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Impacts of food adulteration in Nepal

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Abstract

This study analyzes the trend and impact of the food adulteration in Nepal under the explorative research design, qualitative and quantitative research method and average sampling on the basis of the theory of health behavior and production theory in order to find out the trend of food adulteration and its impact on health. Food adulteration is a sensitive challenge that may be harmful for human health. Explorative and descriptive research design with qualitative and quantitative method have been applied in this research because of its nature. This research has been based on secondary data although purposive sampling was used while conducting this research. Food adulteration has been classified into ten sectors in this study such as: adulteration in milk-based products; fats and oil. Fruit and vegetable products; species and condiments; Tea, coffee, cocas and their products; Salt; Cercal, Pulse and their products,; processed drinking water, Sweating agents, and Sweets and confectionary. The finding of this research indicates that food adulteration is a common practice in Nepal due to the negligence of apathy government that totally destroy human health. Out of the 10 types products, the more adulteration can be seen in medicine, species products and pulses. This study has concluded that the lack of proper control and monitoring of the authorized office and the negligence of people in awareness are the major problems of adulteration. This study moreover concluded that, this tendency of adulteration may destroy human health and ultimately damage the human life. The government should make the proper policy to monitor the food adulteration. The public should be aware with the production and its composition. customer should buy only labeled products.

Keywords: Food adulteration, health impact trend, harmful, illegal Acts

Introduction

Adulteration in a broad and legal sense is the debasement of any article. So, adulteration of food means substandard foods, which fails to comply with the definition of safe food by the Food and Agriculture Organization (FAO) and World Health Organization (WHO). Anyway, adulteration of food and food products can be unintentional and/or intentional. Unintentional adulteration includes naturally occurring substandard foods, due to lack of rainfall, drought, poor storage condition, etc. On the other hand, intentional adulteration is done with the intent to defraud or cheat the consumers. The addition of wheat flour to powdered ginger with enough capsicum to restore the pungency and enough curcuma to maintain the natural color is a typical example of intentional adulteration. This is also known as sophistication, which means no stone is left untouched to produce a food item which would probably look even better than a naturally grown/produced food and food products. This is more serious, which is affecting the health of our citizens, including much our innocent children. The problem of adulteration persists at every level of food from preparation to consumption. Most of the food manufacturers, processors, restaurant owners and so forth are all involved in one way or another in this unethical practice of adulteration. Foods are adulterated by using various harmful chemicals and toxic artificial colors. Rotten and perishables foods are stored, sold and served to consumers. Uses of poisonous chemicals in perishable foods are evident in highest degrees which are endangering the lives of the people (Derek, 2013).

Although Nepal, being a member of WTO, is bound to formulate and enforce sanitary and phytosanitary measures based upon the standards, guidelines and recommendations of Codex Alimentarius Commission, the International Animal health Organization (OIE) and the International Plant Protection Convention (IPPC) (WTO, 1995), the country is still not adopting all international standards and guidelines due to lack of adequate resources (Singh, 2005). Similarly, Hazard Analysis and Critical Control Point (HACCP) is still not mandatory for food producers, processor and handlers in Nepal (FAO, 2009).

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But the country is giving priority to review and reform existing legislation on food safety to comply with international regulations and standards (Jull, 2006).

Food adulteration is a growing menace that unscrupulous traders and manufacture all over the world indulge in to exploit gullible consumers to make quick and easy money. In all free market societies where legal control is poor or nonexistent with respect to monitoring of food quality by authorities, usage of adulterants is common and rampant. Every nation on earth has suffered cases of adulteration at one time or other. Government authorities with great efforts have succeeded in reducing the recurrent occurrences; but have not been able to eliminate it. Only an aware and an informed consumer will be able to eliminate it conclusively by continuous routine monitoring. The dictionary defines food adulteration as an act of intentionally debasing the quality of food offered for sale by either the admixture or substitution of inferior substances or by the removal of some valuable ingredient.

Review and Methodology

Literature review is the most important and essential part of any research in which researcher review different books article, magazine related to the title of the thesis. The researcher gets different idea and information related to his subject matter through literature review. The chapter will mainly discuss about general overview on food adulteration in Nepal.

