UNKNOWINGLY ACCEPTING HEALTH HAZARDS IN DAILY ROUTINE LIFE
A SURVEY IN A SMALL TOWN OF MADHYA PRADESH

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Abstract
Studies highlights that printing ink from newspapers can easily get leached into foods wrapped or served in them and pose a health risk. The solvent used to dissolve ink on the paper can be potentially carcinogenic. People can be exposed to hazardous chemicals through the food they eat. Food contamination can occur if the food has come into contact with hazardous chemicals. Exposure to the chemical into or on your body can make you sick or cause adverse health effects. Adverse health effects are dependent on the factors of the exposure. Factors that play a part in whether or not adverse health effects may result from an exposure are the type of chemical, the amount or dose (the amount or level of a chemical a person was exposed to) the duration (how long did exposure occur), and the frequency (how many times the person was exposed). People respond to chemical exposure in different ways. Some people may be exposed to a chemical and not get sick. Other people may be more sensitive to chemicals and get sick more rapidly or have more severe reactions than others. Certain variables play a role in a person’s susceptibility to exposure and adverse health effects such as age, gender, genetics, pregnancy or other health conditions. This paper highlights through survey on two foods that a human being is accepting health hazards in his daily routine life. People are taking hazardous chemical unknowingly during eating of “Poha (flattened rice)” & “boiled eggs” serve on piece of newspaper. “Flattened rice,” known as “Poha” & the “Poha” is an unexpected, full-flavor, mildly spicy, fluffy rice full of different elements. It is both hearty and light at the same time, and amazingly satisfying. In Malwa region of Madhya Pradesh it is a very popular supplement food for breakfast and meal. In Malwa region in Canteen of small industries and every corner/square Poha is available in mid-size shop and on portable hand trolley/Gumi from early morning to late evening. People enjoy eating them when it is served in a piece torn from a newspaper during eating of “Poha” it also affects their health, when ink is also injected in human body in small quantity through the piece of newspaper. Small quantity of toxic chemical inject in human body on regularly basis may be harmful. Same is the case of “Boiled egg” when it is served in a piece of newspaper ink stick with hot boiled eggs and inject in human body along with egg. Surveyed in a small town “Dewas” of State Madhya Pradesh focused on two foods namely “Poha” and “Boiled Egg.” to find out how many people are accepting toxic chemical unknowingly during their routine life (working hours and in market) and what effects of these toxic chemical are in human body.

Keywords: Hazard, Toxic chemical, Newspaper, Printing ink

INTRODUCTION
There are many different forms of food packaging used today. For example, tuna and fruit cocktail can be stored in cans, turkey and butter can be stored in plastics and candy bars can be sealed in thin foils with a branded design made of ink. There are many other substrates used to store and preserve food in grocery stores. In fact, new studies have shown that commonly used substrates and inks used for food packaging may contain harmful chemicals which can lead to cancer and other serious health problems. Buying these products could be a risk and an unpleasant surprise to consumers. Food packaging might be harmful, but the health threat has not been proven serious enough to encourage manufacturers to change their packaging methods or for consumers to stop buying packaged foods. There could be a risk in overlooking this packaging issue and it should be taken more seriously. Some of the possible health risks could even be life threatening. (Jeffrey Daniel Stollenwerk 2012). The purpose of this study is to identify that how many people are exposing on daily basis unknowingly and inject harmful chemical. What are the probable steps should be taken to stop them for their awareness.

PROFILE OF SURVEY PLACE
The research of survey place Dewas is an ancient town situated on the Malwa plateau in the West-central part of Indian state of Madhya Pradesh, about 143 km south west from state capital, Bhopal and 35 km from Indore the commercial capital of Madhya Pradesh. As of 2011 India census, Dewas had a population of 2,89,438. Males constitute 52% of the population and females 48%. Dewas has an average literacy rate of 69%, higher than the national average of 59.5%. Male literacy is 77% and, female literacy is 61%. The district has an area 7,020 km², and population of Dewas district is 15,63,107 as per Census 2011.

