non-<br/>gastritis</b> | <b>Total</b> | <b>P value</b> | <b>Chi square</b> |
|---------------|------------|------------------|---------------------------|--------------|----------------|-------------------|
| 1             | 30-40      | 40.2%            | 62.8%                     | 49.0%        | 0.006***       | 10.081            |
| 2             | 41-50      | 31.1%            | 21.8%                     | 27.5%        |                |                   |
| 3             | 51-60      | 28.7%            | 15.4%                     | 23.5%        |                |                   |

\*\*\*Highly significant ( $p \leq 0.001$ )

The above table shows that 40.2 % of Gastritis patients were in the age group of 30-40 years and that of 31.1 % were in the age group of 41-50 years. Nearly very low gastritis patients were present in 51-60 years of age group (28.7 %).

**Table 3**  
**Demographic Information**

| Sl. No   | Demographic information | %         |               |       | P value             | Chi square |
|----------|-------------------------|-----------|---------------|-------|---------------------|------------|
|          |                         | Gastritis | Non-gastritis | Total |                     |            |
| <b>1</b> | <b>Gender</b>           |           |               |       |                     |            |
|          | Male                    | 60.7%     | 35.9%         | 51.0% | 0.001***            | 11.671     |
|          | Female                  | 39.3%     | 64.1%         | 49.0% |                     |            |
| <b>2</b> | <b>Religion</b>         |           |               |       |                     |            |
|          | Muslim                  | 82.0%     | 82.1%         | 82.0% | 0.988 <sup>ns</sup> | .000       |
|          | Hindu                   | 18.0%     | 17.9%         | 18.0% |                     |            |
| <b>3</b> | <b>Marital status</b>   |           |               |       |                     |            |
|          | Single                  | 4.1%      | 9.0%          | 6.0%  | 0.531 <sup>ns</sup> | 2.206      |
|          | Married                 | 90.2%     | 85.9%         | 88.5% |                     |            |
|          | Widow                   | 4.9%      | 3.8%          | 4.5%  |                     |            |
|          | Divorce                 | 0.8%      | 1.3%          | 1.0%  |                     |            |

About 60.7% gastritis subjects were males and 39.3 % were females and 39.3 % fell in the lower middle category. So, it is clear that male populations are more prone to gastritis.

### C. Risk Factor Analysis

Analysis of modifiable and non-modifiable risk factors like BMI, Personal habits, Dietary habits, Health and lifestyle, Risk factors and complication of the selected subjects were analyzed and discussed.

**Table 4**  
**Body mass index of subjects**

| S. No. | BMI       | %         |               |       | P value  | Chi square |
|--------|-----------|-----------|---------------|-------|----------|------------|
|        |           | Gastritis | Non-gastritis | Total |          |            |
| 1      | <18.5     | 5.7%      | 11.5%         | 8.0%  | 0.001*** | 13.424     |
| 2      | 18.5-24.9 | 44.3%     | 64.1%         | 52.0% |          |            |
| 3      | 25-40     | 50.0%     | 24.4%         | 40.0% |          |            |

\*\*\* Highly significant ( $p < 0.000$ )

Majority of the gastritis subjects (50%) were found to be obese or overweight. 5.7% of gastritis subjects were underweight and remaining 44.3% were found to be normal BMI.

**Table 5**  
**Personal habits of subjects**

| S. No | Personal habits                 | %         |               |       | P value  | Chi square |
|-------|---------------------------------|-----------|---------------|-------|----------|------------|
|       |                                 | Gastritis | Non-gastritis | Total |          |            |
| 1     | Habit of smoking                |           |               |       |          |            |
|       | Yes                             | 8.2%      | 6.4%          | 7.5%  | 0.640 NS | .219       |
|       | No                              | 91.8%     | 93.6%         | 92.5% |          |            |
| 2     | Habit of consuming alcohol      |           |               |       |          |            |
|       | Yes                             | 2.5%      | 3.8%          | 3.0%  | 0.575 NS | .315       |
|       | No                              | 97.5%     | 96.2%         | 97.0% |          |            |
| 3     | Past history of above mentioned |           |               |       |          |            |
|       | Yes                             | 11.5%     | 7.7%          | 10.0% | 0.384 NS | .757       |
|       | No                              | 88.5%     | 92.3%         | 90.0% |          |            |

*NS- Non-Significant*

It is clear that smoking and consumption of alcohol was less among selected subjects. Only 8.2% and 2.5% of selected subjects had the habit of smoking and consumption of alcohol.

**Table 6**  
**Stress and gastritis**

| S. No | Stress | %         |               |       | P value | Chi square |
|-------|--------|-----------|---------------|-------|---------|------------|
|       |        | Gastritis | Non-gastritis | Total |         |            |
| 1     | Yes    | 23.8%     | 14.1%         | 20.0% | 0.095ns | 2.780      |
| 2     | No     | 76.2%     | 85.9%         | 80.0% |         |            |

*NS- Non-Significant*

23.8% of subjects with gastritis had stress but there is no significant relationship between stress and gastritis in selected subjects. There is no significant relationship between stress and gastritis in selected subjects.

**Table 7**  
**Use of frequent counter medications**

| S. No | Frequent counter medication | %         |               |       | P value  | Chi square |
|-------|-----------------------------|-----------|---------------|-------|----------|------------|
|       |                             | Gastritis | Non-gastritis | Total |          |            |
| 1     | Yes                         | 23.0%     | 0.0%          | 14.0% | 0.000*** | 23.455     |
| 2     | No                          | 74.6%     | 100.0%        | 84.5% |          |            |

\*\*\* Highly significant ( $P \leq 0.001$ )

From the selected gastritis subjects, 23.0 percentage subjects had used frequent counter medications and 74.6 percentage did not used counter medications. The value is highly significant with P value because  $P < 0.01$ .

