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Brand Preference in Water Purifiers

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Abstract: Water purifier is necessary nowadays especially if underground water is used for drinking. Water purification is the process of removing undesirable chemicals, biological contaminants, suspended solids and gases from contaminated water. With the increasing demand for water purifiers from the health conscious consumers, companies like HUL, Tata, Eureka Forbes, Philips, Bajaj etc. have entered into the segment and have launched various brands of water purifiers. They vary in size, purification technology, prize, colour, patterns, usage etc. The present study aims at analyzing the brand preference of respondents towards various water purifiers available in the market. The study also focuses on the perception of consumer towards water purifiers, consumer awareness about different water purifier brands available in the market and their buying behavior of different water purifier brands.

Keywords: water purifier, reverse osmosis, sampling theorem.

I. INTRODUCTION

Water purifier is necessary nowadays especially if underground water is used for drinking. Water purification is the process of removing undesirable chemicals, biological contaminants, suspended solids and gases from contaminated water. The goal is to produce water fit for a specific purpose. Most water is purified for human consumption (drinking water), but water purification may also be designed for a variety of other purposes, including meeting the requirements of medical, pharmacological, chemical and industrial applications. In general the methods used include physical processes such as filtration, sedimentation, and distillation, biological processes such as slow sand filters or biologically active carbon, chemical processes such as flocculation and chlorination and the use of electromagnetic radiation such as ultraviolet light.

The purification process of water may reduce the concentration of particulate matter including suspended particles, parasites, bacteria, algae, viruses, fungi; and a range of dissolved and particulate material derived from the surfaces that water may have made contact with after falling as rain.

The standards for drinking water quality are typically set by governments or by international standards. These standards will typically set minimum and maximum concentrations of contaminants for the use that is to be made of the water.

It is not possible to tell whether water is of an appropriate quality by visual examination. Simple procedures such as boiling or the use of a household activated carbon filter are not sufficient for treating all the possible contaminants that may be present in water from an unknown source. Even natural spring water – considered safe for all practical purposes in the 19th century – must now be tested before determining what kind of treatment, if any, is needed. Chemical and microbiological analysis, while expensive, are the only way to obtain the information necessary for deciding on the appropriate method of purification.

According to a 2007 World Health Organization (WHO) report, 1.1 billion people lack access to an improved drinking water supply, 88 percent of the 4 billion annual cases of diarrheal disease are attributed to unsafe water and inadequate sanitation and hygiene, and 1.8 million people die from diarrheal diseases each year. The WHO estimates that 94 percent of these diarrheal cases are preventable through modifications to the environment, including access to safe water. Simple techniques for treating water at home, such as chlorination, filters, and solar disinfection, and storing it in safe containers could save a huge number of lives each year. Reducing deaths from waterborne diseases is a major public health goal in developing countries.

Water Purification Methods

Different water purifiers use different methods of purification, some have three purification stages and some five or more. A higher number of purification levels ensure cleaner drinking water. It's necessary to know about what each stage does and then choose the purifier you think is the best for your home.

A. Pre Filter Purification

A micron pre-filter is designed to remove silt, dust and dirt particles from the water before it enters the main filter of the unit.

B. Ultra-Violet (Uv) Filtration

Ultra filtration removes dissolved solids of and above the size 0.005-0.1 microns. It is capable of removing solids, bacteria and viruses.

C. Reverse Osmosis (RO) System

These systems get rid of disease bearing bacteria and viruses, and pollutants such as insecticides and cancerous dyes. They make hard water drinkable and are best for those living in coastal areas.

II. LITERATURE REVIEW

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Non electrical water purification system (WPS), comprised of a non woven sediment filter followed by activated carbon and disinfectant, was evaluated for chemical as well as microbial disinfection efficacy following the general guidelines of the United States Environmental Protection Agency Guide Standard and Protocol for Testing Microbiological Water Purifiers. The all selected water purifiers was challenged against bacteria i.e. waterborne pathogens including Escherichia coli 0157:H7. The WPS was tested for the removal/inactivation of challenge organism in separate 1500 litre of test periods under specific water quality, at the system's maximum recommended flow rate. For organism tested, microbial challenges were conducted over the course of the test period at 0, 50 and 100% of the system manufacturer's rated water treatment capacity. Microbial challenge consisted of 05 L of influent water containing approximately 10 bacterial cfu/ 100 mL.

Emmanuel K. Boon and Luc Hens Tribes and Tribals, Special Volume No. 1: 111-120 (2007)

This paper explores the link between water supply problems and traditional water purification knowledge and how this information could be applied to improve water supply situation and enhance sustainable development in rural communities. Questionnaires, focus group discussions and participatory approaches were used to capture information on the water supply situation in Singida rural district. The findings show that potable water supply coverage in the study area is less than 20% due to malfunctioning water schemes. About 95 to 100% of households in the study area obtain domestic water supply from rainwater reservoirs, 10–22% from boreholes and windmills and 20 to 60% use traditional wells. Up to 70% of women walk a distance of 6-7 kilometres to various water sources.

Alvaro E. Gil , Kevin M. Passino control for drinking water purification (2004)

The disinfection of raw water plays an important role in environmental engineering. In this document we overview several feedback controllers proposed by different authors to purify the water contained in water distribution systems. Several techniques to purify the water and the sensors needed as part of the whole system are presented to provide an overview of the component and processes encountered in water treatment plants.

