**Abstract:** Food adulteration worsening day by day. Food amongst the lower order physiological needs and food safety is of immense importance for health and wellbeing. In this context knowledge and practices regarding food adulteration of rural people in kanishail village of Golapgonj Upazila was observed and 176 villagers were interviewed using a semi structured questionnaire in November 2018. Respondents were selected through convenience type of non-probability sampling. It was a cross sectional type of descriptive study. Among the respondents 136 were female and 40 were male. Study results shows that the respondents consider a food item is adulterated when it is rotten; said 34.66%, addition of harmful substances said 19.89%, chemicals said 13.62%, colour said 18.95% though 6.25% have no idea. Common food items those are being adulterated; 60.23% said fish, 71.02% said vegetable, 64.20% said fruits, 5.68% said juice, 7.39% mentioned bakery food. Regarding common adulterants; 73.86% said formalin, 3.97% said carbide. Regarding specific adulterants - 7.79%, respondents said fish is adulterated with formalin, only 7.38 said vegetable with colour, 2.27% said shutki with DDT, 63.63% said fruits with formalin and none said carbide for fruits. Adulterated food is harmful said 21.59%, 35.30% said very harmful, 21.51% said death may occur. Measures they take to buy healthy food are seeing color 10.17%, freshness 46.55%, smell 8.47% and cleanliness 19.49%. Though 38.07% respondents do not allow their children bakery food but 46.59% allow. Only 25.56% respondents know testing iodized salt correctly and 30.68% know to test fish for formalin. If they suspect a food item might be adulterated; 61.11% respondents throw it, 13.89% eat these. Majority; 84.65% got these information from Television.

**Schedule of RFST Program for 3rd year MBBS students (SWMC-12)**

|  |  |  |
| --- | --- | --- |
| Day | Time | Topic |
| Day-1 | 9.30am-11.00 am  11:.30 – 2.30 pm | 1. Objectives of RFST  2. Program briefing  3. Level of health care & organization |
| 4. Research Methodology(Review)  5. Bio-statistics(Review)  6. Discussion about survey questionnaire |
| Day-2 | 9:30am-2.30 pm | 1.Organogram of UZHC,  2. Responsibilities of UH&FPO  3. Referral system  4.Ongoing health program of GOB at Upazila level  (Vit. A, DOTS & Others )  Interaction with field staff & their responsibilities |
| Day-3 | 8.30am- 2.30 pm | Visit to different dept. of UZHC ( EPI corner, Laboratory, MCH corner, TB/Leprosy control program, IPD/ OPD  Community survey : Data Collection |
| Day-4 | 8.30 am-2.30 pm | Data Compilation, Data Processing and Analysis |
| Day-5 | 8.30 am- 2.30 pm | Report writing |
| Day-6 | 8.30am-2.30pm | Report Presentation |

**Organogram of Golapgonj Upazila Health Complex, Sylhet**

**UH & FPO**

Health Services

Family Planning

MCH

Family Planning

MO (MCH & FP)

FWV TFPO

ATFPO

Domiciliary

Hospital (Indoor, Outdoor, Emergency)

RMO-1 Sanitary Inspector - 1

Consultant Medicine - 1 Health Inspector - 3

Consultant Surgery - 1 AHI - 1 for each union

Consultant Gynae & Obs - 1

Consultant Anaesthesia - 1

Medical Officer -2

Dental Surgeon - 1

Medical Asst. -2

Pharmacist -2

**Union Sub-center of Bangladesh**

* Union Sub centre are of primary level of health care service of Bangladesh.
* It provides limited preventive, promotive, curative and rehabilitative service.
* But there are no diagnostics facilities here.

Manpower in Union Sub- centre

* Medical officer – 1
* Medical assistant – 1
* Pharmacist – 1
* MLSS – 1

Service provided by union sub centre

* Essential health care services are provided to all those who have access to a Union Sub-centre (USC) irrespective of male or female, young or old.
* Oral Rehydration Salt (ORS) is available for patients suffering from Diarrheal Diseases.
* Necessary advice along with antenatal Check-up is provided to the attending pregnant women and iron tablets are supplied to them.
* Patient is referred to upazilla health complex if needed.
* Under Expanded Program on Immunization (EPI) program, vaccinations are provided to women of child bearing age (15-49) and children (0-15).
* Reproductive couples can get family planning services from the centre.