**Table 8**  
**Risk Factors Related To Gastritis**

| S. No | Risk factors of gastritis         | %         |       | P value      | Chi square |
|-------|-----------------------------------|-----------|-------|--------------|------------|
|       |                                   | Gastritis | Total |              |            |
| 1     | Bacterialinfection                | 6.6%      | 4.0%  | 0.000**<br>* | 43.767     |
| 2     | Regular useofpain relievers       | 4.9%      | 3.0%  |              |            |
| 3     | Cigarettesmoking                  | 1.6%      | 1.0%  |              |            |
| 4     | Excessive caffeine acid beverages | 5.7%      | 3.5%  |              |            |
| 5     | Stress                            | 15.6%     | 9.5%  |              |            |
| 6     | None of above                     | 58.2%     | 74.5% |              |            |

\*\*\*Highly significant ( $P \leq 0.001$ )

More than half (58.2%) of the subjects had none of above-mentioned risk factors. 15.6 percentage showed stress as a risk factor, severe stress dueto major surgery, injury, burns or severe infections can cause acute gastritis. The value is highly significant with p value ( $P \leq 0.001$ ).

## Frequency of Food Intake

Many gastrointestinal symptoms of gastritis patients correlate with unhealthy eating habits and food preferences. Diet is an important player in your digestive and overall health. Diet does not generally cause chronic gastritis, but eating some foods can make the symptoms worse.

**Table 9**

### Food frequency pattern of cereals, pulses and vegetables

| S. No | Cereals      | %         |               |       | P value | Chi square |
|-------|--------------|-----------|---------------|-------|---------|------------|
|       |              | Gastritis | Non-gastritis | Total |         |            |
| 1     | Daily        | 79.5%     | 92.3%         | 84.5% | 0.051*  | 9.428a     |
| 2     | Weekly       | 13.9%     | 2.6%          | 9.5%  |         |            |
| 3     | Fortnightly  | 4.1%      | 5.1%          | 4.5%  |         |            |
| 4     | Monthly      | 1.6%      | 0.0%          | 1.0%  |         |            |
| 5     | Occasionally | 0.8%      | 0.0%          | 0.5%  |         |            |
| S. No | Pulses       | %         |               |       | P value | Chi square |
|       |              | Gastritis | Non-gastritis | Total |         |            |
| 1     | Daily        | 63.1%     | 62.8%         | 63.0% | 0.930ns | .864       |
| 2     | Weekly       | 23.8%     | 26.9%         | 25.0% |         |            |
| 3     | Fortnightly  | 4.9%      | 5.1%          | 5.0%  |         |            |
| 4     | Monthly      | 2.5%      | 1.3%          | 2.0%  |         |            |
| 5     | Occasionally | 5.7%      | 3.8%          | 5.0%  |         |            |
| S. No | Vegetables   | %         |               |       | P value | Chi square |
|       |              | Gastritis | Non-gastritis | Total |         |            |
| 1     | Daily        | 78.7%     | 85.9%         | 81.5% | 0.153ns | 5.268      |
| 2     | Weekly       | 18.9%     | 9.0%          | 15.0% |         |            |
| 3     | Fortnightly  | 0.0%      | 1.3%          | 0.5%  |         |            |
| 4     | Occasionally | 2.5%      | 3.8%          | 3.0%  |         |            |

79.5 percent of subjects consume cereals on a daily basis; they were also affected by gastritis;

13.9 percent consume cereals on a weekly basis; and only 0.8 percent consume cereals on an occasional basis. The consumption of cereals and gastritis are significantly related ( $P \leq 0.05$ ).

There is no significant relationship between the intake of pulses and gastritis in selected

subjects. The majority of gastritis subjects take pulses daily (63.1%); only 23.8 percent of subjects include pulses weekly. Occasional intake of pulses among subjects is 5.7 percent, and only 4.9 percent are fortnightly. The remaining 2.5 percent of selected subjects include pulses

Among selected subjects, the majority of gastritis patients take vegetables in their daily (78.7%) diet, but only 18.9% of subjects include vegetables in their weekly diet. The occasional intake of vegetables among subjects is 2.5 percent. There is no fortnightly intake of vegetables among selected subjects. There is no significant relationship between the intake of vegetables and gastritis in selected subjects.

every month.

**Table 10**

**Food frequency pattern of egg and meat**

| S. No | Egg          | %         |               |       | P value | Chi square |
|-------|--------------|-----------|---------------|-------|---------|------------|
|       |              | Gastritis | Non-gastritis | Total |         |            |
| 1     | Daily        | 23.5%     | 26.0%         | 24.5% | 0.382NS | 5.289      |
| 2     | Weekly       | 59.7%     | 67.5%         | 62.8% |         |            |
| 3     | Fortnightly  | 6.7%      | 1.3%          | 4.6%  |         |            |
| 4     | Monthly      | 1.7%      | 1.3%          | 1.5%  |         |            |
| 5     | Occasionally | 7.6%      | 3.9%          | 6.1%  |         |            |

**Meat**

|   |              |       |       |       |        |       |
|---|--------------|-------|-------|-------|--------|-------|
| 1 | Daily        | 16.8% | 31.2% | 22.4% | 0.027* | 9.140 |
| 2 | Weekly       | 73.1% | 64.9% | 69.9% |        |       |
| 3 | Fortnightly  | 1.7%  | 2.6%  | 2.0%  |        |       |
| 4 | Occasionally | 8.4%  | 1.3%  | 5.6%  |        |       |

NS- Non-Significant, \*Significant ( $P \leq 0.05$ )

There is no significant relationship between egg consumption and gastritis in subjects. Among selected subjects, the majority of gastritis subjects consumed eggs weekly (59.7%), but only 23.5 percent of subjects included eggs daily. Occasionally, intake of eggs among subjects is 7.6 percent, and only 6.7 percent are fortnightly. The remaining 1.7 percent of selected subjects include eggs in their monthly diet.