Dhanvijya, Ambekar (2015) ^[1] in their article "Assessment of Student's Awareness About Food Adulteration" talks about the awareness. Food adulteration is a commonest malpractice and an age-old problem which causes serious effects on health of people. Food adulteration is harmful for human being so it is considered as a crime. In spite of strict measures against adulteration, it is still practiced just for profit putting human lives in danger. Globalization has great impact on food consumption, health and nutrition of young students. Students are responsible consumers and can play major role in prevention and detection of food adulteration. With this view the study was undertaken to assess student's awareness about common food adulterants. The study design was based on before and after evaluation. An educational program about food adulteration was designed and implemented. A questionnaire consisting of close ended questions was constructed and the responses were evaluated on a scale. The finding of the study revealed that the respondents before the educational program had less awareness about food adulteration which increased after the implementation of the program. The study concluded that an educational program had a positive effect to increase awareness of students about food adulteration.

Ghimire (2016) ^[4] in her article "Knowledge on Food Adulteration and Their effects on Health" talks about the food adulteration is the process in which the quality of food is lowered either by the addition of inferior quality material or by extraction of valuable ingredient. This study was centered to the food adulteration. The main objective of the study was to assess the Knowledge on Food Adulteration and their Effect on Health among the Tharu Community at Sundardulari Municipality Word No. 7 & 8. Her study was based on descriptive research design. For the purpose of the study only the primary data were used. 120 household were selected from the simple random sampling techniques and researcher collected the data from interview and analyzed

descriptively. At last finding and conclusion has been drawn and the researcher has recommended and suggested the points. This thesis was structured in five parts. First part dealt with the introduction of the title and its theoretical ground. Second part reviews the related literature of the relevant work. Third part dealt with the methodology of the study. Forth part dealt with analysis and interpretation of data fifth part dealt with summary. Finding conclusion and recommendations.

Lakshmi and *et al.* (2018) ^[5] in their article "Food Adulteration" have defined the food is adulterated to increase the quantity and make more profit. The food is sucked of its nutrients and the place where the food is grown is often contaminated. For example: Milk is mixed with water. Vanaspati is used as an adulterant for ghee. Ergot is used as an adulterant for cereals. Chalk-powder is used as an adulterant for flour. Chicory is used as an adulterant for coffee. Papaya seeds is used as an adulterant for pepper. Brick-powder is used as an adulterant for chilly-powder. tamarind seed powder is used as adulterant for coffee. wood powder is adulterated for turmeric and dhania powder. An adulterant is a chemical substance which should not be contained within other substances (e.g. food, beverages, and fuels) for legal or other reasons. The addition of adulterants is called adulteration. The word is appropriate only when the additions are unwanted by the recipient. Otherwise the expression would be food additive. Adulterants when used in illicit drugs are called cutting agents, while deliberate addition of toxic adulterants to food or other products for human consumption is known as poisoning.

Manasha and Janani (2016) ^[6] in their article "Food Adulteration and Its Problems (Intentional, Accidental and Natural Food Adulteration)" explain about three kinds of adulteration. They said that our land, the earth is blessed with various good foods. But most of the businessmen are normally adulterating the food. So, this is the major health critics for our people. This whole paper contains the matters regarding food adulteration and its problems with specific reference to intentional, accidental and natural food adulteration. Foods which are more likely to get adulterated are Olive oil, milk, honey, saffron, Orange juice, coffee and apple juice. The adulterated food bears or contains any "poisonous or deleterious substance" which may render it injurious to health. Food can be adulterated intentionally and accidentally. Unintentional adulteration is the result of ignorance or the lack of facilities to maintain food quality. So, the main thing is to screen before what we eat. Food colors, chemicals and additives often creep up not just in our local produce, but even in packaged products. Many legal enforcements are also taken by government to prevent food adulteration. In India, adulteration and contamination are encountered in food consumed at the household level, in the food service establishments and in business firms, and also when sold as street foods. Contamination of various mycotoxins, metals and pesticides in daily foods and milk has been found highly toxic and 70% of deaths are food-borne origin. Recently, during Deepawali festivals there was no dearth of news reports on the television and local newspapers on how the adulteration is being done by businessmen. Usage of new technologies like Genetically Managed, Nano-tech foods, functional foods are very much profitable and helpful for our food processing and food production. But, there includes various issues for our health also. So, while producing foods these should be kept in

mind by the producers to enforce the health of the human beings.