**Community Clinic**

Community and PHC clinic provides domiciliary services through a Health Assistant and a Family Welfare Visitor. They provide treatment for minor diseases like common cold, fever. Supplies ORS for rehydration to Diarrhoeal patients. Supplies oral contraceptive pills. There is one community clinic for every 6000 people.

**ACKNOWLEDGEMENT**

I express my profound gratitude and deep respect with deep appreciation to my guide Prof. Dr. Fazlur Rahim Kaiser, Professor & Head of the department of Community Medicine of SWMC for his guidance, inspiration and full support.

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I would like to extend my thanks to the Health Inspector and other staffs for their help in collecting data from the respondents.

Name of the Student \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**SURVEY**

Survey on Knowledge and practice regarding food adulteration of people of Kanishail village of Golapgonj Upazila, Sylhet.

**OBJECTIVES OF THE STUDY:**

**General Objective:**

* To know knowledge & practice of rural people about food adulteration in Kanishail villages of Golapgonj Upozila.

**Specific Objectives:**

1. To see the knowledge of common food items are being adulterated.
2. To know the common adulterants used.
3. To have an idea about the specific adulterants with which common food items are usually adulterated.
4. To see the knowledge about the deleterious effects of adulterants.
5. To determine the protective measures they take to make food items safer.
6. To obtain socio-economic characteristic of the respondents.

**METHODOLOGY:**

* Type of study: Cross sectional type of descriptive study.
* Study place: Kanishail village of Golapgonj upozila, Sylhet.
* Study population: All the people of Kanishail village who are at least 18 years of age.
* Sample size: 176
* Sampling technique: Non-probability purposive sampling was done.
* Data collection instrument: A semi-structured questionnaire was used to collect data.
* Data collection technique: Data was collected from the respondents by the researchers (students) themselves by face to face interview.
* Data analysis: On completion of data collection, data were tabulated after checking & verification. Data were analyzed by simple statistical method using a computer.

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**RESULTS**

**Table No – 01: Distribution of respondents according sex.**

|  |  |  |
| --- | --- | --- |
| Sex | Frequency | Percentage (%) |
| Male | 40 | 22.73% |
| Female | 136 | 77.27% |
| Total | 176 | 100% |

This table shows that Male respondents are 22.73% and female are 77.27%

**Table No – 02: Distribution of respondents according to age.**

|  |  |  |
| --- | --- | --- |
| Age (years) | Frequency | Percentage (%) |
| 18-22 | 33 | 18.75% |
| 23-27 | 39 | 22.16% |
| 28-32 | 37 | 21.03% |
| 33-37 | 15 | 12.29% |
| >32 | 67 | 38.06% |
| Total | 176 | 100% |

This table shows that 18.75% respondents are of the age group 18 – 22 years, 22.16% are of 23-27 years. 21.03% are of 28 – 32 years group, and 38.06% are of the age group 32 and above.

**Table No – 03: Distribution of respondents according to educational qualification**

|  |  |  |
| --- | --- | --- |
| Educational qualification | Frequency | Percentage (%) |
| Illiterate | 43 | 24.43% |
| Primary | 78 | 44.32% |
| SSC | 39 | 22.16% |
| HSC and above | 16 | 9.09% |
| Total | 176 | 100% |

This table shows that 44.32% respondents studied up to primary level, 22.16% upto SSC and 09.09% upto HSC or above. 24.43% are illiterate.

**Table No – 04: Occupation of respondents**

|  |  |  |
| --- | --- | --- |
| Occupation | Frequency | Percentage (%) |
| Housewife | 123 | 69.89% |
| Service holder | 4 | 02.27% |
| Business | 8 | 04.55% |
| Farmer | 11 | 06.25% |
| Immigrant | 0 | 0% |
| Laborer | 12 | 6.82% |
| Others | 18 | 10.23% |
| Total | 176 | 100% |

This table shows that 69.89% are housewives, 2.27% are service holder, 4.55% are business, 6.25% are farmer, 6.82% are laborer and others 10.23%.

