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Effects of medicinal plants treated potable water consumption among college going girls

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Abstract
Water is an inevitable part of life. Without water survival is not possible. Drinking water patterns are different among different people. Pure drinking water consumption is very much important as water is required for the body to carry out several functions and activities. But it is difficult to get potable water pure. Due to the industrial and chemical effluents, water sources are contaminated and the water consumption of such contaminated sources can lead to several water borne diseases. So people depend on several methods to purify water such as boiling and chlorinating. In Kerala most people believes that boiling is the best way to purify water as it is cheap, effective method for the purification of water. So while boiling these people tends to add several medicinal plants such as tulsi, fenugreek, pathimugham, cinnamon, coriander, triphala, coriander seeds, cumin seeds, green tea seeds, cloves, ginger etc. Each medicinal plant possesses its own properties and uses. They may help to prevent several diseases and also helps to purify water. The study was undertaken with the objectives the objectives were to find the water consumption pattern, treatment methods and its benefits. The study was conducted among sixty students, the major findings were that 72% used medicinal plants for treating water. They frequently used plants were tulsi, pathimugham, cinnamon, coriander seeds and green tea. Incidence of cough and cold reduced among users of medicinally treated water.

Keywords: Potable water, medicinal plants, water borne diseases

1. Introduction
According to WHO a minimum amount of two litres of water should be consumed by a person per day, that's about 8 glasses of water should be consumed by a person daily. Water is a major part of blood, lymph, plasma and all secretions and excretions (Srilakshmi, 2014) [4]. According to Darshan Sohi (2012) a minimum 6-8 glasses of water is recommended to keep one active that is about 2 litres of water per day. But the water we drink is mostly contaminated with impurities, which arises from different polluted sources. This had been a major cause of most communicable diseases. Without water survival is not possible. Water is more important than food since without food it is possible to live for 2to 3 days or about a week but it is difficult to survive without water for a single day. The incidences of communicable diseases are also a major problem nowadays. Several communicable diseases such as typhoid fever, diarrhoea, cholera, dysentery, cough and cold, viral fever, amoebiasis, E coli, dehydration, urinary calculi, constipation, urinary infection etc. Occurs due to the consumption of impure drinking water. These diseases can in turn affect the body very badly and even leads to death. So the quality of potable water must be ensured before drinking. There are numerous medicinal plants which possesses its own properties and uses. They may help to prevent several diseases and also helps to purify water. They possess certain antifungal, antiseptic and coagulant properties which can improve the quality of potable water, which in turn reduces the frequency of occurrence of communicable diseases. The study objectives were to find the water consumption pattern, treatment methods and its benefits.

2. Materials and Methods
The area selected for the study was Morning Star Home Science College, Angamaly. The study was conducted among college going girls. The area was a Semi urban area and was selected due to easy access. The sample was college going girls in the age group of 18-21 years. The sample was selected using random sampling technique.

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In random sampling method, each and every item in the population has an equal chance of inclusion in the sample has same probability of being selected. (Kothari 2001) [1]. The method used to collect information was Interview method. An interview schedule was planned and designed based on the objectives for collecting data. This method can be used through personal interviews and if possible through telephone interviews. (Kothari 2001) [1]. The personal interview method was adopted. The data collected were consolidated, tabulated, analysed, interpreted, and presented in the results.

3. Results and Discussions
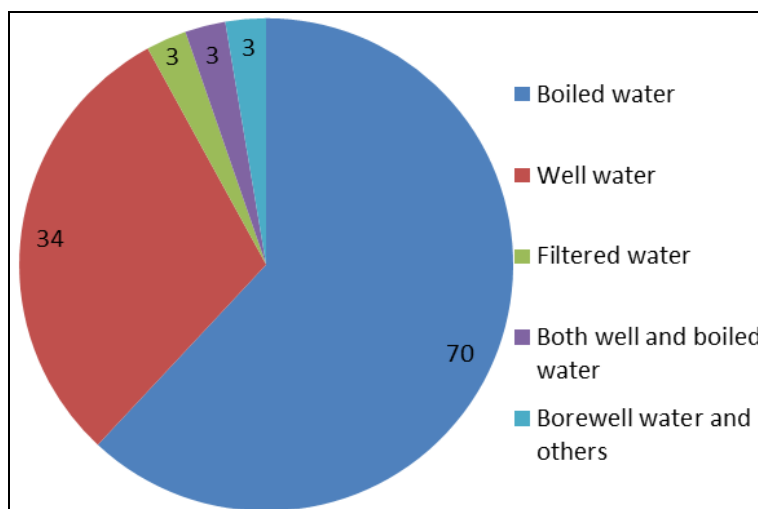The results of the study is furnished in following tables and figures