Preethi, and *et al.* (2014) ^[7], in their article “Adulterants and Substitutes of Foods and Herbs: A Review”, they try to explore the condition of adulterations. Adulteration in food is normally present in its most crude form; prohibited substances are either added or partly or wholly substituted. In India normally the contamination/adulteration in food is done either for financial gain or due to carelessness and lack in proper hygienic condition of processing, storing, transportation and marketing. This ultimately results that the consumer is either cheated or often become victim of diseases. Such type of adulteration is quite common in developing countries or backward countries. However, adequate precautions taken by the consumer at the time of purchase of such products can make him alert to avoid procurements of such food. It is equally important for the consumer to know the common adulterants and their effect on health. So the present paper deals with the list of adulterants that are added to food items and herbs.

Rahman and *et al.* (2015) ^[8] in their article “Food Adulteration: A Serious Public Health Concern in Bangladesh.” Studies the issues of adulteration in national level. Adulteration of foods has become a national issue. The problem is not only ignoring the human rights for safer food but also endangering public health seriously with numerous acute and chronic diseases. Our future generation will be seriously affected with vulnerable physical and mental growth inflicted by food adulteration. This paper describes the impact of consumption of adulterated foods on human health and the roles of the concerned authorities to eradicate it. The key objective of this paper is not to blame or undermine anyone. We intend to inform the current scenario of food adulteration and wish to bring a positive change through proper measures by the concerned regulatory authorities

Moreover Vasireddi (2013) ^[9] in his article “Food Adulteration & Control Mechanism” deals with the substance which should not be contained within other substance for example, food, beverage for legal or other reasons. The addition of adulterants is called adulteration that is harmful for health.

Vyralakshmi and Jayasheela (2017) ^[10] in their article “Food Adulteration and Contamination-A Catastrophe” talk about Indian practice of food adulteration. In Chennai, Tamil Nadu food were contaminated and adulterated which are consumed by the consumers a those-hold level, food service firms such as hotels, catering service, etc. and especially when the street food are consumed. Food coloring are done by using highly chemical mixed colors which are not permitted to use in food items which are not good for our health and it may lead to food-borne diseases. Contamination of mycotoxins, metals and pesticides in food items which we consume daily such as milk, rice, etc. which were found with highly toxic and carcinogenic. More number of people die every year due to food - borne diseases. In order to prevent such things, food safety

measures are prominent with an aim to prevent the consumers from health hazards and empowering the regulatory system. It is desirable to prevent adulteration and contamination of food items, if the consumers are aware of health hazards.

In the context of methodology of this research, explorative and descriptive research design with qualitative and quantitative method have been applied in this research because of its nature. This research has been based on secondary data although purposive sampling was used while conducting this research. Food adulteration has been classified into ten sectors in this study such as: adulteration in milk-based products; fats and oil. Fruit and vegetable products; species and condiments; Tea, coffee, cocas and their products; Salt; Cercal, Pulse and their products; processed drinking water, Sweating agents, and Sweets and confectionary. Statistical tool like: tables have been used in this research. Production theory and human behavioral theory have been applied in this research.

Result and Discussion

Health is the backbone of developed country. So that the development of a country depends upon health status, economy, public awareness, educational status, physical resources of the people and country. Among those factor health status and educational status is most important, that determined the knowledge, attitude and practice about any process of developing nation. Similarly behavior of eating food of any community is also determined by their levels of education awareness, socio economic status as well as availability of facilities and services. Health cannot be attained by the health sector alone people should realize their responsibilities for promote own health and community health as well drinking water, nutrition, environment, sanitation, economic condition and literacy rate work are the principle factors of inflecting directly for improve community health moreover, the control of eating is the major contributing factor for improvement of health.