**Table No – 05: Occupation of the respondents’ spouse**

|  |  |  |
| --- | --- | --- |
| Occupation | Frequency | Percentage (%) |
| 1. House Wife | 41 | 23.30% |
| 1. Job Holder | 4 | 2.28% |
| 1. Business | 31 | 17.61% |
| 1. Farmer | 31 | 17.61% |
| 1. Immigrant | 10 | 5.68% |
| 1. Lobour | 35 | 19.88% |
| 1. Others | 24 | 13.64% |
| Total | 176 | 100% |

This table shows that 23.30% respondents spouse are house makers, farmer 17.61%, job holder 2.28%, business 17.61%, immigrant 5.68%, labour 19.88% and 13.64% are engaged in other occupations.

**Table No – 06: Distribution of respondents according to number of family members.**

|  |  |  |
| --- | --- | --- |
| Family Members | Frequency | Percentage (%) |
| 2 -4 | 47 | 26.70% |
| 5 -7 | 77 | 43.75% |
| >7 | 52 | 29.55% |
| Total | 176 | 100% |

This table shows that 26.70% families’ have 2-4 members in their family, 43.75% have 5-7 and 29.55% have more than 7 members in their family.

**Table No – 07: Distribution of respondents according to number of children.**

|  |  |  |
| --- | --- | --- |
| No of children in a family | Frequency | Percentage (%) |
| 1-2 | 53 | 30.11% |
| 3-4 | 55 | 31.25% |
| >4 | 21 | 11.93% |
| Total | 176 | 100% |

This table shows that 30.11% respondents have (1-2) children, 31.25% respondents have (3-4) children, 11.93% respondents have more than 4 children, and 26.71% .

**Table No – 08: Distribution of respondent according to their monthly family income.**

|  |  |  |
| --- | --- | --- |
| Monthly income | Frequency | Percentage (%) |
| ≤ 5000 | 65 | 36.93% |
| 5001-10000 | 56 | 31.81% |
| 10001-15000 | 27 | 15.34% |
| >15000 | 28 | 15.92% |
| Total | 176 | 100% |

This table shows that 36.93% respondents earn ≤ 5000 taka, 31.81% respondents earn 5001-10000 taka, 15.34% respondents earn 10001-15000 taka, and 15.92% respondents earn >15000 taka.

**Table No – 09: Distribution of respondents according to their knowledge when a food item is said to be adulterated.**

|  |  |  |
| --- | --- | --- |
| **Items** | **Frequency** | **Percentage (%)** |
| Rotten food | 61 | 34.66% |
| Addition of color | 33 | 18.75% |
| Mixing of harmful substances | 35 | 19.89% |
| Others | 11 | 6.25% |

\*Multiple responses

This table shows that, 34.66% respondents said that food is adulterated when it is rotten, 18.75% said by addition of color, 19.89% is said that food is adulterated by anything added which is harmful.

**Table No – 10: Distribution of respondents according their knowledge of food items that are** **usually adulterated.**

|  |  |  |
| --- | --- | --- |
| Knowledge | Frequency | Percentage (%) |
| Rice | 30 | 17.05% |
| Lentil | 13 | 7339% |
| Oil | 24 | 13.64% |
| Fish | 106 | 60.23% |
| Vegetables | 125 | 71.02% |
| Fruits | 113 | 64.20% |
| Spice | 25 | 14.20% |
| Milk | 23 | 13.07% |
| Juice | 10 | 5.68% |
| Sweets | 19 | 10.79% |
| Ghee | 2 | 1.14% |
| Bakery food | 13 | 7.39% |
| Doesn’t know | 6 | 3.41% |
| Others | 4 | 2.27% |

\*Multiple responses

This table shows that the common food items those are being adulterated and 71.02% said it is vegetable, 64.20% said it is fruits, 60.23% said it is fish , 17.05, said it is rice, 14.20% said it is spice, 13.64% said it is oil, 13.07% said it is milk , 10.79% said it is sweets, 7.39% said it is lentil and bakery food, 5.68% said it is juice, 3.41% have no idea 2.27% said other food items.

**Table No – 11: Distribution of respondents according their knowledge about usually used adulterants in food:**

|  |  |  |
| --- | --- | --- |
| Adulterants | Frequency | Percentage (%) |
| Colour | 56 | 31.21% |
| Formalin | 130 | 73.86% |
| Carbide | 7 | 3.97% |
| Urea | 21 | 11.93% |
| Chemical | 24 | 13.63% |
| Brick Powder | 23 | 13.06% |
| Water | 15 | 8.52% |
| Don’t know | 25 | 16.47% |
| Others | 3 | 1.7% |

\*Multiple Responses.

