To study the cause and preventive measures of prolonged exposure to chemicals -A Case Study

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Abstract
People are continuously exposed exogenously or endogenously to varying amounts of chemicals that have been shown to have carcinogenic effect .The seemingly harmless everyday chemicals that we come across in our daily lives, while eating, cleaning or shopping, may come together in unexpected ways, causing a multitude of health hazards. Toxic chemicals are in our food, cosmetics, shampoos, clothes, furniture, books, magazines, plastics, paints, textiles, etc. are benign. Health risks posed by chemicals used in our everyday lives are not an entirely new issue. A study was conducted to evaluate the link between commonly encountered chemicals in shampoos, deos, perfumes, cigarattes, lipsticks like benzene, formaldehyde, chromium, lead, dioxane, coal tar etc and people awareness regarding the nature of chemicals. A survey regarding the daily usage of above said chemicals was conducted among the college students and corporate sector (working women) and it was analyzed that most of the users were unaware of the dangerous nature of chemicals in daily use products and their harmful effects on the health . Students were made aware regarding the use of organic produce whenever possible.

Key words: Toxic chemicals, Exposure, Analysis.

1. Introduction
The World Health Organization (WHO) recently projected that in 2020, cancer would overtake ischemic heart disease as the leading cause of death in the world. Environmental factors including tobacco smoke, nutrition, physical activity, and exposure to environmental carcinogens are estimated to be responsible for 75-80% of cancer diagnosis and death. About 6%of cancer deaths per year -- 34,000 deaths annually -- are directly linked to occupational and environmental exposures to known, specific carcinogens. People are exposed to trace amounts of many chemicals every day. These everyday exposures are usually too small to cause health problems. Exposure to chemicals in the outdoors, at home, and at work may add to your chances of getting cancer. Certain chemicals, including benzene, beryllium, asbestos, vinyl chloride, and arsenic are known human carcinogens, meaning they have been found to cause cancer in humans. A person's risk of developing cancer depends on how much, how long, how often, and when they are exposed to these chemicals. Chloroform, DDT, formaldehyde, and polychlorinated biphenyls (PCBs) are examples of possible human carcinogen. Getting cancer from a chemical depends on the kind of chemical you were exposed to, How much of the chemical you were in contact with, How long the contact lasted, How often you were exposed, Your general health. Other lifestyle choices that might affect your chances of getting cancer include a poor diet, lack of exercise, or heavy drinking.

2. Objectives
To assess exposure to chemicals, risky behaviour and associated preventive methods.

3. Method
The study took place in Jalandhar. Around 240people participated in the study. Most study participants were students, working women. A Structured question was used to collect information. The filling of the question was carried out after discussions of the objectives and advantage of the study to the respondants. The question are contained demographic characteristics on age, sex, occupation, exposure and its cause ,precise name of the chemical and its prevention .

4. Results
Table-1 Exposure to Chemicals

SOURCE	No.%
Cosmetics	65%
Food	80-90%
Plastics	>70%
Env Exposure	40-50%
Non Carcinogenic but harmful chemicals	Mixed response

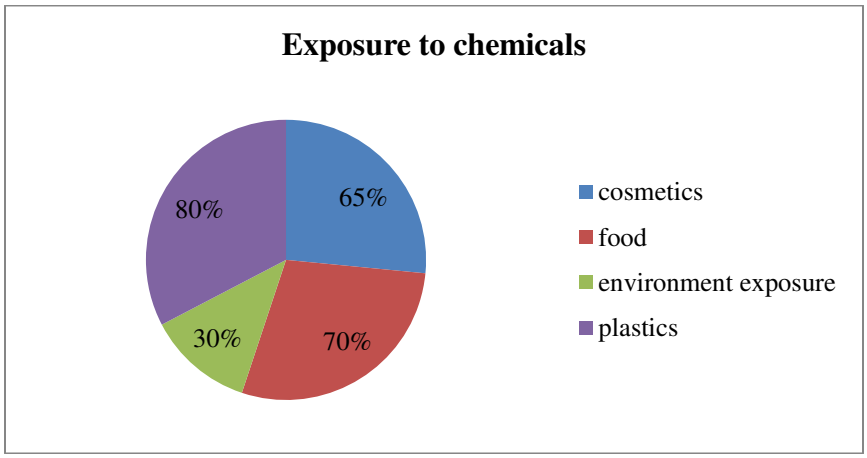


Table-2

Assessment of Risky Behaviour	Respondants
Chemicals on skin	40-50%
Smoking at the workplace	10-15%
Eating at the workplace	60-70%
Precautions at the workplace	10-20%