Most of the subjects take meat weekly (64.9 percentage), and 31.2 percentage of the subjects take meat daily. And only 1.3 percent ate meat on a regular basis. Consumption of meat and gastritis are significantly related ( $P \leq 0.05$ )

**Table 11**  
**Food Frequency Pattern Of Nuts**

| S. No | Nuts         | Percentage |               |       | P value | Chi square |
|-------|--------------|------------|---------------|-------|---------|------------|
|       |              | Gastritis  | Non-gastritis | Total |         |            |
| 1     | Daily        | 7.8%       | 19.2%         | 12.4% | 0.040*  | 11.624     |
| 2     | Weekly       | 18.1%      | 19.2%         | 18.6% |         |            |
| 3     | Fortnightly  | 4.3%       | 5.1%          | 4.6%  |         |            |
| 4     | Monthly      | 11.2%      | 2.6%          | 7.7%  |         |            |
| 5     | Occasionally | 56.0%      | 53.8%         | 55.2% |         |            |

\*Significant ( $P \leq 0.05$ )

The majority of gastritis subjects take nuts occasionally (56.0 percent), but only 18.1 percent of subjects include nuts weekly. Monthly intake of nuts among subjects is 11.2 percentage, and only 7.8 percentage are daily intakes of nuts. The remaining 4.3 percent of selected subjects include nuts fortnightly. The intake of nuts and gastritis are significantly related in selected subjects. The P value is significant for selected subjects ( $P > 0.05$ ). ( $P \leq 0.05$ ).

**Table 12**  
**Intake of fried items**

| S. No | Fried items  | %         |               |       | P value             | Chi square |
|-------|--------------|-----------|---------------|-------|---------------------|------------|
|       |              | Gastritis | Non-gastritis | Total |                     |            |
| 1     | Daily        | 30.5%     | 25.7%         | 28.6% | 0.322 <sup>NS</sup> | 4.674      |
| 2     | Weekly       | 38.1%     | 52.7%         | 43.8% |                     |            |
| 3     | Fortnightly  | 2.5%      | 2.7%          | 2.6%  |                     |            |
| 4     | Monthly      | 5.9%      | 5.4%          | 5.7%  |                     |            |
| 5     | Occasionally | 22.9%     | 13.5%         | 19.3% |                     |            |

*NS-Non-Significant*

Among the selected subjects majority of gastritis subjects consumed fried items in weekly (38.1 %), only 30.5 % subjects include fried items in daily. There is no significant relationship between the consumption of fried foods and gastritis.

## CONCLUSION

Food habits play a significant role in the development of gastritis and can be considered risk factors. Certain dietary choices and behaviors increase the likelihood of developing gastritis. These include consuming spicy, fatty, and fried foods, excessive alcohol consumption, smoking, and frequent use of nonsteroidal anti-inflammatory drugs (NSAIDs). Additionally, irregular eating patterns, such as skipping meals or eating late at night, can also contribute to gastritis risk. It is important to maintain a balanced and healthy diet, limit alcohol intake, quit smoking, and avoid prolonged use of NSAIDs to reduce the risk of gastritis.

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# **ASSESSMENT OF SOCIAL MEDIA USE AND DEPRESSIVE BEHAVIOUR OF ADOLESCENTS (14-18 YEARS) AND AWARENESS OF PARENTS REGARDING SOCIAL MEDIA ADDICTION AMONG ADOLESCENTS**

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## **ABSTRACT**

The present study “assessment of social media use and depressive behaviour of adolescents (14-18 years) and awareness of parents regarding social media addiction among adolescents” aims to understand the impact of social media among adolescents (14-18 years) and get to know whether the parents are aware of the mental health issues among adolescents due to social media. An awareness program was conducted for parents and teenagers with the help of a resource person on “The impact of social media on adolescents”. The total sample consisted of 200 individuals which included 100 adolescents between the age group of 14-18 years and their parents. A self-designed questionnaire for adolescents and their parents was developed to evaluate their knowledge of the impacts related to the usage of social media. The data gained was analysed via percentage analysis.

**Keywords:** Adolescents, parents, screen addiction, social media

## **INTRODUCTION**

Adolescence is the most vulnerable period of human development and most of the individuals are negatively influenced by environmental factors during adolescence. Many addictive behaviours came to occur during this period including social media addiction, drug addiction etc., and it will eventually affect their future development. Of this, social media plays an important role in the development of adolescents. Most children rely on social media for everything, the risk of addiction is extremely high.

The present study has a great gravity in today's context of children's life. In the present scenario the role of social media in day-to-day life is inevitable and also the chances of mental health problems like depressive behaviours are significantly high. "Anything good will act as a poison if it is consumed over", this thought is perfect in the case of social media use among adolescence. Today children are more prone to many threats on internet including bullying, addiction, sexting, violent content. This will affect their academic, social, mental and physical health also.

Moreover, due to the rapid change in technology, parents have lesser knowledge regarding social media use. They don't even know how to use the phone properly, what are all applications that are available, how adolescents handle the phone, whether they are using sites which are not permitted to use. These all prevent parents and children for the effective use of technology.

**Aim:** The present study aims to understand the impact of social media among adolescents (14-18 years) and get to know whether the parents are aware about the mental health issues among adolescence due to social media.

**Objectives:**

- To assess the level of usage of social media among adolescents.
- To assess the impact of the usage of social media among adolescents.
- To give awareness about social media use and behavioural problems to adolescents and their parents.
- To study whether social media leads to depressive behaviour among adolescents.
- To conduct an awareness session through a resource person.

**METHODOLOGY**

The methodology of the study entitled "social media use and depressive behaviour of adolescence" is exemplified below.

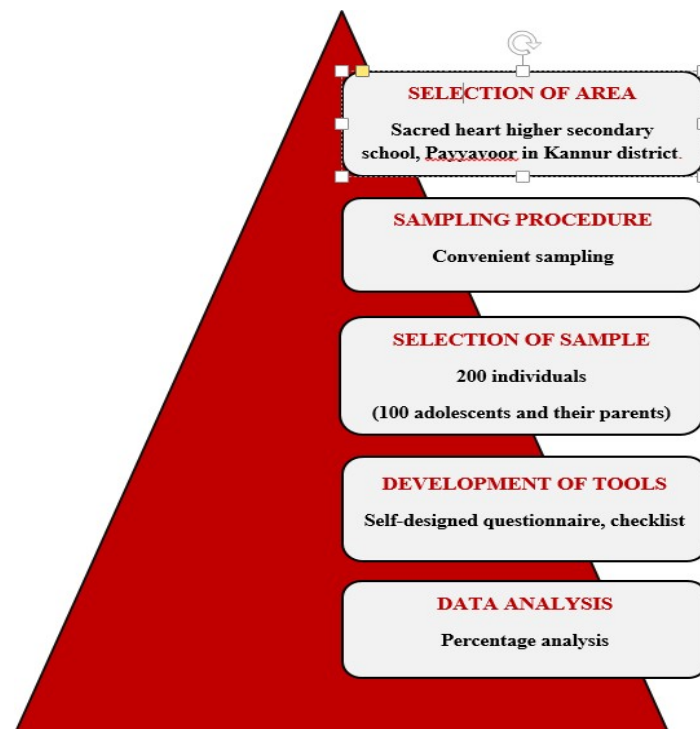


Figure 1

## Research Design

## RESULTS AND DISCUSSION

The results obtained after analysis of data and its discussions are described in this segment.