This table shows that the respondent said food is adulterated with colour 31.21% formalin 73.86%, carbide 3.97%, urea 11.93%, chemical 13.63% brick powder 13.06%, water 8.52% don’t know 16.47%

**Fig. No. : 1. Distribution of respondents according to knowledge about usually used adulterants in food.**

**Table No – 12: Distribution of respondents according to their knowledge about usually used adulterants in food:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Food item** | | **Frequency** | **Percentage (%)** |
| Fish | 1. Formalin | 137 | 7.79% |
| 1. Colour | 16 | 9.9% |
| 1. Don’t know | 42 | 23.86% |
| Vegetable | 1. Cloth colour | 13 | 7.38% |
| 1. Insecticides | 52 | 27.84% |
| 1. Excess compost | 49 | 27.18% |
| 1. Don’t know | 76 | 43.18% |
| Masala | 1. Colour | 17 | 9.65% |
| 1. Wood Powder | 13 | 7.38% |
| 1. Brick Powder | 80 | 45.45% |
| 1. Dung | 01 | 0.56% |
| 1. Others | 13 | 7.38% |
| 1. Don’t know | 74 | 42.04% |
| Fruits | 1. Carbide | 04 | 2.27% |
| 1. Formalin | 112 | 63.63% |
| 1. Colour | 13 | 7.38 |
| 1. Don’t know | 57 | 32.38% |
| Dry fish | 1. DDT | 04 | 2.27% |
| 1. Salt | 43 | 24.43% |
| 1. Colour | 06 | 3.40% |
| 1. Don’t know | 123 | 69.88% |

\*Multiple responses

This table shows that the respondents said fish is adulterated with formalin 7.79%, colour 9.9%, don’t know 23.88%, vegetable with colour 7.38%, insecticides 29.54% excess composed 27.84% , don’t know 43.18% masala with colour 9.65%, wood powder 7.38% brick powder 45.45%, dung 0.56%, others 7.38%, don’t know 42.04%, fruits with carbide 2.275, formalin 63.63%, colour 7.38%, don’t know 32.38% and dry fish with DDT 2.27%,salt 24.43%, colour 3.40%, don’t know 69.88%.

**Table No – 13: Distribution of respondents according to their knowledge of harmful effects of food adulterant on human.**

|  |  |  |
| --- | --- | --- |
| **Effects** | **Frequency** | **Percentage (%)** |
| Cancer | 62 | 35.23% |
| Disability | 38 | 21.59% |
| Even death | 38 | 21.51% |
| Others | 47 | 26.7% |
| Don’t know | 40 | 22.73 |

\*Multiple responses

This table shows that 35.23% respondents of knowledge about harmful effects of cancer 21.59%, disability 21.51%, even death 26.7%, others and 22.73% peoples are didn’t know.

**Table No – 14: Distribution of respondents according to their queries they do while buying package food.**

|  |  |  |
| --- | --- | --- |
| **Checking of quality.** | **Frequency** | **Percentage (%)** |
| Whether date expire or not | 130 | 51.59% |
| Quality of company | 42 | 16.67% |
| Quality of packet | 18 | 7.14% |
| Price | 16 | 6.35% |
| Seal of BSTI | 14 | 5.56% |
| Previous experience | 10 | 3.96% |
| Don’t know | 22 | 8.73% |

This table shows that 51.59% respondents buy packaged food observing whether data expired or not 16.67%, of respondent observing its quality of company , 7.14% of respondent check quality of packet 6.35% of respondent consider price 5.56% of respondent check seal of BSTI 3.96% check with previous experience, 8.73% have no idea of checking food while buying packaged food.

**Fig. No. : 2. Distribution of respondent according their knowledge of harmful effects of food adulterant on human.**

**Table No – 15: Distribution of respondents according to their queries they do while buying open food**

|  |  |  |
| --- | --- | --- |
| **Checking of quality.** | **Frequency** | **Percentage (%)** |
| Freshness | 109 | 46.19% |
| Colour | 24 | 10.17% |
| Cleanliness | 46 | 19.49 |
| Smell | 20 | 8.47% |
| Don’t know | 27 | 11.44% |

\*Multiple responses

This table shows that 46.19% of respondents buy open food observing its freshness. 10.12% respondents observing its colour 4.24% respondents observing its price 19.49% respondents observing its cleanliness. 8.47% of respondents observing its smell.11.44% respondents don’t about checking food while buying open food.