III. RESEARCH DESIGN

In this study, a descriptive research design was used in to identify the factors influencing their brand preference of respondents towards water purifiers. Since most of data is qualitative in nature, the descriptive research method has been used.

Questionnaire Design:

The study is descriptive and mainly relies on the primary data. So with the objective of studying the brand preference towards water purifiers, the respondents were contacted with the predefined questionnaire which consists of the questions sufficient enough to collect information for achieving the objectives.

Nature and Sources of Data:

Primary data:

The primary data is the data is derived from a new or original research study and collected the questionnaire. In order to achieve the above set of objectives the researcher for collecting the data uses survey method.

In this project primary data is collected from common people through questionnaire.

Secondary data:

It refers to the statistical material which is not originated by the investigator himself but obtained from someone else's records, or when primary data is utilized for any other purpose at some subsequent enquiry it is termed as secondary data.

In this project, the secondary data were the details about various water purifier brands available in the market. It was collected from many water purifier companies' websites.

S.NO	VARIABLES	CATAGERY	RESPONDENTS	PERCENTAGE
1	Gender	Male	81	67
		Female	39	33
2	Age Group	20-30 YEARS	30	25
		31-40 YEARS	40	33
		41-50 YEARS	43	36
		Above 50 YEARS	7	6
3	Educational Qualification	Up to higher secondary	23	19
		Graduate	62	52
		Post graduate	30	25
		Others	5	4
4	Occupation	Government Employee	29	24
		Private employee	37	31

		Business	35	29
		Professionals	9	8
		Others	10	8
5	Annual income	Less than 1,50,000	12	10
		1,50,001-3,00,000	21	18
		3,00,000-5,00,000	59	49
		Above	28	23
6	Type of family	Nuclear family	89	74
		Joint family	31	26
7	No of member	Upto 2	15	13
		3-5	71	59
		Above 5	34	28
S.NO	VARIABLES	CATEGORY	RESPONDENTS	PERCENTAGE
1	Water Source	Municipal Water	47	39
		Bore well/Submersible	34	28
		Canned Water	37	31
		Hand pump	2	2
2	Quality of drinking water	Pure	55	46
		Impure and unhygienic	65	54
3	Reason to buy	Clean,healthy drinking water	28	23
		Bacteria & virus free water	25	21
		Protection from water borne diseases	67	56
4	Brand of water purifier	Aqua	36	30
		Pure it	47	39
		Kent RO	34	28
		Whirlpool	3	3
5	Price of water purifier	0-5000	3	2
		5001-10000	26	22
		10001-15000	89	74
		15001-20000	2	2
6	Type of purifier	Direct	50	42
		Storage	70	58
7	No. Of years usage	Less than one year	27	23
		Two years	60	50
		Three years	29	24
		More than three years	4	3
8	Know about your brand	Advertisement	32	28
		Marketing representatives	49	41
		Dealers	30	25
		others	7	6
9	What made to choose particular brand.	Brand image	29	24
		Price	37	31
		Design/elegance	54	45
10	Influenced to buy	self	28	23
		Family members	35	29
		Friends/relatives	57	48
11	Overall performance	Fully satisfied	26	22
		satisfied	83	69
		Less satisfied	11	9
12	Awareness about other brands	Fully aware	16	14
		Less aware	58	48
		unaware	46	38
13	Perception about water purifier brands.	Prefer to buy	29	24
		Technology may be inferior.	47	39
		Link price with quality	44	37
14	Income level influence buying behaviour.	Yes	59	49
		No	61	51
15	Recommend your brands to others.	yes	75	63
		No	45	37

Table1: Comparison of brands

BRANDS	BRAND		PRICE		DESIGN		TOTAL
	Observed frequency	Expected frequency	Observed frequency	Expected frequency	Observed frequency	Expected frequency	
Aqua guard	11	10	13	10	12	10	36
Pure it	11	10	21	10	15	10	47
Kent ro	7	10	18	10	9	10	34
Whirlpool ro	0	10	2	10	1	10	3
TOTAL	29		54		37		120

Table 2: Analysis table on different purifiers

BRANDS	SELF/FRIENDS		FAMILY		TOTAL
	Observed frequency	Expected frequency	Observed frequency	Expected frequency	
Aqua guard	31	15	5	15	36
Pure it	32	15	15	15	47
Kent ro	21	15	13	15	34
Whirlpool ro	12	15	2	15	3
TOTAL	96		35		120

Table 3: Relational Comparison on different purifiers

IV. CONCLUSIONS

Through water purifier have their presence in the market. Most of the consumers are using these purifiers nowadays. Despite of that some customers are hesitating to adopt these purifiers because of the problems they are facing earlier while using some other brands. So after the analyzing overall summary of this research, I would like to give few recommendations to these purifiers company. I hope this recommendation certainly is a great help of them.

- Companies should more focus on the after sale services and customer care facility.
- Companies should also focus more on the advertisement by using celebrity as it boosts their brand image as well as the scale by water purifier.
- Consumers are health conscious so companies must have to improve the purification quality of their purifiers.
- Purifiers companies have to look after the operational feature, design, price and performance of their products.

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