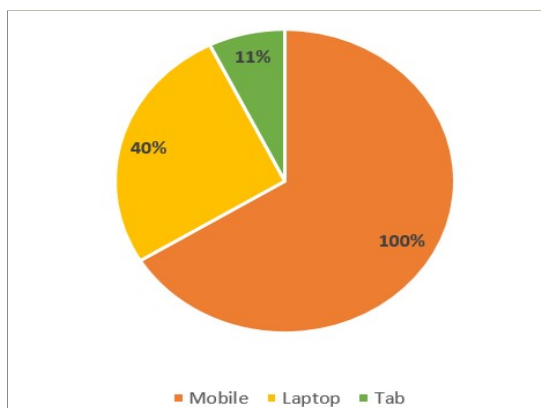


Figure 2

Availability of gadgets

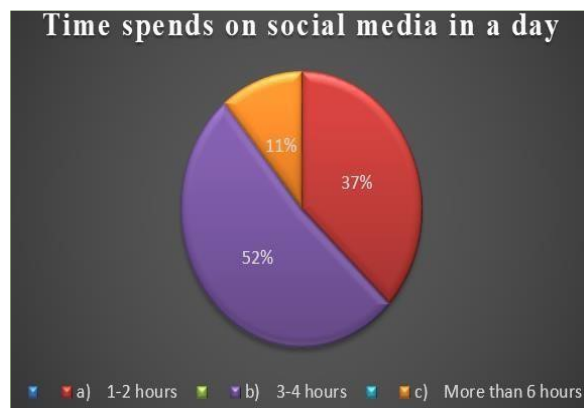


Figure 3

Time spent on Social Media

Figure 2 points out that cent percent of the students have mobile phones, 40 percent of the respondents have laptops and 11 percent of them have a tablet. From Figure 3 It was observed that around 11 percent spent more than 6 hours per day on social media.

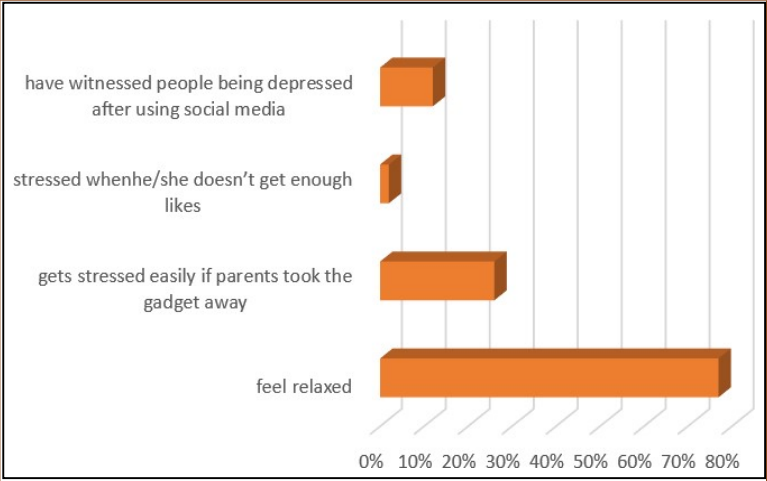


Figure 4

Usage of social media

It is clear from the figure-4 that 26 percent of students were feeling stressed when their parents took away their phone forcefully and 74 percent of the respondent's claims that they did not feel stressed during such situations. Minority (2%) of respondents felt stressed when they don't get the expected response for a post uploaded in social media, 13 percent of the respondents felt the same sometimes and majority (85%) of students weren't stressed about it.

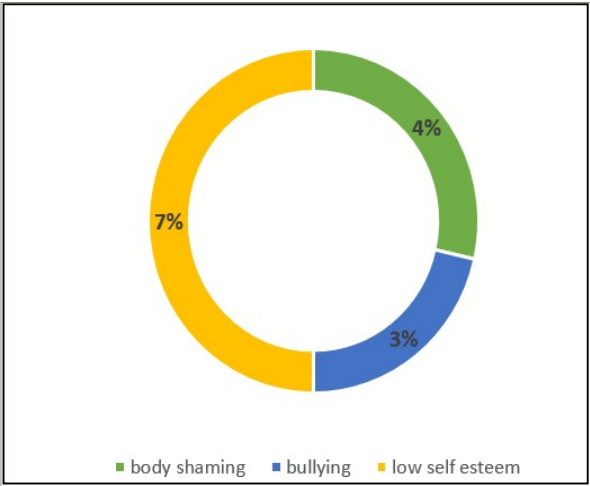
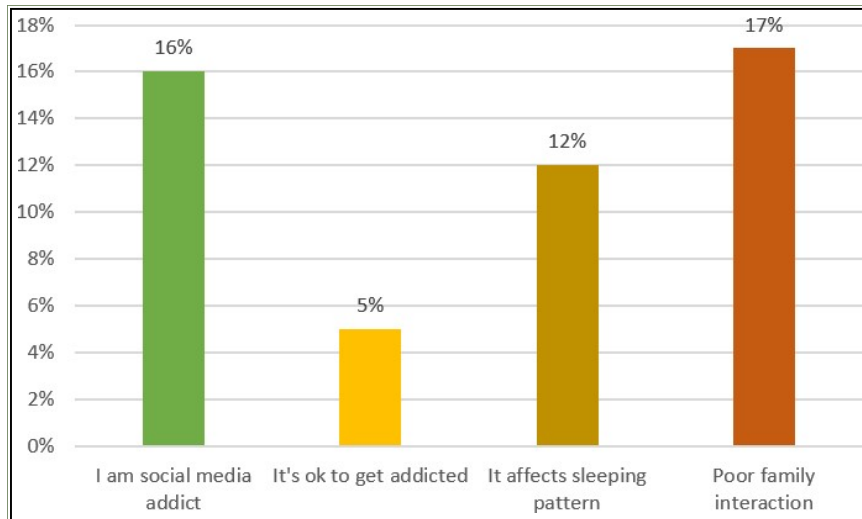