Dewas has many large size, mid-sized and small industries. The largest companies include Tata International, Kirloskers Brothers Ltd., Arvind Mills, S Kumars, Tata - Cummins, Gajra Gears, Gabriel India Ltd, Ranbaxy Labs, Steel Tubes and the Bank Note press. (Census 2011)

LITERATURE REVIEW
Researchers report that newspaper ink contains toxic chemical, ingredients such as Naphthylamine, amoratic hydrocarbons and other aryl hydrocarbon receptor agonists that have multiple negative health effects. According to Josef Sutter, transfer of packaging constituents into foodstuffs must be minimized and components that may endanger human health must not be used in food packaging inks. During the production process, packaging materials are stacked or rolled onto a reel. This causes the printed side of the packaging to be in contact with the food contact side. This means there is a possibility of (invisible) transfer. This transfer is known as “invisible set-off”. These substances can transfer to the food once the packaging has been filled. (Josef Sutter et al. 2011), F.H. Mughal said, the hot oil in, say, pakoras, facilitates the seeping of chemicals from ink and paper into the food. The newspaper ink contains many hazardous chemicals which can trigger serious health problems. (F.H. Mughal 2014, Published in Dawn, Sunday Magazine, May 25th, 2014)

According to Food Acts 1983 and Regulation 35 of the Food
Hygiene Regulations 2009 whereby a food handler should handle food and use the utensils and food containers in such a way without directly touching them or do anything which could contaminate the food. According to P. Tucker, a scientific appraisal and review showed that the heavy metal contents of newspapers are highly unlikely to pose any environmental risk or to have any health implications(P. Tucker et al 1999). According to Kirk-Othmer, printing is widely used in our society to pass on information and to decorate objects. This has resulted in printing being used on many different surfaces ranging from aluminum cans and plastic bottles through to paper. Special inks have been developed for use in these different situations.

Printing inks are made of four basic components:

- **Pigments** - To colour the ink and make it opaque
- **Resins** - Which bind the ink together into a film and bind it to the printed surface
- **Solvents** - To make the ink flow so that it can be transferred to the printing surface
- **Additives** - Which alter the physical properties of the ink to suit different situations (Kirk-Othmer 1981)

Jeffrey Daniel said, one important part of maintaining a healthy diet is to look at the ingredients and nutritional information that make up foods. It is actually required by law, even at fast food restaurants, to include the ingredients and nutritional information so that people are not exposed to harmful substances in their food. These laws protect people from consuming unhealthy or unnatural foods. (Jeffrey Daniel Stollenwerk 2012)

According to Consultant of National Poison Centre, Dr T. Jayabalan" “The habit of using newspapers to soak the oil off fried food is unacceptable as those who consume such food will endanger their health”. He said it was a risky practice because chemicals in the ink might contain cancer-causing elements.”Solvents are used to dissolve the ink on newspapers. These solvents could be carcinogenic.”Consuming food which is mixed with these chemicals puts people at risk of getting serious chronic illnesses.”

Health director-general Datuk Dr. Noor Hisham Abdullah said among the conditions set was that newspaper was only allowed to be used as the second layer to wrap ready-to-eat food and not in direct contact with the food.

"The wrapping material like plastic sheet or banana leaf should be used as the first layer for wrapping food as it will protect the food from coming into direct contact with the newspaper used for wrapping,” he said in a statement, here, today.

He said newspaper as the second layer in wrapping food should also be handled in such a way to prevent the printing ink from contaminating the food.

For example, contamination can occur when the food handler's hands had earlier touched the newspaper and then the food".

He said all these matters came under Regulation 35 of the Food Hygiene Regulations 2009, whereby a food handler should handle food and use the utensils and food containers in such a way without directly touching them or do anything which could contaminate the food."Failure to adhere to this ruling is an offence and can be penalized with a fine or jailed for up to two years”.

Complaints against errant food operators or handlers can be made to the ministry through the State Health Department or nearest District Health Office, or the ministry’s Food Quality and Safety Division via http://fsq.moh.gov.my or www.facebook.com/bkkmhq.
Newspapers are printed all over with ink that is dissolved on it with the help of chemical solvents. Studies have shown that printing ink from newspapers can easily get leached into foods wrapped or served in them and pose a health risk. The solvent used to dissolve ink on the paper can be potentially carcinogenic. Recycled paper also has printing ink residues trapped from previous prints. These trapped residues have found to contain hormone disruptors like benzenophenones and mineral oils. They can interfere with reproductive cycle, especially in women.