Adulteration in Milk Products

Adulterant” means any material which is or could be employed for making the food unsafe or sub-standard or misbranded or containing extraneous matter; Milk adulteration is a social problem. It exists both in the backward and advanced countries. Consumption of adulterated milk causes serious health problems and a great concern to the food industry. A large number of research papers have been published on milk adulteration and detection, including some review papers. This paper tries to review from a different point of view. First it identifies different milk adulterants, methodologies adopted to adulterate the milk and the health hazards related to the adulteration. Then it provides different detection techniques for individual adulterant and a comprehensive study have been carried out on the detection technology by electrical means.

Table 1: Milk Production

S.N	Products	S.N.	Products
1	Milk	2	Cow Milk
3	Buffalo Milk	4	Ghee
5	Processed Milk	6	Evaporated Milk
7	Evaporated Skimmed Milk	8	Sweetened Condensed Milk
9	Skimmed Sweetened Condense Milk	10	Party Skimmed Sweetened Condensed Milk
11	Butter	12	Cream
13	Curd	14	Infant Milk Food
15	Infant Food	16	Whole Milk Powder
17	Skimmed Milk Powder	18	Pannier

This table shows that the list of milk products which has been illustrated in particular way. Most of the times, the adulteration is intentional to make greater profit, but sometimes it may be due to the lack of proper detecting technology and confusion regarding appropriate drug administration practices among the dairy firm workers. It is observed that after mastitis treatment of dairy animal there are traces of antibiotic residues in milk; and in absence of proper guideline about the lactation time and user friendly detector, often lactation is done in wrong time leading to antimicrobial residues in milk (if lactation performed early) or wastage of milk. Sometimes natural milk is adulterated with low value ingredient like water, whey etc. and is known as 'economic adulteration.' It is a very common practice by the milk supplier to add water or 'liquid-whey' to milk 9/10 to increase the volume 11 of milk. Diluted milk reduces its nutritional value, and contaminated water causes serious health problems.

Adulteration in Fats and Oil Products

Vegetable oils and fats have a big contribution in our diet as cooking or frying oil, salad oil or in food products

formulation. They are important from nutritional and economical point of views. Their authenticity is a serious issue since old time. Some edible oils and fats such as olive oil, cocoa butter and milk fat are so expensive which makes tempting to adulterate them with other lower price vegetable oils and fats to achieve more profit. The need for authentication is a necessity of the food industry. Today, adulterations are more sophisticated. Therefore, it is necessary to use advanced and suitable methods to detect adulteration. Adulteration can cause several problems in edible oils application and industry. To detect edible oils and fats adulteration, it is possible to use both major and minor components as detection tool. Since each oil and fat may have an especial component at a known level, their presence and amounts should be considered as a detection tool. This paper is a brief review on adulteration of edible oils and fats and their detection methods. Several methods have been used to check the purity of edible oils and fats. There is a necessity for food related organization to develop and utilize reliable methods to detect such adulterations, which can make consumers and markets more certain on authenticity and purity of edible oils and fats.

Table 2: Fats and Oil

S.N	Products	S.N.	Products
1	Mustard Oil	2	Imported rapeseed Oil
3	Soya been Oil	4	Palm Oil
5	Palm Kernel Oil	6	Palm olein
7	Groundnut Oil	8	Coconuts Oil
9	Sesame Oil	10	Corn oil or Maize Oil
11	Sunflower Oil	12	Olive Oil
13	Safflowers Oil	14	Refined Vegetable Oil
15	Hydrogenated Vegetable Oil	16	Bakery Shortening

This table shows that the list of Fats and oil-based products which are also touches in adulteration in different ways that definitely touches with health impact. Vegetable oils and fats (VOFs) have a big contribution in our diet as cooking or frying oil, salad oil or in food products formulation. Also, VOFs are so important by regard to economic point of view. Some VOFs have high price which is tempting for defrauders to adulterate them with less expensive oils and fats to get more profit.