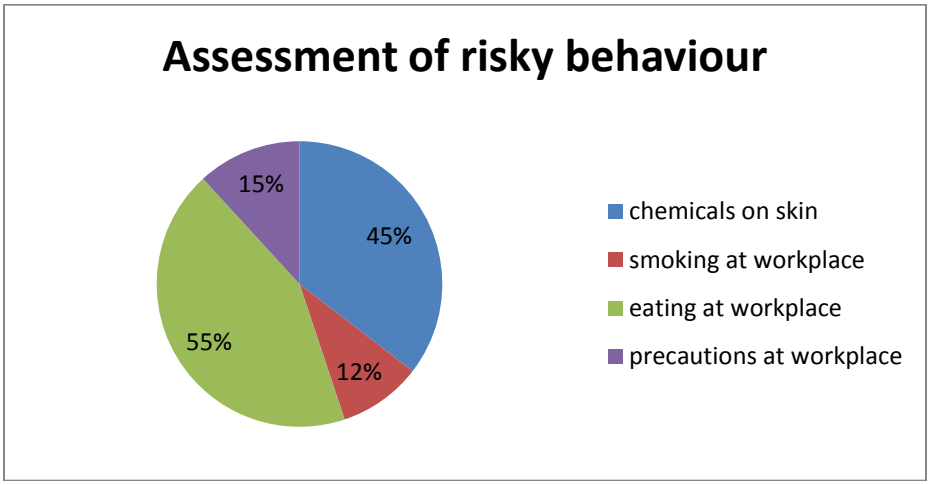
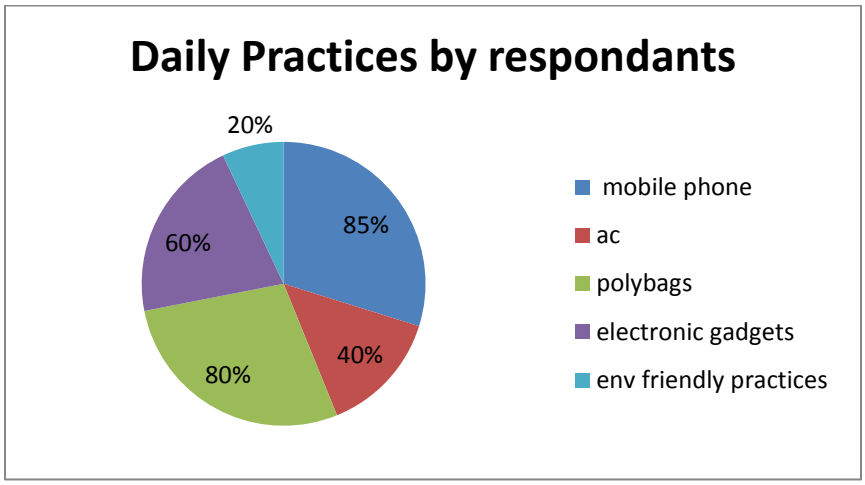


Table 3

Daily Practices by Respondents	**Duration of use**	**%No**
Use of Mobile Phone	4-6 hrs	80%
Use of AC	6-8 hrs	45%
Use of Polybags	Often	80-90%
Use of Electronic Gadgets	Often	>75%
Env. Friendly Practices	**N.C**	20%



5. Results and Discussion

Table1 shows the carcinogenic and non-carcinogenic chemicals the respondents were exposed to.
65% of the respondents use cosmetics like lipstick, shampoo, deos, perfumes, talcum powder, foundation, hair colouretc, without ever knowing the nature of chemicals.

Ingredients	4%
Packaging	15-20%
Advertising	45-50%
Pricing	40-50%

This proved that the advertising plays a major role in the mind set of the customers.

Table-2: Participants involving researches/students were using various chemicals like benzene, formaldehyde, acetone and performing many reactions like nitration, halogenations without the use of fume hood. The proportion of study sample was suggested to use of protective devices like use of hand gloves, laboratory coats, face caps, face masks, goggles, ear plugs and other protective clothing. Though everyday exposures to chemicals are usually too low to cause harmful health problems, exposure in the workplace can be more serious. Chemical exposures in the workplace can happen at high levels and over long periods of time. Smoking can cause cancers of the lung, mouth, throat, esophagus, pancreas, kidney, bladder, stomach.

Table-3: Respondents were questioned regarding the use of mobile phone, electronic gadgets, polybags and eco friendly practices they adopt in their routine life. The evidence from the occupational and environmental exposures mentioned above was similarly judged inadequate. The effect of survey was done after a fixed interval of time and the corresponding changes were observed in the behaviour of participants (mainly students and working women).They were found to be more aware regarding the use of chemicals in cosmetics, in food, in daily practices. Avoiding the use of polybags, plastics and adopting eco- friendly practices were found to be inculcated in them. It's just about impossible to avoid plastics altogether, but you *can* look for plastics that are safer for your family and the environment.

6. Discussion

The main responsible factors were a combination of urbanisation, industrialization, westernised life style, chronic health condition. The impact of life style and the environment on health is a growing area of concern in public health. The assessment of chemical exposure risky behaviours such as whether the subjects get the chemicals on their skin, smoke or eat at the workplace were poor.Individuals are capable of voluntarily reducing exposure to substances in diet but can't feasibly control their exposure to air, water and workplace pollution. Primary prevention will play an important role instead of waiting for the disease to occur. It was very difficult getting information from the study population except after long explanations of the advantage and objectives of the study. Even though, the small sample

size prevents the generalizations of findings to a larger population, this descriptive observational study has generated hypothesis that can be used for analytical case control and studies.

7. Conclusion

Sensitization campaign to increase awareness on health hazards of occupational and environmental exposures to chemicals was carried out in the end. Moreover Self regulating, Educating, Encouraging is the best way to solve the problem.

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