**Table No – 16: Distribution of respondents about allowing to their children to eat chocolate, ice-cream, cheeps etc.**

|  |  |  |
| --- | --- | --- |
| **Answer of respondents** | **Frequency** | **Percentage (%)** |
| Yes | 82 | 46.59% |
| No | 27 | 15.34% |
| Don’t know | 67 | 38.07% |
| Total | 176 | 100% |

This table shows that 46.59% respondent allow their children to eat chocolate and ice-cream, 15.34% respondents said they do not allow and 38.07% respondents don’t know about it.

**Fig. No. :3. Distribution of respondents about allowing to their children to eat chocolate, ice-cream, cheeps etc.**

**Table No – 17: Distribution of respondents according to their knowledge about the harmful effect of adulteration food on children’s mental and physical development.**

|  |  |  |
| --- | --- | --- |
| **Response** | **Frequency** | **Percentage (%)** |
| Yes | 138 | 78.41% |
| No | 38 | 21.59% |
| Total | 176 | 100% |

This table shows that 78.41 if respondents has some knowledge about the harmful effects of adulterated foods on children’s mental and physical development and 21.59% respondents has no knowledge regarding it.

**Table No – 18: Distribution of respondent according to their knowledge about testing of iodized salt at home.**

|  |  |  |
| --- | --- | --- |
| **Response** | **Frequency** | **Percentage (%)** |
| Rightly known | 45 | 25.56% |
| Wrongly known | 12 | 6.82% |
| Not known | 119 | 67.62% |
| Total | 176 | 100% |

This table shows that 25.56% respondents has on accurate knowledge about testing of iodized salt at home, 6.82% respondents has a wrong knowledge and 67.62% respondents has no knowledge responding it.

**Table No – 19: Distribution of respondents according to their knowledge of inspecting fish either adulterated or not**

|  |  |  |
| --- | --- | --- |
| **Response** | **Frequency** | **Percentage (%)** |
| Rightly known | 82 | 46.59% |
| Wrongly known | 17 | 9.66% |
| Not known | 77 | 43.75% |
| Total | 176 | 100% |

This table shows that 46.59 respondents ha an according knowledge of inspecting fish either adulterated or not, 9.66% has a wrong knowledge and 43.75% , respondents has no knowledge regarding it.

**Fig. No. :4. Distribution of respondents according to their knowledge of inspecting fish either adulterated or not**

**Table No – 20: Distribution of respondents according to their action when they notified the food item is adulterated..**

|  |  |  |
| --- | --- | --- |
| **Action Taken** | **Frequency** | **Percentage (%)** |
| Inform the sanitary inspector | 7 | 3.89% |
| Throw away | 110 | 61.11% |
| Consume | 25 | 13.89% |
| Return to the Shopkeeper | 25 | 13.89 |
| Others | 13 | 7.22% |
| Total | 176 | 100% |

This table shows that 3.89% respondent inform the sanitary inspector, 61.11% respondent throw away, 13.89% respondent consume, 13.89% respondent return to the manufacturer, 7.22% respondent takes other precautions it the food id adulterated.

**Table No – 21: Distribution of respondents according to their knowledge about freeing of food from being adulterated.**

|  |  |  |
| --- | --- | --- |
| **Do people know the ways to make food free from adulteration** | **Frequency** | **Percentage (%)** |
| Yes | 67 | 38.07% |
| No | 109 | 61.93% |
| Total | 176 | 100% |

This table shows that about 38.07% know the way to make food free from adulteration whereas 61.93% doesn’t know the way to make food free from adulteration.

**Table No – 22: Distribution of respondents according to their methods to make the food free from adulteration.**

|  |  |  |
| --- | --- | --- |
| **Methods** | **Frequency** | **Percentage (%)** |
| By washing with hot water | 159 | 86.76% |
| By washing with salt and hot water | 9 | 13.24% |
| Others | 08 | 77% |
| Total | 176 | 100% |

This table shows that 86.76% respondent make food free from adulteration by washing with hot water, 13.24% respondent make food free from adulteration by washing with salt and hot water.