Figure 5

Impact of social media

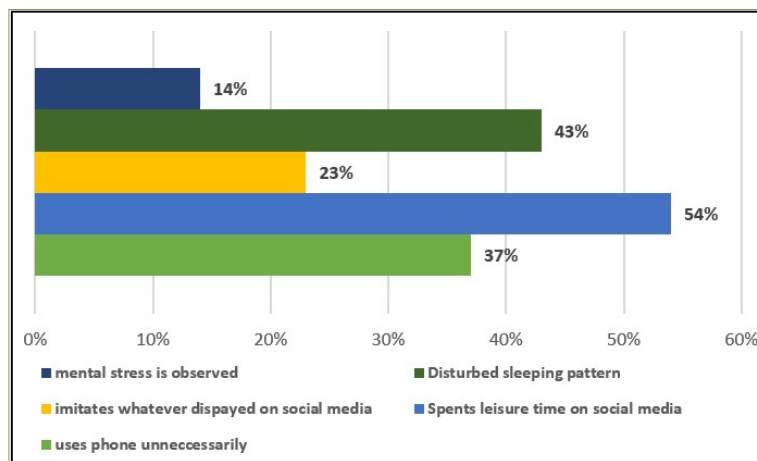
From figure 5, it was astonishing to note that about 3 percent of the respondents experienced bullying via social media sites, 4 percent of the students felt embarrassed about their body image and about 7 percent of the respondents felt useless due to social media usage.



**Figure 6**

### Awareness of addiction

From figure 6, it's evident that around 16 percent of the respondents accept that they are addicted to social media and five percent of them believes that it is ok to get addicted. About 12 percent of the teenagers pinpoints that it affects their sleep and 17 percent of them propounds that social media addiction can lead to poor family relationship and interaction.



**Figure 7**

### Awareness of parents regarding social media usage of children

It was interesting to note that 37% of the parents complained of the child using phone unnecessarily and more than half of them pointed out that their children spent their leisure time online. Around 23% of the respondents stated that the children imitates whatever it is shown on social media, 43% of them explained that social media addiction leads to disturbed sleeping pattern and 14 percent of them noticed stress among the children due to addiction.

### Evaluation of Webinar

The table demonstrated below depicts the evaluation of the awareness class taken by the resource person on “impact of social media among adolescents”.

**Table 1**  
**Evaluation of Webinar**

| Sl. No | Particulars                                                                | Respondents |     |
|--------|----------------------------------------------------------------------------|-------------|-----|
|        |                                                                            | N=50        | %   |
| 1      | <b>Was the session helpful</b>                                             |             |     |
|        | ▪ Yes                                                                      | 50          | 100 |
|        | ▪ No                                                                       | 0           | 0   |
| 2.     | <b>How much satisfied</b>                                                  |             |     |
|        | ▪ 5                                                                        | 31          | 62  |
|        | ▪ 4                                                                        | 17          | 34  |
|        | ▪ 3                                                                        | 2           | 4   |
|        | ▪ 2                                                                        | 0           | 0   |
|        | ▪ 1                                                                        | 0           | 0   |
| 3.     | <b>Beneficial</b>                                                          |             |     |
|        | ▪ Yes                                                                      | 49          | 98  |
|        | ▪ No                                                                       | 1           | 2   |
| 4.     | <b>The webinar provides adequate information regarding social media</b>    |             |     |
|        | ▪ Yes                                                                      | 50          | 100 |
|        | ▪ No                                                                       | 0           | 0   |
| 5.     | <b>Get awareness about the mental health issues caused by social media</b> |             |     |
|        | ▪ Yes                                                                      | 47          | 94  |
|        | ▪ No                                                                       | 3           | 6   |
| 6.     | <b>Overall feedback</b>                                                    |             |     |
|        | ▪ Very good                                                                | 36          | 72  |
|        | ▪ Good                                                                     | 14          | 28  |

From the table it was interesting to note that 62 percent of the respondents understood the concept and was satisfied with the information they have gained on social media usage.

Cent percent of the respondents accepted that the webinar provided adequate information regarding all the essential concepts of social media. Around 94 percent of the participants pointed out that they learned the fact related to mental health effects of social media among teenagers and how to rectify such situations. In total, 72% of the participants rated very good for the overall efficacy of the program conducted.

## CONCLUSION

The present study discussed “social media use and depressive behaviour of adolescents and assessing the awareness of parents regarding social media addiction among adolescents”. This study enabled parents and adolescents to understand social media addiction through the questionnaire provided. It also analysed their awareness regarding the depressive behaviours caused by social media use.

The study concluded that more than half of the participants were aware of social media addiction and mental health issues due to social networking sites. Majority of the parents have an opinion that their child is being addicted to social media and it has been reflected in their behaviour especially in academics. The awareness session was beneficial for both parents and adolescents as it provided adequate information regarding the selected topic.

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## **NUTRIENT ENRICHED EDIBLE COOKIE STRAW- FORMULATION AND ITS EVALUATION**

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### **ABSTRACT**

Plastic waste from food or drink containers is lightweight, easily blowing or washing away. Every year, over 8 million tonnes accumulate in the world's oceans, yet do not biodegrade. Drinking straws constitute approximately 4 % of plastic waste. This problem need to be taken seriously because waste generated through plastic straw is difficult to recyclable. one effort that can be done is to replace plastic straw with edible straw. The base ingredient selected is mainly cereal based. To enrich the straw with nutrients, incorporation using brown rice cake powder and flax seed and lentils cake powder is done. Physio chemical properties and nutritional quality of straw is evaluated.

**Keywords:** Edible straw, Recycling, Cereal based, Nutrient incorporation, Brown rice cake powder, Flax seed and lentils cake powder.

