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A study on popular floor cleansers and their potential health risks

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Abstract

Cleansers and disinfectants are essential requisites for removal of offensive odour, dirt, contaminants and to provide sparkling clean looks. Various household cleaning products have been developed to facilitate the removal of dust and dirt, for surface maintenance and for disinfection of the home. These are the substances, usually liquid in nature that are used to remove the dirt, including dust, stains, bad smells and clutter on surfaces. A good cleansing agent must be effective in removing dirt and also in maintaining low levels of micro-organisms. Different methods of floors cleaning are followed in each household and accordingly the preference for cleanser varies. The present study was conducted to know the preference of floor cleansers among respondents, factor affecting and problems experienced and possible health risks while using these cleansers. The study was conducted on the residents of Punjab Agricultural University Campus, Ludhiana. College of Community Science and College of Basic Sciences and Humanities, Punjab Agricultural University, total of 120 respondents comprised the sample of study. Data were collected through personal interview with the help of interview schedule. The findings revealed that the majority of the respondent's i.e 82.50 per cent preferred Harpic, followed by Lysol (33.33%), Domex (23.33%) and Phenyl (21.67%). However, less than five per cent of the respondents also showed their preferences for Acid (3.33%), Mr. Muscle (1.67%) and homemade cleansers (4.16%). Cleansing efficiency, past experience, price and brand were considered at top priority by the respondents while selecting cleansers. The results regarding the problem experienced while using floor cleansers revealed that 25.00 per cent of respondents reported the problem of itching followed by 20.83 per cent who reported breathing problem, 16.67 per cent felt irritation in throat. Problem of red and rough skin was also reported by 12.5 per cent of the respondents and 4.16 per cent of the respondents complained that prolonged use of these synthetic products causes crack on skin particularly hands and feet.

Keywords: Commercial cleansers, health hazards, ecofriendly cleansers, disinfectant

Introduction

A beautifully constructed house needs proper care for clean, healthy and comfortable environment. The purpose of cleanliness includes removal of offensive odour and dirt/contaminants and to provide sparkling clean looks. Most household surfaces are "hard". and technically, household cleaning is "hard surface cleaning". which includes ceramic surfaces, marble, granite and stones etc. Among all these, ceramic and marble tiles are widely used in kitchens, bathrooms and for flooring. Regular cleaning of floors, especially kitchen and bathroom is required because without regular cleaning lime scale builds up on tiles and taps, mold grows in wet areas, toilets smells and cobwebs accumulate in the homes. The accumulation of the dirt and dust creates lots of health issues especially for children and old age persons. Now-a-days many synthetic and green tile cleansers are available in market to facilitate the removal of dust, dirt, and grease from surfaces and to maintain of cleanliness and disinfection of homes. Tile cleanser are usually liquid in nature which help in removing dirt, dust, stains, foul smell and clutter from the surface. But many of these contain strong chemicals and the continuous exposure to such chemicals may lead to various kinds of acute and chronic ailments right from allergic cold, skin irritation to serious diseases like bronchial asthma and cancer (IARC, 2010) [3]. Staff (2010) [6] reported that chlorinated phenols found in toilet bowl cleaners are toxic to respiratory and circulatory systems. Ethylene glycol found in window cleaners depresses the nervous system. Phenols found in disinfectants are toxic to respiratory and circulatory systems. Petroleum solvents in floor cleaners damage mucous membrane. Perchloroethylene, a spot remover causes liver and kidney damage. Butyl cello solve, common in all-purpose, window and other types of cleaners, damages bone marrow, the nervous system, kidneys and the liver. Therefore, one need to vigilant in selection and use of these cleansers.

Objectives

- To determine the most preferred utensils cleansers among selected respondents and factors affecting their selection
- To study the health problem experienced by the respondents while using these cleansers
- To make suggestions for safe use of commercial cleansers and better alternatives.

