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Title: Advantages and Disadvantages of Commercially Prepared Mineral Water (CPMW) in a Hostel Campus

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Abstract: This study was performed in a hostel campus for a period of 6 months to compare the health status of those who regularly use mineral water and those who use it occasionally. The purpose of this particular study is to rule out the various effects and results of mineral water consumption in respect to kidney disease, body fluid status (hydration), electrolyte balance or imbalance in the bloodstream of mineral water users, and a few more parameters.

Introduction

Nowadays, the availability of safe drinking water is a little difficult; that is why the consumption of CPMW has increased, especially in hostel campuses, shopping centers, and during traveling, where tap water quality is mostly suboptimal. Generally, mineral water is to be used for its superlative health-related issues, as CPMW includes minerals like calcium, magnesium, and sodium. Here, we would focus on the long-term impact of CPMW on hostel residents, those who mostly utilize a large amount of CPMW because of ease and accessibility.

Objective: The purpose of this particular study is to rule out the various effects and results of mineral water consumption in respect to kidney disease, body fluid status (hydration), and electrolyte balance or imbalance in the bloodstream of mineral water users.

Literature Review Our current study provides an analysis of proper uses of CPMW in respect to generalized diseases & their effects on the population of those who are consuming CPMW versus the consumers of tap water. This 6-month comparative study helps us improve the adverse effects due to the consumption of CPMW. Because inappropriate and differential mannerisms of consuming minerals like calcium, magnesium, and sodium may cause hypertension, arthritis, blood disorders, etc. The literature exhibits a gap in research regarding the direct impact of CPMW in a hostel campus, where factors such as lifestyle, diet, and water consumption may vary.

Methodology

Study Design: This comparative study was conducted in a hostel campus where 200 hostellers voluntarily participated. The hostellers were divided into two categories: Category I (experimental group) consumed CPMW, Category II (control group) relied on hostel's filtered tap water.

Sample Population:

1. **Population size**: 200 hostellers (100 males and 100 females)
2. **Category I (CPMW)**: 100 hostellers who consumed only CPMW.
3. **Category II (Tap Water)**: 100 hostellers who consumed only filtered tap water.

Inclusion Criteria:

1. Healthy hostellers aged 18-25 years
2. No kidney or cardiovascular issues.
3. Residents of the hostel minimum of 6 months

Data Collection: Health parameters like hydration level, blood pressure level , kidney function & sodium levels were examined initially and finally after 6-months.

1. **Hydration Level**: Weekly Urine analysis
2. **Blood Pressure**: Weekly BP Monitor table.
3. **Kidney Function**: Monthly serum creatinine levels examinations.
4. **Sodium Levels**: Blood sodium concentration measured at the start and end.

Data Collection Tools:

1. Urine analysis for hydration levels
2. Sphygmomanometer for blood pressure monitoring
3. Blood samples for kidney function and sodium levels

Results and Data Analysis

Table 1: Population of Category I & Category II

Age Group	Category I (CPMW)	Category II (Tap Water):
18-20	40	44
21-23	30	28
24-25	30	28

Table 2: Measurement of Sodium Levels

Category	Initial Sodium Level (mg/L)	Final Sodium Level (mg/L)
Category I (CPMW)	140	170
Category II (Tap Water)	135	137

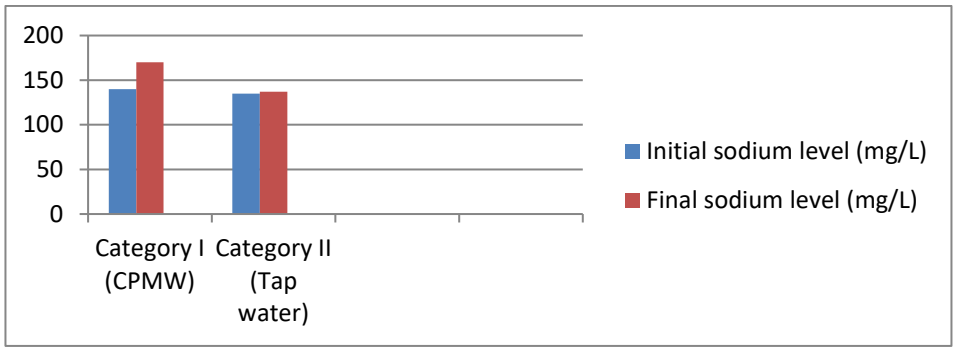
Table 3: Measurement of Blood Pressure

Category	Initial Blood Pressure (mmHg)	Final Blood Pressure (mmHg)
Category I (CPMW)	122/81	128/84
Category II (Tap Water)	121/82	120/80

Table 4: Kidney Function (Creatinine Levels)