Issue of vegetable oils adulteration is not a new problem and even in one given region or country (Jee, 2002). Usually, health problems may not be an issue in adulteration of VOFs, if edible expensive oil such as olive oil is admixed with less expensive edible one; however, it has been reported that adulteration of vegetable oils caused serious health problems in some cases like Spanish toxic oil syndrome or Spanish olive oil syndrome due to selling no edible rapeseed oil as an edible rapeseed oil and even as

olive oil. Another example is adulteration of mustard oil with poisonous argemone oil

Adulteration in Fruits and Vegetable Products

Adulteration use was first investigated in 1820 by the German chemist Frederick Accum, who identified many toxic metal cloning in food and drink. His work antagonized food suppliers and he was ultimately discredited by a scandal over his alleged mutilation of book "The royal institution library. The physician author Hill Hossal conducted extensive studies in the early 1850 which were published in the lancet and led to the 1860 food Adulteration Act and rather legislation. Adulteration of food is the mixing or substitution of and impure weaker. Cheaper or inferior, possible toxic substances to the food stuff which affect the quality of food. Food can be adulterated intentionally and accidentally. There are many causes of food adulteration. The cause of or food adulteration is to get more profit to increase

volume to trade by showing lower prize and the availability of too many product in the market. The list of fruits and vegetable products has been illustrated in this table.

Table 3: Fruits and Vegetable Products

S.N	Products	S.N.	Products
1	Fruit Juice	2	Tomato Juice
3	Fruit Syrup	4	Fruit Squash
5	Fruit Beverage	6	Tomato Sauce, Tomato Ketchup
7	Jam	8	Protein-Mix Jam
9	Marmalade	10	Chutney Sauce
11	Canned Fruit Cocktail	12	Canned Pineapple
13	Canned Orange Segment	14	Canned pears
15	Canned Lapse	16	Lapse Relish
17	Pickle		

This table shows that the list of fruit and vegetable products. Which is fruit juice, Tomato Juice, fruit Syrup, Fruit Squash, fruit beverage, tomato sauce, tomato ketchup, jam, protein-mix jam, marmalade, chutney sauce, canned fruit cocktail, canned pineapple, canned orange segment, canned pineapple, canned lapse, canned pears, canned Lapse, Lapse Relish and Pickle. The adulteration can be seen in these fruit and vegetable.

Adulteration in Species and Condiments

Spices are being used more than ever as consumers seek to reduce salt intake and expand their palates. In naturopathic

medicine, spices are sometimes used for their antimicrobial or therapeutic effects. Spices are high in value by weight, and are often sold in ground or powdered form, making them a prime target for substitution or alteration with low cost imitation products and fillers. The adulteration in species is a great problem for human health.

Table 4: Species and Condiments

S.N	Products	S.N.	Products
1	Cardamom Amomum	2	Cardamom Amomum Seeds
3	Cardamom Amomum Power	4	Dried Ginger
5	Dried Ginger Power	6	Turmeric
7	Turmeric Powder	8	cumin
9	Cumin powder	10	pepper
11	Pepper powder	12	Chilies
13	Chills powder	14	Coriander
15	Coriander Powder	16	Fenugreek
17	Cinnamon Whole	18	Ajowan
19	Whole Clove	20	Spice Powder
21	Cinnamon Powder	22	Fennel

This table shows that the list of species and condiments such as cardamom Amomum, cardamom amomum powder, cardamom amomum seeds, Dried ginger powder, Turmeric, Turmeric powder, cumin, cumin powder, pepper, popper powder, chilies, chills powder, coriander, coriander powder, fenugreek, cinnamon whole, Ajowan, whole clove, spice powder, cinnamon powder, fennel.