Material and Methods

The study was conducted on the residents of Punjab Agricultural University Campus, Ludhiana. College of Community Science and College of Basic Sciences and Humanities, Punjab Agricultural University, Ludhiana were purposively selected keeping in view the strength of female staff in both the colleges. Thirty respondents each from teaching faculty and non-teaching staff were selected from both the colleges. Thus a total of 120 respondents comprised the sample of study. Data were collected through personal interview with the help of interview schedule. The data were analyzed for meaningful interpretation using Simple percentages, frequency and mean score

Results and Discussion

Respondents’ preferences for commercially available floor cleansers

A variety of cleansers for cleaning floors are available in the market in form of soapy, synthetic and abrasive form. The data given in Table1 represent the preferences of respondents for different types of market available floor cleansers.

Table 1: Distribution of respondents according to their preferred cleanser for floor tiles

S. No	Floor cleanser	Frequency	Percentage
1.	Harpic	99	82.50
2.	Lysol	40	33.33
3.	Domex	34	23.33
4.	Phenyl	32	21.67
5.	Homemade cleansers	5	4.16
6.	Acid	4	3.33
7.	Mr. Muscle	2	1.67

*Multiple Responses

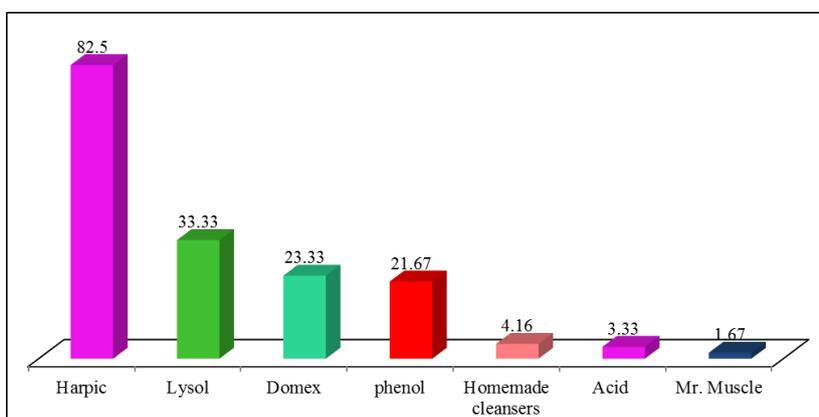


Fig 1: Distribution of respondents according to their preferred cleansers for floors

It is clear from the data in the Table 4.3 that majority of respondents 82.50 per cent preferred Harpic, followed by Lysol (33.33%), Domex (23.33%) and Phenyl (21.67%). However, less than five per cent of the respondents also showed their preferences for Acid (3.33%), Mr. Muscle (1.67%) and homemade cleansers (4.16%). The above findings are supported by the findings of Channalli and Jadhav (2017) [2] in which majority of homemakers shown their preferences for Lysol followed by Ozone, Domex and CIF cream lemon. The above findings corroborate with that of Dixit (2014) who also reported that the maximum percentage of respondents (96.60%) preferred commercial liquid cleansers for floor tiles and toilet bowl cleaning.

Factors affecting selection of cleansers

A large variety of cleansers are available in the market that calls for intelligent decision making on the part of the consumers as their decisions are result of their past experience with the product, price, availability, popularity, ingredients used, colour and odour of the product etc. The respondents were asked to rate various factors influencing their decision making while selecting cleansers for household use. A Likert type scale was used for this purpose and rating was done for responses using a score of 1 indicating not at all, 2 very little extent, 3 little extent, 4 great extent and 5 very great extent. The average score for each factor was then computed to

determine the index, which was then matched with its Likert rating. The results regarding factors affecting selection of a particular cleansing agent are presented in Table 2.

Table 2: Distribution of respondents according to the factors considered while selecting cleanser

(n=120)

Sr. No.	Factors	Mean score	Rank
1.	Cleansing efficiency	5.32	I
2.	Past experience	5.19	II
3.	Price	4.75	III
4.	Brand	4.24	IV
5.	Popularity/ advertisement	4.15	V
6.	Special offer	3.97	VIII
7.	Safe to use	3.45	VI
8.	Ingredients	3.36	VII
9.	Odour	2.63	IX
10.	Color	1.49	X
11.	Salesman’s advice	1.35	XI
12.	Packaging	1.20	XII

The findings clearly show that cleansing efficiency, past experience, price and brand were considered at top priority by the respondents while selecting cleansers as these factors obtained I, III, III and IV rank respectively. Advertisement of the product and special offer were also taken into consideration before buying the cleansers from the market.