Fig 1: Sources for drinking water

The pie chart given above illustrates that 57% of the sample uses boiling water for drinking purpose. About 37% of the population used well water without boiling. While only 3% of people use both well and boiled water. Another 3% uses filtered water and the remaining 3% of the sample depends on bore well water or other water sources to meet their requirements.
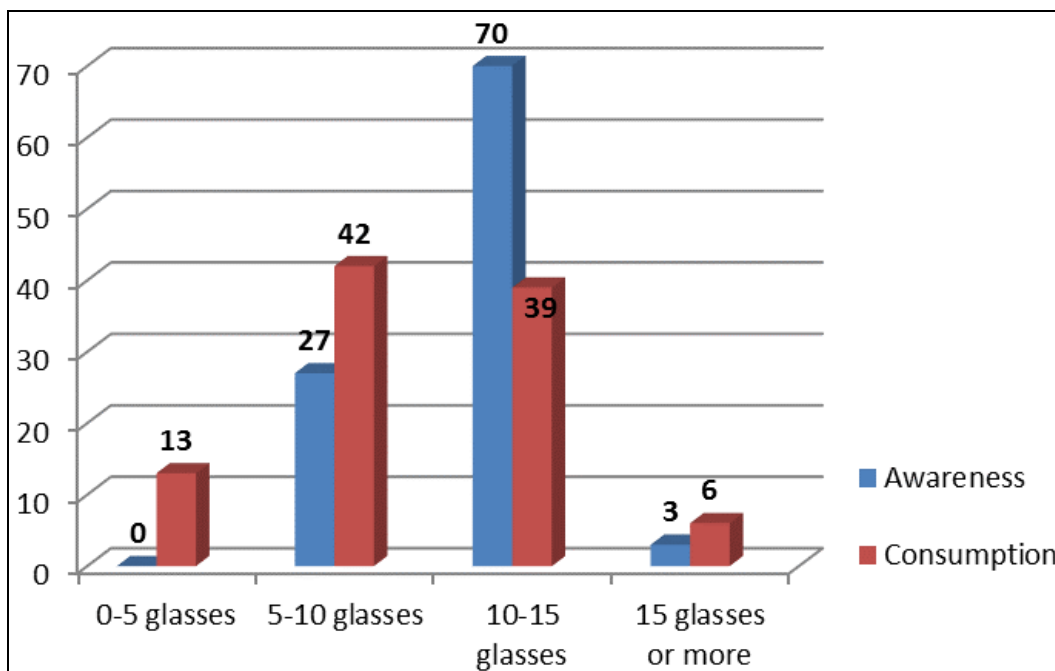

Fig 2: Awareness and consumption pattern of drinking water

The above graph illustrates the awareness and consumption pattern of drinking water of college going girls. About 70% of the sample is aware that 10-15 glasses of water are required for a person daily, and 27% of the sample estimates a requirement of about 5-10 glasses and the remaining 3% says that more than 15 glasses of water are required for a person daily. The actual value of drinking water required is 8 glasses of water, but only 27% of people are aware about it. The red color in the graph represents consumption pattern and blue color indicates awareness pattern.

The consumption pattern of college going girls is merely moderate. About 42% of people drinks about 5-10 glasses of water which is the accurate amount. And a proportion of about 39% of people consumes about 10-15 glasses of water. Out of the remaining sample 13% of people consumes less than 15 glasses of water and 6% drinks more than 15 glasses of water daily.
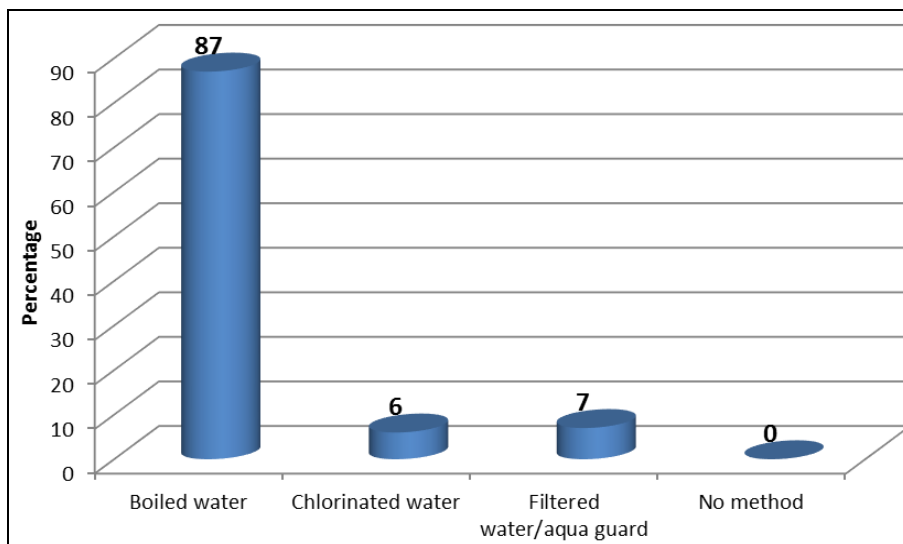
Fig 3: Measures adopted to purify water at home