One good example demonstrating the ill-effects of paper as the packaging material is the case of 2010, when a cereal company had to recall an entire batch of boxes coated with paper lining. The material had an increased level of methylnaphthalene which leached into the cereal and consumers reported digestive problems after eating the contaminated cereal. (Our Food: Packaging and Public Health. (www.ncbi.nlm.nih.gov)

The habit of using newspapers to soak the oil off fried food is unacceptable as those who consume such food will endanger their health, said National Poison Centre consultant Dr T. Jayabalan. He said it was a risky practice because chemicals in the ink might contain cancer-causing elements. “Solvents are used to dissolve the ink on newspapers. These solvents could be carcinogenic. “Consuming food which is mixed with these chemicals puts people at risk of getting serious chronic illnesses,” he said. Dr. Jayabalan was commenting on complaints by the public that some food sellers preferred to use newspapers to soak up excess grease from fried food before selling them to customers. Consumers Association of Penang president S.M. Mohd Idris said hawkers should be banned from using newspapers to absorb oil from fried food. “Local councils should make it a requirement that all hawkers be prohibited from such practices before granting them an operating licence,” he said. Mohd Idris said this move would help hawkers practice good hygiene and be more mindful of their customers’ health. He said hawkers and food operators should also stop using newspapers to wrap food covered with plastic sheets. “You may never know if the plastic sheets have holes in them. The food may still be contaminated with the ink on the newspaper and other chemicals,” he said. Mohd Idris said brown paper bags were a safer option to wrap food. Consultant Remy Jaafar, 55, said he was turned off when he saw a hawker selling keropoklekor (fish crackers) using newspapers to soak up the oil from the fried snacks. “When I told the hawker that it was an unhealthy practice, she merely glared at me. Needless to say, I’m not going to buy anything from her anymore,” said Remy from Ipoh.

When it comes to eating street food, we often spend a lot of time worrying about what’s in the food, but not enough time worrying about what the food is in. Be they bun kebabs, samosas or any other downtown snack, odds are that the food you buy from street vendors will be wrapped in a newspaper. The hot oil in, say, pakoras, facilitates the seeping of chemicals from ink and paper into the food. The newspaper ink contains many hazardous chemicals which can trigger serious health problems. (F.H. Mughal 2014, Published in Dawn, Sunday Magazine, May 25th, 2014)

**NEWSPAPERINK**

A number of different chemicals are used in producing newspaper ink, though the most prominent ingredient is typically soybean oil. This is called the “vehicle” in the ink and was previously usually made with petroleum oil, though recently has been made primarily with soybean oil. A number of other ingredients and chemicals are then added to this to produce the ink. These include dyes and pigments, which can be organic or inorganic in nature, as well as other additives such as paraffin or wax to help the newspaper ink dry faster. The other ingredients added prevent the soybean oil-based ink from being completely biodegradable, though it is somewhat easier to recycle than petroleum-based ink.

**WHAT IS TOXIC?**

Toxic materials are those that may release toxics or poisons in sufficient quantities to pose a substantial hazard to human health, according to the Environmental Protection Agency. According to The American Heritage Dictionary, toxic is defined as harmful, destructive, or deadly. According to manufacturer of newspaper ink’s it has moderate toxicity in if swallowed and can be harmful chronic effect for human health if intake daily even small quantity. (Keith L. Smith, Associate Vice President for Ag. Adm. and Director, Ohio State University (OSU) Fact Sheet, 700 Ackerman Road, Suite 235, Columbus, OH 43202-1578, CDFS (Community Development Fact Sheet)-122

Wrapping fried food in newspapers is a very unhealthy practice and its consumption is injurious to health, even if the food has been cooked hygienically. The reason is simple; the hot oil in, say, pakoras, facilitates the seeping of chemicals from ink and paper into the food. The newspaper ink contains many hazardous chemicals which can trigger serious health problems. Exposure to a class of organic chemicals called arylamines, such as benzidine, 2-Naphthylamine and 4-Aminobiphenyl, is associated with high risks of bladder and lung cancer. Apart from these, printing inks also contain colorants, pigments, binders, additives and photo-initiators (used for speeding up the drying process of the ink), which have harmful effects. There are literally thousands of ink chemicals and a majority of them can be dangerous for consumers. Newspapers are usually produced by a system called offset-web printing, which requires a certain consistency of the ink (it needs to be very thick) and a particular means of drying. For the former, mineral oils (petroleum-based) and solvents such as methanol, benzene and toluene are used; and for the latter, heavy metal (Cobalt)-based drying agents are used. None of these should be used in food packaging, as they are also classified as harmful and can be perilous for consumers’ health. Some offset printing ink formulations use vegetable oils rather than mineral oils; however, they have strong odours and should not be used in food packaging. Given the long-term risk from protracted exposure from an early age, the sale of such tainted foods to school children, a common sight in all our cities, must also be avoided and there is an urgent need to raise awareness on this issue. (Published in Dawn, Sunday Magazine, May 25th, 2014)