However safety to use and ingredients of the products were given lesser importance. Colour, odour, packaging of the product and salesman advice were the least priority factors while selecting cleansers. Mwangi (2009) [5] in his study also found that efficacy, smell and product information were considered very influential for making choice for the

detergent by the respondents. In contrary above findings Thirumoorthy and Karthikeyan (2006) [7] found that the consumers were influenced by brand name, price, quality, availability, packaging, advertisements, etc. during the purchase decision.

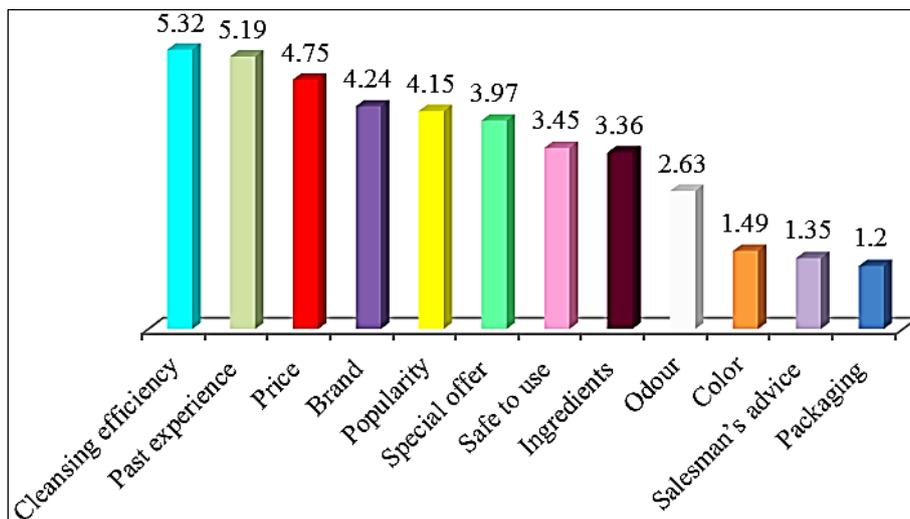


Fig 2: Factors affecting choices of consumers while selecting cleansers

Health risks experienced while working with cleansers

Cleanliness and hygiene has a strong cultural value and have utmost importance to women. Performing routine household-cleaning chores involves the use of variety of synthetic cleaning agents. Various occupational studies on health risks indicated that use of these chemicals poses serious threat to the health of the users in terms of eyes, skin and respiratory system. Women are more at risk due to their major role in household cleaning as a primary homemaker. During handling of such synthetic products including storage, use, and ignorance to precautionary measures affect women's exposure to these. In this section of the study post effects of cleansers were investigated by the researcher.

Health risks experienced after working with selected commercial floor cleansers

Health risks experienced after working with selected commercial floor cleansers are depicted in the Table 3.

Table 3: Distribution of respondents according to the health problems experienced after using floor cleanser (n=120)

Sr. No.	Type of problem	Commercial cleansers	
		Frequency	Percentage
1.	Itching	30	25.00
2.	Breathing problem	25	20.83
3.	Throat irritation	20	16.67
4.	Rashes	17	14.16
5.	Red & rough skin	15	12.50
6.	Cracks	5	4.16