**Table No – 23: From where they gets information about food adulteration**

|  |  |  |
| --- | --- | --- |
| **Quality** | **Frequency** | **Percentage (%)** |
| Newspaper | 32 | 18.18% |
| Television | 149 | 84.65% |
| Radio | 10 | 5.68% |
| From known person | 54 | 30.68% |
| Others | 10 | 5.68% |

This table shows that 18.18% respondents get information about food adulteration from newspaper, 81.65% respondents from television, 5.68% respondents from radio, 30.68% respondents from known person, 5.68% from others.

**Fig. No. :5. From where they gets information about food adulteration**

**Table No – 24: Distribution of respondents according to the family member to be trained on to the procedure to prevent food adulteration**

|  |  |  |
| --- | --- | --- |
| Quality | Frequency | Percentage (%) |
| 1. Husband or male | 13 | 7.39% |
| 1. Wife or Female | 11 | 6.25% |
| 1. Both male and female | 138 | 78.41% |
| 1. Unknown | 4 | 9.66% |
| Total | 176 | 100% |

This table show that 7.39% husband or male should be made aware or trained about the procedure to prevent food adulteration, 6.25% wife or female should be made aware or trained about the procedure to prevent food adulteration, 78.41% both male and female should be made aware or trained about the procedure to prevent food adulteration, 9.66% are unknown about.

**Table No – 25: Distribution of respondents according to how you can make the children aware about food adulteration.**

|  |  |  |
| --- | --- | --- |
| **Quality** | **Frequency** | **Percentage (%)** |
| 1. Parents and relatives | 120 | 68.18% |
| 1. Teachers | 91 | 51.7% |
| 1. Others | 19 | 10.795% |

\*Multiple responses

This table shows that 68.18% of the respondents believe to aware the children through parents and relatives, 51.7% through teachers and 10.795% through others.

**DISCUSSION**

Food safety is an important public health issue. Day by day it is getting worst dimensions with various types of health impacts at all levels of the society. Underdeveloped and developing countries with low socio-economic condition and lack of education employing an alarming situation. This cross sectional descriptive study was carried out to have a idea about the knowledge and practice regarding food adulteration of rural people. Eighty eight respondents were interviewed.

**Socio-demographic information of the respondent**

In this study regarding the sex of the respondents, majority were female, 77.27%and only 22.73% were male. This may be due to the fact that we interviewed the respondents in evening time when the male were engaged in their daily activities outside their residence.

(Ref. Table No. – 1)

Regarding the age of the respondents 18.75% respondents were of the age group 18-22 years, 22.16% were of 23-27 years group, 21.03% were of 28-32 years group, 12.29% were of 33-37 years group and 38.06% aged 32 or more. It is seen that 44.32% respondents studied up to primary level, 22.16% up to SSC and 9.09% up to the level of HSC or above. (Ref. Table No. – 2 &3)

We recorded the occupations of the respondents and found 69.89% respondents were housewives, 2.27 % were service holders, 04.55% were businessmen, 06.25% farmer,10.23% were engaged in other occupations. 23.30% respondents spouse were house makers, farmer 17.61%, job holder 2.28%, business 17.61%, immigrants 5.68%, labourers 19.88% and 13.64% were engaged in other occupations.

In relation to numbers of total family members; 26.70 % families have 2- 4 members in their family, 43.75% have 5-7 and 29.55% have more than 7 members in their family. (Ref. Table No. – 4,5 &6)

Regarding the number of children the respondents have; 26.71 % respondents have no child, 30.11% respondents have (1-2) child, 31.25 % respondents have (3-4) children, and 11.93% respondents have 4 or more children. We also had an idea about the financial status of the respondents and found 36.93% respondents earn ≤ 5000 taka, 31.81% respondents earn 5001-10000 taka, earn 10001-15000taka and 15.92% respondents earn >15000 taka.So. Ref. Table No. –7& 8)