### **INTRODUCTION**

Plastic waste from food or drink containers is lightweight, easily blowing or washing away. Every year, over 8 million tonnes accumulate in the world's oceans, yet do not biodegrade. This figure is dramatically increasing. That much plastic introduces toxins to the water. Yet, one of plastic's most obvious effects is that marine animals eat it. Nine out of 10 seabirds have plastic in their guts. Increasing numbers of marine animals are being found dead because their stomachs are full of indigestible plastic. Most directly, fish caught for human consumption contain plastic, so the material is entering the human food chain. Drinking straws constitute approximately 4 % of plastic waste, but are among the items most commonly found on beaches. Worldwide, more than 1 000 million straws are used daily.

We have come up with a material that can resist usage of plastic straws. This material is moulded into desired shape to form straws that are edible. These edible straws are flavoured are designed for the sustainability of the future and reduce the use of plastic straws. Edible straws are biodegradable structures produced from plant-based materials such as rice, wheat, fruits and vegetables, sugar and corn, and are intended for use in sipping beverages. These structures are designed to be consumed after use in drinking beverages.

These drinking straws evolved as an effective alternative to plastic straws owing to its eco-friendly nature. Also, edible straws are beneficial to the consumer in terms of additional nutrition and aesthetic pleasure

Edible straws extend the concept of ‘drink responsibly’ Study Nutrient enriched edible cookie straw formulation and its evaluation is done under following objectives;

- To develop edible cookie straw
- Fortify the straw with nutrients
- Analyse the physico chemical properties and nutritive value of edible straw.
- To conduct shelf life studies at different packaging at different intervals
- Popularization of the developed product.

## **MATERIALS AND METHODS**

### **Procurement of raw material**

**Raw material selected for the present study are**

- Wheat flour
- ½ tbsp vanilla essence
- Brown rice cake
- Flax seed cake
- 1 cup sugar
- Pinch of salt
- 1tbsp butter
- 100 ml beetroot juice

## **Making of dough**

In a medium bowl, add wheat and sugar and beat it until fluffy. Add the rest of ingredients and blend until smooth. Rest the dough at room temperature for 20 minutes.

## **Nutrient enrichment of the dough**

Brown rice cakes has more nutrients like protein, lipid, minerals and vitamins than refined white rice.(WebMD, 2021).

Flaxseed cake have polyphenol content of 0.73 mg, protein content of 53.52 % and 0.78g Albumin.(Flaxseed and flaxseed cake as a source of compounds for food industry, 2010)

Brown rice cake and flax seed cake are being grounded to fine powder and added to dough.

## **Baking**

1. Preheat the oven to 150 degree Celsius
2. Prepare a baking sheet with silicone mat
3. Drop a spatula full dough on the baking sheet and spread to a thin 3 inch by 7 inch rectangle using offset spatula.
4. roll these dough into a shape of a straw
5. Bake 4-6 min until the edges just get started to Brown
6. Remove from oven and let sit for 2 min
7. Use a spatula to remove the straw from steel straw and allow to cool
8. As the straw get cool they get crispy

## **Packing of straw**

Food products need good storage stability and are free from microbial content over a period of time. So packing the foods in the right material can definitely increase the shelf life of the products. The samples of control and flaxseed and lentils incorporated form of two straws were filled and packed in low density poly ethylene (LPDE) jars and in glass jars to evaluate the best packaging material.

## **Organoleptic evaluation**

Acceptability of developed products with respect to appearance, color, flavor, texture, taste was estimated using 9 point hedonic rating scale. A scale from 1-9 corresponding to the remarks ranging from dislike extremely – like extremely was used.

### **Analysis of physio chemical properties**

Texture, appearance and thickness was evaluated through organoleptic evaluation . for testing solubility straw was immersed in luke warm water for 15 min and checked at 5 minutes interval.

### **Analysis of nutritional qualities**

Protein ( KJELDAHL METHOD), Fibre ( ACID – ALKALI DIGESTION METHOD), Moisture(HOT AIR OVEN DRYING ), fat ( SOXHLET METHOD), ash (MUFFLE FURNACE ) .

### **Popularization of the developed product**

The developed recipe is popularized through Google meet and the audience selected for this is collegestudents from nearby colleges in Thrissur district. Another mode of popularization is by a lecture demonstration at a anganwadi meeting by distributing pamphlets. Audience for this was health officials of a nearby PHC, anganwaadi workers, asha workers, and students.

### **Statistical analysis**

Kendall's co-efficient of concordance was adopted to differentiate the acceptability of the products based on the degree of agreement among the judges as regards to the different parameters of the products such as appearance, color, texture, flavor and taste. Relative percent change in nutrient content with respect to control is adopted for comparing nutrient content of control group and product.

## **RESULTS AND DISCUSSION**

- The basic ingredients of the edible cookie straw are wheat flour, powdered sugar, beetroot juice
- Two products were developed by incorporating cake powders one is flaxseed and lentils cake powder and the other is brown rice cake powder.
- For incorporation 20 % of each cake powders was chosen
- Finally the products was named as control group ( no incorporation of cake powders), product I ( 20 % FLAXSEED AND LENTILS CAKE POWDER) , Product II ( 20 % BROWN RICECAKE POWDER INCORPORATED)

- The overall acceptability of the products was determined by organoleptic evaluation, using five point hedonic scale.
- The organoleptic evaluation was done to find out the most accepted product
- Control group was the most accepted product followed by product I and followed by product II with the scores of 8.85, 8.82, 8.00 respectively
- Also organoleptic evaluation of all the products was done to evaluate each quality attributes namely appearance, color, flavor, texture and taste.
- When appearance of all products was considered, control group got least score of 1.89, whereas product I and product II got mean rank of 2.06 .
- In case of colour, control group scored maximum of 2.47 followed by product I and product II with mean rank score of 2.17 and 1.36 respectively.
- When scores obtained for texture was taken into consideration, product I scored high followed by product II and control group having scores of 1.97 and 1.86 respectively.
- Product I scored 2.16 for mouth feel than product II and control who scored 2.03 and respectively.
- When scores obtained for taste was taken into consideration, control group got scored 2.44 followed by product I ( 2.40) product II (1.16).
- Control group, product I, product II was selected for checking shelf life. The acceptability of the products under the two modes of packing namely plastic and glass jar was evaluated in a period of ten days with an interval of five days, by organoleptic evaluation based on the five attributes namely appearance, color, flavor, texture and taste.
- The length of the straw is 12 cm and weight of each straw is 10 g.
- In plastic packaging, control group got a mean rank score of 4.2 (5 days) whereas it increased to 4.4 ( 10 days). Same as the result in case of product I and product II where the score just increased from 4 from five days of organoleptic evaluation to 4.2 in ten days of evaluation.
- In glass jar packaging ,control group got a score of 4.4 ( 5 days) which was slightly decreased to 4.1 ( 10 days) whereas the product I has same rank score in 5 days and 10 days of interval 4.02 and product II has 3.8 ( 5 days) which got increased to 4.2 in 10 days of interval.
- The overall acceptability of the two packaging were evaluated using organoleptic

evaluation. It shows that in the case of control group, the acceptability is more in glass jar packing than low density polypropylene. In case of product I also acceptability is more in glass jar packing. Whereas in case of product II there is no difference noted.