Table 5: Tea, Coffee, Cocas and Their Products

S.N	Products	S.N.	Products
1	Tea	2	Coffee
3	Roasted and Ground Coffee Powder	4	Soluble Instant Coffee Power

This table shows the list of products related to Tea, coffee, cocas and Roasted and Ground Coffee Powder, and Soluble Instant coffee power which are also the daily consumed beverages. Quite extensive adulterations of coffee have been practiced, but since stringent laws, national and state, have been enacted the evil is rapidly decreasing. One of the crude forms of adulteration which was found on the market many years ago was the fabrication of artificial beans, molded in the shape of coffee beans and colored to represent either the green bean or the roasted bean as the case might be. There was no difficulty in detecting these artificial beans when the mass was looked at carefully, as there were always differences which would be discriminatory. A person not expecting anything of the kind, however, might easily buy, without suspicion or without detection, coffee beans containing as high as 25 percent of these artificial bodies.

Table 6: Salt

S.N	Products	S.N.	Products
1	Common Salt	2	Iodized Salt
3	Rock Salt	4	Black Salt

This table definitely talks about the kinds of salts that also touches with the adulteration. Common salt this is also called as per the free Dictionary, is a crystalline compound, sodium chloride, NaCl, occurring chiefly as a mineral or a constituent of seawater, and used for seasoning food and as a preservative. any of a class of chemical compounds formed by neutralization of an acid by a base, a reaction in

which hydrogen atoms of the acid are replaced by cations supplied by the base.

Table 7: Cereal, Pulse and Their Products

S.N	Products	S.N.	Products
1	Food Grain	2	Whole wheat flour
3	Wheat Flour	4	Semolina
5	Bread	6	Biscuit
7	Noodles	8	Instant Noodles
9	Whole Green Gram	10	DE husked Split Green Gram
11	Split Green Gram	12	Red Gram
13	Whole black Gram	14	Split Black Gram
15	Whole Bengal Gram	16	Split Bengal Gram
17	Whole Lentil	18	DE husked Lentil
19	Bengal Gram Flour	20	Wheat
21	Maize	22	Fortified Flower of Wheat
23	Corn Flakes		

This table shows the list of Cereal, Pulse and Their Products which are food grain, whole wheat flower, wheat flour, semolina, bread, biscuit, noodles, instant noodles, whole green gram, DE husked split green gram, split green gram, split black gram, whole black gram, split Bengal gram, whole lentil, DE husked lentil, Bengal gram flour, wheat, maize, fortified flower of wheat, corn flakes.

The processed water such as mineral water, non-alcoholic beverage and carbonated water can't be free from adulteration in this unhealthy competition. on the other hand, Sweating agent such as: sugar, Honey, and Mishri are in the same manner. This table talks about the sweet and

confectionary which is relates with the sugar, boiled confectionary, lozenges, chewing gum and bubble gum. On the one hand, Adulteration is a substance detected in other products, such as food, meat, cosmetics, medicines, petrol or other chemicals, which affects the quality or effectiveness of that product. Food adulteration is very usual in developing countries. In the context of sweet, the producer may adulterate it with different elements.

Findings

In the context of Nepal, the adulteration is not only a social and commercial problems that attack to the human health but it is the optimum tendency of orphan market where apathy government cannot take any action on the favor of consumer. Nepali consumers are not so aware that they fall in understanding and believe others without recognizing. In this point, the whole seller and retailers also involve in the food adulteration. The major finding of this study was that the food adulteration is a common problem among Nepal market. And consumers are becoming the victims of the adulterer food. If the government will not take any action against food adulteration, Nepal market will be the place of full adulterated food and the health of Nepal people reached in to the oasis and vassal there.

Conclusion

Food should be without or only with acceptable and safe levels of adulterants, contaminants or any other substances that may make food hazardous to health. Also, such food can deprive nutrients essential for proper body growth and development (Majumdar, 2010). Therefore, health hazards related to foods and food products are considered to be a major problem particularly in developing and less-developed countries (WHO, 2007; FAO, 2011).

Recommendation

Refresher training program should be arranged for all the functionaries namely, food inspectors, local Authorities, food authorities, public analysis and chemist. There is an urgent needed of an organization to aware, support empower to people and these types of organization should also give emphasis to people counseling about the problems of food adulteration and their solution. We can being by take interest in the place from where we buy our food ingredients for example it is from a reputed shop or retails we need to check out. It is also necessary to talk regularly to the local community to check if people are falling sick after eating in a particular restaurant or food in gradients bought from a particular retailer.