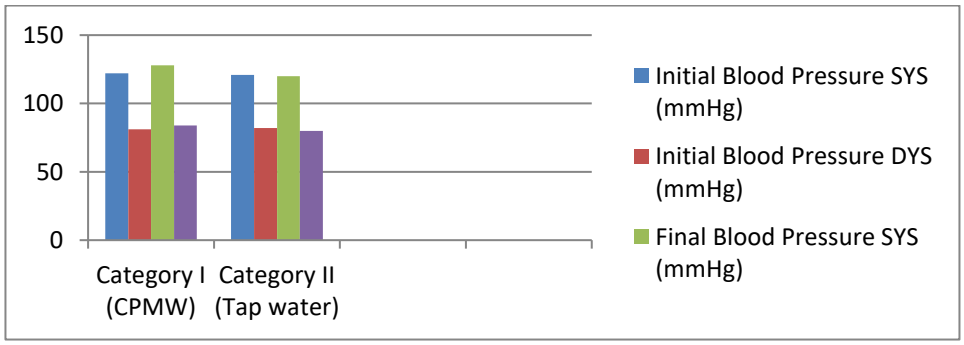
Category	Initial Creatinine Level (mg/dL)	Final Creatinine Level (mg/dL)
Category I (CPMW)	0.90	1.05
Category II (Tap Water)	0.78	0.89

Graph 1: Comparison of Sodium Levels



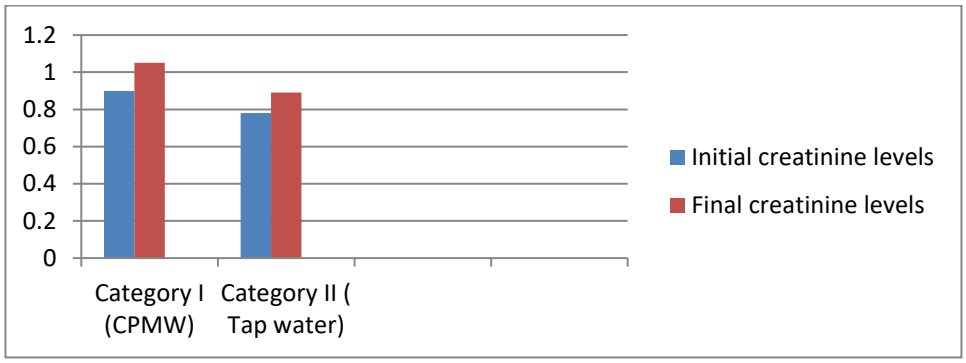
X-axis: Categories *Y-axis*: Sodium Levels (mg/L)
This graph suggests that the increased sodium intake from CPMW may contribute to higher sodium levels in the bloodstream, which can impact blood pressure and renal function.

Graph 2: Comparison of Blood Pressure



X-axis: Categories *Y-axis*: Blood Pressure (mmHg) SYS/DYS
This graph indicates that the sodium levels in CPMW may contribute to an increase in blood pressure, even in healthy hostellers.

Graph 3: Comparison of Kidney Function



X-axis: Categories *Y-axis*: Creatinine Level (mg/dL)
This graph represents the increase in creatinine levels among CPMW consumers and indicates a subtle disorder in kidney function over the six-month period due to higher sodium intake

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Result In our study, the above-mentioned graphs and tables of sodium levels, creatinine levels, and blood pressure levels represent higher sodium levels, creatinine levels, and high blood pressure for category I (CPMW), and category II population shows sodium levels, creatinine levels, and blood pressure levels within range.

Discussion This study exhibits that frequent consumption of CPMW may be beneficial for hydration and mineral intake, but long-term consumption of CPMW may have unintended side effects in relation to sodium levels. The increased sodium intake observed in category I may contribute to higher blood pressure, hypertension, issues related to kidney function over time, and myocardial diseases.

Conclusion This study highlights both the benefits and risks associated with consuming CPMW. However, it provides hydration and essential minerals; it may lead to elevated sodium levels, increased blood pressure, and potential kidney strain over time. Hostel residents should be educated about the importance of balanced consumption, particularly those with pre-existing health conditions. Further research with a larger sample size and extended duration is recommended to fully understand the long-term effects of CPMW consumption.

Recommendations & Suggestions

1. Hostel residents ought to limit their intake of CPMW to prevent excessive sodium consumption.

2. Regular blood pressure and kidney function tests are suggested for those who are consuming high levels of CPMW.

3. Dependence on CPMW in remote areas, particularly in hostels and universities, results in an increase in the amount of plastic waste. Hence, authorities should conduct awareness programs about the potential side effects of overconsumption of CPMW & sustainability methods.

References

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