- In general, the acceptability of cereal based edible straw are more in glass jar packing
- When nutritional content of product I is compared with that of product II it has been found out that PRODUCT I has more nutrient content than PRODUCT II.

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## **A STUDY ON SPIDER BIODIVERSITY OF MORNING STAR HOME SCIENCE COLLEGE ANGAMALY, KERALA**

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### **ABSTRACT**

Spiders belong to order Araneae, class Arachnida and are members of phylum Arthropoda. Species diversity of spiders of Morning Star Home Science College, Angamaly were assessed. The samples were collected for a period of 4 months from November 2022 to February 2023. A total of 28 species of spiders belonging to 20 genera of 8 families were collected and identified from the campus up to species level. Spiders belonging to 8 families namely, Araneidae represented by 9 species, Salticidae represented by 9 species, Lycosidae represented by 2 species, Sparassidae and Pholcidae families were represented by 1 species, Thomisidae represented by 2 species, Oxyopidae family represented by 3 species and Tetragnathidae family represented by 1 species. *Heteropoda venatoria* was the dominant species during the study period. The information on spider's diversity is becoming increasingly important in the context of a global decline in the spider population

### **INTRODUCTION**

Spiders are one of the widely distributed groups of predators in the animal kingdom (Riechert and Lockley, 1984). They play an important role in controlling insect pests in agriculture fields (Nyffeler and Benz, 1987; Sunderland, 1999). They consume large number of preys without damaging the plants (Sunderland and Samu, 2000). They are suitable biological indicators of ecosystem changes and habitat modifications due to their small body size, short generation time, and high sensitivity to temperature and moisture changes. Documentation of spider fauna is more important because they play a significant role in the regulation of insects and other invertebrate populations in most ecosystems (Foelix R. F, 1996).

According to the World Spider Catalog, version 20.0 (2019), the updated lists documented 42,473 species of spider belonging to 3849 genera and 120 families from the world. Patel

(2003) reported 91 species belonging to 53 genera and 16 families from Parambikulam Wildlife Sanctuary, Kerala. Kavvayi river basin is a typical lateritic biotope situated in the Northern part of Kerala. A preliminary study was conducted to document the diversity of spider fauna inhabiting in the different ecosystems of Kavvayi river basins. The present study resulted in the documentation of 112 species of spiders belonging to 81 genera and 21 families. (Palot M.J. & Balakrishnan; 2014). A study of spider diversity of Kerala University Campus, conducted for a period of four months revealed a total of 116 species of spiders belonging to 20 families. Among the families, Salticidae was found as the most common family and among the species *Hersilia savignyi* and *Hippasa agelenoides* were found as the most common species. (Sebastian P.A. and Peter K.V. 2009). Sudhi Kumar et al. (2005) studied the web-building spiders in Kuttanad and also gave detailed information of resident spider population and seasonal variations in their diversity in the rice agro ecosystem of Kuttanad, Kerala.

### **OBJECTIVES OF THE STUDY**

- To identify and classify the Spiders of the campus.
- To assess species diversity of Spiders of Morning Star Home Science College, Angamaly

### **METHODOLOGY**

Study was conducted in the campus of Morning Star Home Science College, Angamaly. Study was conducted for 4 months from November 2022 to February 2023. Spiders were collected randomly from inside and outside of the buildings and from the college campus. Collections were also made from plants and soil surface. Spiders were located at the corners of room, ceilings, boxes, dark crevices, basements, outer walls and cupboards. They were photographed using GPS Map camera application in the mobile and were identified up to species level with the help of available literature (Sebastian P.A. and Peter K.V., 2009) and Dr Mathew Thomas, Head, Department of Zoology, Sacred Heart College Thevara.