**Knowledge of the respondents regarding food adulteration**

34.66 % said that food is said to be adulterated when it is rotten, 19.89 % said by anything added which is harmful, by artificial color 18.75%. In a study conducted in 2006 in Dhaka city; among the respondents, 23% said rotten food, 19.89% said anything added which is harmful, 16% said substandard food, 15% said chemicals, 12% said artificial colour, did not know 13%. So, the knowledge found far better than the consumers of Dhaka city. It is to be mentioned here that the time gap is 10 years. So this improvement in knowledge may be due to the fact that for the last few years Government and different organisations are very much concerned in educating the people in this regard. (Table – 9)

Regarding common food items those are being adulterated; 13.64% respondents said it is oil, 60.23% said fish, 71.02% said vegetables, 64.20% said fruits, 14.20% said spices, 13.07% said milk, 17.05% said puffed rice, 5.68% said juice, 10.79% sweetmeat, 1.14% said Ghee, 2.27% common salt, 09.09% fast food, 18.18% bakery food , 01.14% have no idea and 03.41% said other food items. In this regard in the same study mentioned before conducted in 2006 in Dhaka city the respondents said; oil 43%, fish 33%, vegetables 31%, fruits 19%, spices 18%, milk 15%, puffed rice 9%, juice 7%, sweetmeat 6%, butter 3%, common salt 3%, fast food 2%, bakery food 1%, did not know 4%. Again the respondents showed better knowledge in our study findings might be due to the same reason mentioned earlier in the previous paragraph. (Ref. Table – 10)

Regarding the common food adulterants those are being used, the respondents said; 31.21% said adulterants are color, 11.93% said adulterants are urea, 73.86% said adulterants are formalin, 13.63% said adulterants are chemicals, 13.06% said adulterants are brick dust, 03.97% said adulterants are carbide, 8.52% said adulterants are water, 16.47% don’t know adulterant materials, 01.7% said other adulterants not in the list. In the study conducted in 2006 in Dhaka city mentioned earlier; among the respondents of Dhaka city said colour 40%, urea 22%, formalin 21%, chemicals 17%, brick dusts 2%, carbide 1%, sand 1%, water 1%, 11.37% don’t know adulterant materials, 01.14% mentioned other adulterants. This study shows that the respondents are more aware in much more numbers than of the Dhaka city in 2006 regarding formalin, chemicals, brick dust, sand, carbide etc. (Ref***.*** Table no.-11,12, Fig. – 1)

Fish adulteration is a worst concern in Bangladesh especially in cities. In this regard the respondents said that fish is adulterated with formalin 66.24%, with colour 9.9%, don’t know 23.86%. For vegetable with colour 7.38%, don’t know 43.18%; Fruits with Formalin 63.63%, colour 7.38%, don’t know 32.38%; Shutki with colour 3.40%, DDT 2.27% and don’t know 69.88%. Spices are costly and amongst the common items that are being adulterated. The respondents said Spice is adulterated with colour 9.65%, with wood dust 7.38%, with brick dust 45.45%, don’t know 42.04%. Knowledge about the deleterious effects of adulterated food. (Ref. Table –13)

**Steps taken by the respondents to avoid harmful effects of adulterated food.**

We saw the how consumers buy food items while adulteration is a common practice. It is revealed that 51.59% respondents buy packaged food observing whether data expired or not 16.67%, of respondent observing its quality of company , 7.14% of respondent check quality of packet 6.35% of respondent consider price 5.56% of respondent check seal of BSTI 3.96% check with previous experience, 8.73% have no idea of checking food while buying packaged food.

19.32% of respondents buy open foods observing its colour, 46.19% of respondents observing its freshness, 8.47% of respondents check its smell, 19.49% of respondents observe it’s cleanliness, 6.35% of respondents consider the price and 11.44% respondents have no idea of checking food while buying open foods. Children are very much vulnerable to food adulteration as bakery products are usually preferred by the children as tiffin in the school and as snakes in the home as well. More than third of the respondents; 46.59% said they allow fast food and bakery food to their children, 15.34% don’t allow. In this regard it is seen that 78.41% respondents know about the harmful effects of adulterated food on children’s mental and physical development and 21.59% respondents don’t know about the harmful effects of adulterated food on children’s mental and physical development.