Recommendation is one of the main parts of research work to initiate the program to launch is the selected area. It can play a great role to the concerned persons or authority and fro success of program. It also provides a way for further study and research.

Suggestion for Policy Level.

- It is better to avoid adulterated cool drinks, we should a take fresh fruit juice and tender coconut. Awareness is a key source of behavior modification of the people. In the study area. Awareness may be an impetus to modify the health behavior among the people.
- Parents should be concurred about the quality and freshness of these food articles like chocolate sweets that children usually like.

- Make sure that food packet carry 1st. Do not by food articles if expiry date is crossed. Take the help of food adulteration testing centers lodge complaints to the concerned authorities. If Adulteration is dictated.
- Refresher training program should be arranged for all the functionaries namely, food inspectors, local Authorities, food authorities, public analysis and chemist.
- Training program for consumer trades vendors and street food hawkers should be organized as a consumer education program. Radio and television program may be good source for people to be informed about health problem.
- Research seminar workshop etc. concerning to food adulteration should be conducted time to time in the community by government and other concerned sector to reduce the problem. There is an urgent needed of an organization to aware, support empower to people and these types of organization should also give emphasis to people counseling about the problems of food adulteration and their solution.

Recommendation for Practices Level

- We can being by take interest in the place from where we buy our food ingredients for example it is from a reputed shop or retails we need to check out. We need to check if the packing as in intact as also the expiry duet and the sources of the product.
- We should also create awareness in the local community on the ill effects of food adulteration so that when it happens the public knows sick help. It is also necessary to talk regularly to the local community to check if people are falling sick after eating in a particular restaurant or food in gradients bought from a particular retailer.

Recommendations for Further Researcher Level

- This study provides the general overview of knowledge and harmful effect of food adulteration but in depth the study concerning to this sector can be carried out in other parts of Nepal.
- This study was based on small size with careening small sample so this type of study can be conducted to large population size area to find out more information.
- This study convers a small area which can't represent all the areas of our country so further study in other areas of our country is essential in the future.

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References

1. Dhanvijya, Vaishali, Ravisha Ambekar. Assessment of Student's Awareness about Food Adulteration" International Journal of Informative & Futuristic Research. 2015, 2(7).
2. Food Safety and Standard Authority in India. Quick Test Some Adulterants in Food: Instruction Manuel Part II. Food Safety and Standard Authority in India, New Delhi India, 2012.
3. Food Safety and Standard Authority in India. Dart: Direct Adulteration with Rapid Test. Food Safety and Standard Authority in India, New Delhi, 2012.
4. Ghimire Sangita. Knowledge on Food Adultration and Their effects on Health Unpublished Master's Thesis, Tribhuvan University, Faculty of Education, Janata Multipal Campus, Department of Health Education, Itahari, Sunsari, Nepal, 2016.
5. Lakshmi, V *et al.* Food Adulteration. International Journal of Science Inventions Today. 2018, 1(2).
6. Manasha, S, M. Janani. Food Adulteration and Its Problems (Intentional, Accidental and Natural Food Adulteration)." IJRFM – International Journal of Research in Finance and marketing (Impact Factor- 5.861), 2016; 6(4).
7. Preethi P *et al.* Adulterants and Substitutes of Foods and Herbs: A Review International Journal of Medicinal Chemistry & Analysis. IJMCA. 2014; 4(4):213-217.
8. Rahman *et al.* Food Adulteration: A Serious Public Health Concern in Bangladesh. Bangladesh Pharmaceutical Journal. 2015; 18(1):1-7.
9. Vasireddi SP. Food Adulteration & Control Mechanism" At the Workshop on Food Defense Awareness for Food Business Operators and Exporters. VIMTA LABS, Hyderabad, 2013.
10. Vyralakshmi G, G Jayasheela. Food Adulteration and Contamination-A Catastrophe. IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT) e-ISSN: 2319-2402, p-ISSN: 2319-2399. 2017; 11(7):62-70. www.iosrjournals.org