According to Senthil Kumar, Food safety and toxicology is of great concern on the global terms due to unfair trade practices in quality and quantity. Food contamination refers the occurrence of toxic chemicals and microbial pathogens which could produce negative health implications to the humans. The impact of chemicals on consumer health is often apparent only after prolonged exposure at low levels. Chemical contaminants present in foods are often unaffected by temperature used for cooking. The scientific and public deliberates over the safety of
chemical additives, contaminants, and adulterants, appearing in foodstuffs have been emphasized since long time. The common contaminants and food adulteration can be classified as intentional and non-intentional chemicals. The intentional category includes deliberately added chemicals like food additives and adulterant, the latter for the purpose of disguising inferior commodities and/or earning undue profits. The second group of non-intentional contaminants can come during production, processing, packaging and storage. From India, the group of non-intentional contaminants can come during inferior commodities and/or earning undue profits. The second group of non-intentional contaminants can come during production, processing, packaging and storage. From India, intentional and non-intentional chemicals. The intentional contaminants and food adulteration can be classified as food additives, contaminants, and adulterants, appearing in foodstuffs have been emphasized since long time. The common contaminants and food adulteration can be classified as intentional and non-intentional chemicals. The intentional category includes deliberately added chemicals like food additives and adulterant, the latter for the purpose of disguising inferior commodities and/or earning undue profits. The second group of non-intentional contaminants can come during production, processing, packaging and storage. From India, intentional and non-intentional chemicals. The intentional contaminants and food adulteration can be classified as

- Carrying home tea/coffee, hot curries which contains turmeric, alkaloids, spices, and oil fried dishes in plastic bags is very common in India.
- The deep fried or oven cooked meat (chicken, mutton and seafood), other vegetarian food been packed in aluminum foil with extreme hot conditions.
- Packing cooked food items directly in the used newspaper is most commonly seen practice. Besides, newspaper used as napkin in all parts of India.
- New environmental chemicals such as Perfluorinated Organic Chemicals (PFCs) been coated in Food wrapping materials and food cartons (e.g., wrapper paper and cartons for burgers, fried chicken etc.), becoming a new source of chemical intake in to young Indian generation. Several of foreign food units (e.g., fast foods such as burgers, sandwich, rolls, noodles/spaghetti, Chinese food, Arabian food), invade India and the youngsters desire to eat foreign food rather than the Indian traditional food.
- Nevertheless, many of Indian foods (e.g., street food, Dhaba, restaurant as well as homemade food) contaminated with several species of bacteria and pathogens. Most tragic thing is next to street food, the railway food in India is point of major concern. Indian railway stations and bus terminals can be considered to be a hot spot region of human waste matter and multiple pathogenic bacteria, virus and fungi. The food vendors in railways stations and bus terminals used to cook food in the early hours and pack them in aluminum foil or plastic bags or with paper cartons and sell even after 10-12 hours after cooking. The contamination of food is a major concern not only for developing countries but also for the entire world who adopt; selling (Senthil Kumar Kurunthachalam, 2013)

### Data Collection and Analysis

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<th>Table no.- 1 - Data collection - Survey Sheet at Town - Dewas, Madhya Pradesh</th>
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### Data Analysis

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<th>Total person/day eating &quot;Poha&quot; and &quot;Boiled eggs&quot; in piece of newspaper (Eating on Regular Basis)</th>
<th>Total person/day eating &quot;Poha&quot; and &quot;Boiled eggs&quot; in piece of newspaper (Eating on Occasionally Basis)</th>
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<td>2476</td>
<td>1421</td>
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CONCLUSION

On the basis of survey approximately 1.3% people of small town Dewas are taking unknowingly toxic chemical along with eating foods in piece of newspaper. This study only emphasis on two foods, there is more scope in Samosa & Kachori when people eat with liquid/chatani, same thing will happen. According to printing technology acts 1940, toxic chemicals are harmful for human & it give adverse effect on human body. It is also notable that most of the shop owner prefer newspaper pieces instead of paper plate/paper bowl because they are charging for “Poha”Rs.5 to 10 per plate & “Boiled egg” is Rs.5 to 7 per piece and they cannot afford the cost of paper plate/paper bowl/steel plate more over old newspaper (Raddi) is easily available at Rs.5 to 10 per Kg. The result of in taking toxic chemical they may suffer chronic diseases e.g. Cancer, skin diseases, stomach disorder, affects the Kidney function. While literacy level of this small town is 69%. But study shows that more awareness is required to prevent wrong habit of eating in a piece of news paper and government should also take some concrete steps to stop use of pieces of newspaper for eating food. Health and safety should also be a part of school curriculum like disaster management to make students /new generation aware of health hazards at root level.

REFERENCES


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