In actual practice 87% of people in the sample adopt boiling method to make water suitable for drinking purpose and 6% depends on chlorination method and about 7% of the sample depends on filtration/aqua guard method for the purification of water.

Table 1: Types of medicinal plants used and its frequency of usage

Medicinal plants and herbs used.	Frequently		Occasionally		Rarely	
	N=60	Percentage	N=60	Percentage	N=60	Percentage
Tulsi	4	6.66	6	10	6	10
Fenugreek	0	0	4	6.66	0	0
Pathimugam	2	3.33	2	3.33	0	0
Cinnamon	2	3.33	0	0	0	0
Coriander	0	0	2	3.33	0	0
Triphala	0	0	1	1.6	0	0
Coriander seeds	2	3.33	2	1.6	2	3.33
Cumin seeds	1	1.6	2	3.33	2	3.33
Green tea	2	3.33	0	0	0	0
Cloves	0	0	0	0	2	3.33
Ginger	1	1.6	2	3.33	2	3.33
Others	2	3.33	1	1.6	2	3.33
1. Tulsi and ginger	2	3.33	1	1.6	0	0
2. Tulsi and pathimugam.	2	3.33	0	0	0	0
3. Tulsi, pathimugam, cumin seeds, ginger, Nutmeg leaves.	1	1.6	0	0	0	0

*Multiple responses

As the table indicates tulsi, fenugreek, pathimugam, cinnamon, coriander, triphala, coriander seeds, cumin seeds, green tea seeds, cloves, ginger, and others which include nutmeg leaves, barley and pepper leaves are common types of medicinal plants and herbs used in the treatment of water. Out of this tulsi is used widely and frequently followed by pathimugam and cumin seeds. A higher proportion of ginger and coriander seeds are used rarely. Triphala, cinnamon and cloves are not used widely when compared to others. Green tea seeds and coriander are use rarely.

Table 2: Incidence of communicable diseases among users of medicinal plants

Diseases	Frequently (%)	Occasionally (%)	Rarely (%)
Typhoid fever	0	0	0
Diarrhea	0	0	0
Cholera	0	0	0
Dysentery	0	0	0
Cough and cold	10	15.5	3.33
Viral fever	13.3	6.6	0
Amoebiasis	0	0	0
Ecoli	0	0	0
Dehydration	3.3	3.3	0
Urinary calculi	0	0	0
Constipation	3.3	0	0
Urinary infection	0	0	0

Incidences of viral fever were found to be frequent only among 13.3% and occasionally among 6.6%. While cough and fever was noticed frequently among 10%, occasionally among 15.5%. While dehydration and constipation was found among 3.3%.

4. Conclusion

As we all know, water is an incredible part of life. Without water, it is impossible to live. The water which is suitable for human consumption is called potable water. To make water fit for various drinking purposes people adopt different methods. Treatment of unpurified to make purified water is very much required. Untreated water can cause various diseases and health-related problems. Occurrence of water-borne diseases among the users of medically treated water is low when compared to others. In case of users of medically treated water cough, cold, viral fever, dehydration and constipation are the diseases which occur while the non-users are victims of most of the kinds of water-borne diseases.

5. Reference

1. Kothari CR. Research Methodology: Methods and Techniques. New Age International, 2001.
2. Sohi, Darshan. Nutrition and Therapeutic Diets. Jaypee Brothers Medical Publishers, 2012.
3. Sri Lakshmi B. Dietetics. 6th ed., New Age International Publishers, 2012.
4. Srilakshmi B. Nutrition Science. 4th ed., New Age International (P) Ltd, Publishers, 2014.
5. Hoffmann, David. Medical Herbalism: The Science and Practice of Herbal Medicine. Inner Traditions/Bear, 2003.
6. Chillemi, Stacey. How To Purify Drinking Water: Understanding The Importance Of Purifying Water and How Purified Water Can Keep You Healthy and Prevent Unwanted Illnesses and Diseases From Occurring. Lulu Press, Inc, 2012.