**OBSERVATION AND RESULT****Table 1**

**Checklist of spiders collected and identified from Morning Star Home Science College, Angamaly**

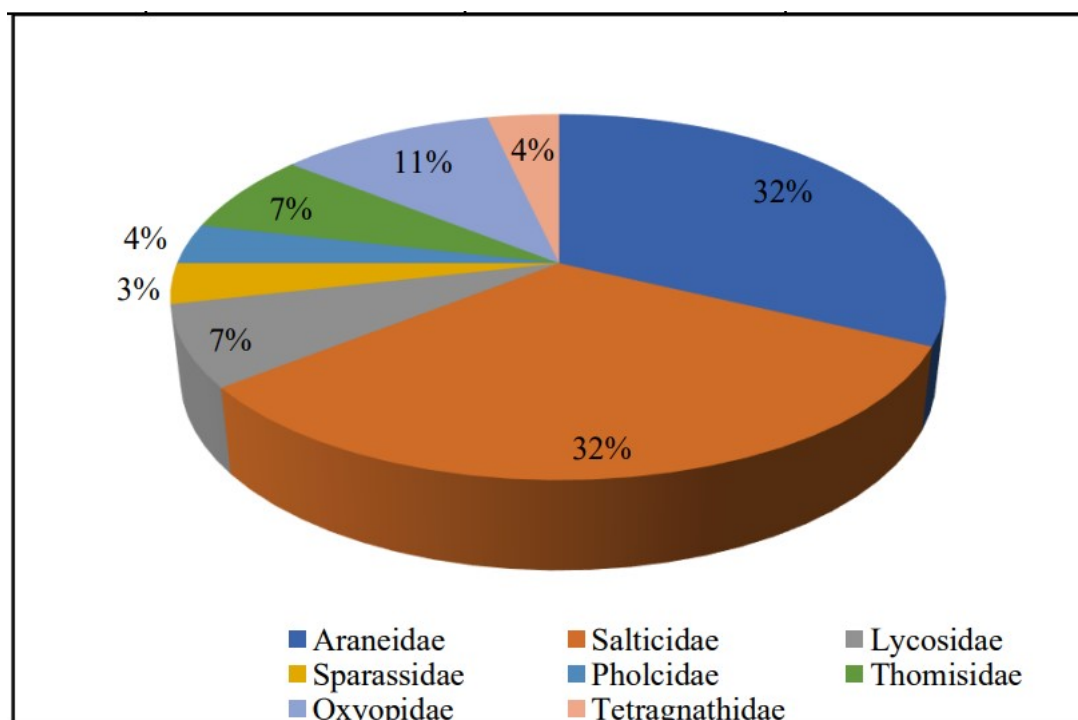
| Sl.NO | FAMILY             | SPECIES                       |
|-------|--------------------|-------------------------------|
| 1     | <b>Araneidae</b>   | <i>Argiope aemula</i>         |
| 2     |                    | <i>Argiope pulchella</i>      |
| 3     |                    | <i>Hernia multipuncta</i>     |
| 4     |                    | <i>Nephila kuhlii</i>         |
| 5     |                    | <i>Cyrtophora cicatrosa</i>   |
| 6     |                    | <i>Argiope sp.</i>            |
| 7     |                    | <i>Neoscona vigilans</i>      |
| 8     |                    | <i>Neoscona nautica</i>       |
| 9     |                    | <i>Neoscona mokerjei</i>      |
| 10    | <b>Salticidae</b>  | <i>Hasarius sp.</i>           |
| 11    |                    | <i>Piranthus planolancis</i>  |
| 12    |                    | <i>Telamonia dimidiata</i>    |
| 13    |                    | <i>Menemerus bivittatus</i>   |
| 14    |                    | <i>Evarcha sp.</i>            |
| 15    |                    | <i>Menemerus sp.</i>          |
| 16    |                    | <i>Plexippus petersi</i>      |
| 17    |                    | <i>Epeus sp.</i>              |
| 18    |                    | <i>Plexippus paykulli</i>     |
| 19    | <b>Lycosidae</b>   | <i>Pardosa sp.</i>            |
| 20    |                    | <i>Pardosa pseudoannulata</i> |
| 21    | <b>Sparassidae</b> | <i>Heteropoda venatoria</i>   |
| 22    | <b>Pholcidae</b>   | <i>Pholcus phalangioides</i>  |

|    |                       |                          |
|----|-----------------------|--------------------------|
| 23 | <b>Thomisidae</b>     | <i>Thomisus pugilis</i>  |
| 24 |                       | <i>Runcinia sp.</i>      |
| 25 | <b>Oxyopidae</b>      | <i>Oxyopes sheweta</i>   |
| 26 |                       | <i>Oxyopes sp.</i>       |
| 27 |                       | <i>Peucetia uiridana</i> |
| 28 | <b>Tetragnathidae</b> | <i>Leucage decorate</i>  |

**Table 2**

**Number and Percentage Of Spider Species Of Different Families Collected From Morning Star Home Science College, Angamaly.**

| Sl.No. | Name Of Family | No. Of Spider Species | Percentage Of Spider Species |
|--------|----------------|-----------------------|------------------------------|
| 1      | Araneidae      | 9                     | 32                           |
| 2      | Salticidae     | 9                     | 32                           |
| 3      | Lycosidae      | 2                     | 7                            |
| 4      | Sparassidae    | 1                     | 3                            |
| 5      | Pholcidae      | 1                     | 4                            |
| 6      | Thomisidae     | 2                     | 7                            |
| 7      | Oxyopidae      | 3                     | 11                           |
| 8      | Tetragnathidae | 1                     | 4                            |



**Figure 1**

**Pie diagram showing percentage of spider species of different families collected from Morning Star Home Science College, Angamaly.**

## DISCUSSION

In the present study, a total of 28 species of spiders belonging to 8 families namely, Araneidae family represented by 9 species, Salticidae family represented by 9 species, Lycosidae family represented by 2 species, Sparassidae and Pholcidae families were represented by 1 species, Thomisidae family represented by 2 species, Oxyopidae family represented by 3 species, Tetragnathidae family represented by 1 species. *Heteropoda venatoria* was the dominant species during the study period. Of these, 2 species of synanthropic spiders belonging to 2 genera of 2 families were collected from indoor area. *Heteropoda venatoria* of Sparassidae family, *Pholcus phalangioides* of Pholcidae family were identified from inside the house. 27 species of spiders belonging to 18 genera of 8 families were collected from outdoor.

Among spiders, the selection of nesting, feeding, and reproduction sites is greatly influenced by the parental habitat occupation, high density of competitors, or habitat availability at certain times of the year. The selected sites have to provide enough food, adequate nesting conditions, protection against enemies and adverse weather conditions. Spider population shows certain associations between their structure and the heterogeneity and structural complexity of the surroundings (Riechert and Reeder, 1997). Thus their abundance and richness depend directly on the availability of specific environmental conditions which should decrease interspecific competition. Spiders select sites based on the level of protection against extreme temperatures and the destruction of webs and nests, maximizing foraging time on the web.

## **CONCLUSION**

Myths and a few fatal poisonings have made many persons afraid of spiders. They usually do not bite unless accidentally touched or held. Spiders are excellent pest controllers, feeding on harmful insect pests in and around the home, garden and field, and do not transmit diseases. Although nearly all spiders have venom glands, they rarely bite humans. Spiders receive relatively little attention from the conservation community, may be due to fear and dislike of their appearance, behaviours, venomous nature, or because relatively little is known about their distribution and abundance. However, none of these reasons seem sufficient to keep spiders off the conservation radar screen. This study has further exposed to the diversity of synanthropic spiders in Kerala and in future, will bring this neglected group under the light of conservation. The information on spider's diversity is becoming increasingly important in the context of a global decline in the spider population.

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