(Ref. Table –14, 15, 16, 17)

Knowledge regarding testing of iodized salt found poor. Only 25.56% respondents know well about the testing of iodised salt, 6.82% respondents know wrongly about the test of iodised salt and 67.62% respondents don’t know about the test of iodised salt at all. About the knowledge of testing fish for formalin found poor too; 46.59% respondents know correctly, 9.66% know incorrectly, 43.75% don’t know at all. (Ref. Table –18, 19 & Fig. – 4)

Food safety requires consciousness of the consumers. But it is observed that 3.89% of the respondents inform sanitary inspector though 61.11% respondents throw these, 13.89% eat these, 13.89% return these, and 02.22% do other things. 38.07% know the way to make food free from adulteration whereas 61.93% doesn’t know the way to make food free from adulteration. 86.76% respondent make food free from adulteration by washing with hot water, 13.24% respondent make food free from adulteration by washing with salt and hot water.

Very few; 18.18% respondents got the information from Newspaper, from Television 84.65%, known person 30.68%, 5.68% from Radio and others 5.68%. (Ref. Table –20,21,22, 23 & Fig. – 5)

Awareness and education is essential to combat with food hazards. In this regard the respondent’s opinion is quite good. A very few numbers; 7.39% respondents said male should be educated, 6.25% said female, 9.66% respondents remain undecided but the majority’ 78.41% said both male and female should be taught. Children are the future of the nation. Besides food adulteration practice worsening day by day. We don’t know what shape it will take in future. So, we do not have option that to teach them adequately. In this regard 68.18% respondents said that the relatives should take responsibilities, 51.7% said school teachers and 10.79% said others should play the role. (Ref. Table – 24,25)

**CONCLUSION**

This study was conducted in a village of Golapgonj upazilla regarding the knowledge and practice of local people about Food adulteration. Study finding shows that most of the respondents were female. Their knowledge ware good about food items that are commonly adulterated, commonly used adulterants, harmful effects of adulterants, how to be confirmed if a food adulterated or not. But regarding effective action and practices about Food adulteration their responses was poor. Most of the respondents get informed about food adulteration from electronic media we hope that this study finding will help concerned authorities to take necessary measure about this public health issue

**RECOMMENDATIONS**

1. Sustainable development of mass awareness among people against the consequence of food adulteration on long term health effect.
2. Severe and exemplary punishment to the food contaminators. Life imprisonment or capital punishment may be considered depending upon the degree of offences and ultimate effect.
3. Strengthening food inspection service with skilled manpower and valid analytical instruments as well as proper enforcement of relevant laws in a sustainable manner.
4. Educating the primary- and secondary level students regarding the fatal impacts of food adulteration through academic curriculum.

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15. †fRvjhy³ Lvevi ¯^v‡¯’i wK wK ÿwZ Ki‡Z cv‡i?

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17. wK hvPvB K‡i †Lvjv Lvevi µq K‡ib?-- ZiZvRv †`‡L/is/ `vg/cwi®‹vi cwi”QbœZv/MÜ/Rvwb bv

18. wPcm, †Kvgj cvbxq, wbb¥gv‡bi PK‡jU, AvBmwµg ev”Pv‡K †L‡Z †`b?--K) nu¨v L) bv M) gv‡S g‡a¨

19. Gme Lvevi wkïi kvixwiK gvbwmK e„w×‡Z weNœ NUv‡Z cv‡i Rv‡bb wK?--K) nu¨v L) bv

20. jeY Av‡qvwWbhy³ wK bv evmvq cixÿv Ki‡Z cv‡ib?---- K) wVKfv‡e Rv‡bb L)fzj Rv‡bb M) Rv‡bb bv

21.gvQ †Kbvi mgq Zv digvwjb †`qv wK bv wKfv‡e eyS‡eb?---- K) wVKfv‡e Rv‡bb L) fyj Rv‡bb M) Rv‡bb bv

(PKP‡K fve \_v‡K bv, Pvc w`‡j k³ g‡b nq, dzjKv is ev`vgx-gqjv, MÜ )

22. Lvevi †fRvj hy³ g‡b n‡j wK K‡ib?-- m¨vwbUvix BÝ‡c±i‡K RvbvB/†d‡j w`B/LvB/†diZ †`B/Ab¨vb¨

23. Lvevi †fRvjgy³ Kivi c×wZ Rv‡bb wK bv? - n¨vu / bv

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25. †fRvj m¤úwK©Z Z\_¨ wKfv‡e †R‡b‡Qb?-- cwÎKv / †Uwjwfkb / †iwWI / cwiwPZ Rb / Ab¨vb¨

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