*Multiple Responses

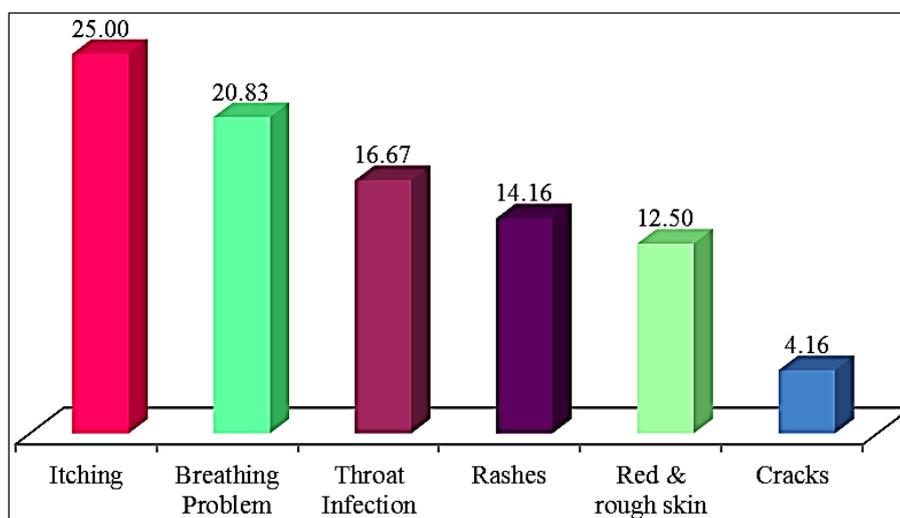


Fig 3: Distribution of respondents according to the health problems experienced while using floor cleansers

Table 3 contains data with respect to various health issues faced by the respondents while using floor cleansers. The data reveal that 25.00 per cent of respondents reported the problem of itching followed by 20.83 per cent who reported breathing problem, 16.67 per cent felt irritation in throat. Problem of red and rough skin was also reported by 12.5 per cent of the respondents and 4.16 per cent of the respondents complained that prolonged use of these synthetic products causes crack on skin particularly hands and feet. The finding of Marks (2009)^[4] also revealed that allergic reactions, headaches and respiratory problems were the common side-effects for some people using commercial cleaning products. So these should be used carefully.

Suggestions for better alternatives and wise use of cleansers

- Use organic and biodegradable ingredients such as lemon rind, borax, baking soda and tamarind juice should be preferred for utensils cleaning. To reduce health risks and environment pollution.
- To prepare cleansers at household level as these are easy to prepare besides being packet-friendly, health-friendly and eco-friendly.
- While purchasing cleansers, read the label carefully and use it according to direction given on package especially the direction for dilution ratios.
- To reduce packaging waste, chose bulk size and concentrated formula.

Conclusion

The findings of the present study revealed that the maximum percentage of respondents' i.e 82.50 per cent preferred Harpic, followed by Lysol (33.33%), Domex (23.33%) and Phenyl (21.67%). However, less than five per cent of the respondents also showed their preferences for Acid (3.33%), Mr. Muscle (1.67%) and homemade cleansers (4.16%). The findings clearly show that cleansing efficiency, past experience, price and brand were considered at top priority by the respondents while selecting cleansers as these factors obtained I, III, III and IV rank respectively. Advertisement of the product and special offer were also taken into consideration before buying the cleansers from the market. However safe to use and ingredients of the products were given importance. Colour, odour, packaging of the product and sales man's advice were the least priority factors while selecting cleansers. 25.00 per cent of respondents reported the problem of itching followed by 20.83 per cent who reported breathing problem, 16.67 per cent felt irritation in throat. Problem of red and rough skin was also reported by 12.5 per cent of the respondents and 4.16 per cent of the respondents complained that prolonged use of these synthetic products causes crack on skin particularly hands and feet. There are varieties of common household ingredients that can be used to keep our house clean and fresh. Because they are homemade products, and made from natural ingredients, they will not contain strong-smelling perfumes and chemicals. When we create our own cleansing mixtures, we control the chemicals we use. There are many inexpensive, easy-to-use natural alternatives which can safely be used in place of commercial household cleansing products. Borax, baking soda, vinegar and washing soda are some of the easily available natural products. These are safe alternatives that can clean/disinfect the surfaces and are much cheaper than the branded cleaners. Combinations of these basic products can provide less

harmful substitutions for many commercial products. In most cases they are also less expensive. The cleansing agents having such ingredients need to be evaluated and promoted for wide spread use.

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