



A CROSS SECTIONAL STUDY ON DRINKING WATER HABITS IN AN ELDERLY POPULATION OF AN URBAN AREA IN GOA

Geriatric Health

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ABSTRACT

Background: Water makes up around 55% in elderly and is essential to sustain life. There is evidence on adequate hydration being essential for maintenance of health in elderly. Hence, the present study was done to determine the drinking water habits of the elderly, the factors associated with inadequate water intake and the impact of this intake on the health status of these individuals. **Materials and Methods:** This cross-sectional study was conducted in 100 participants aged more than 60 years attending OPD at an Urban Health Training Centre of North Goa over a period of 2 months from November - December 2020. Data was collected using a pre-designed semi-structured questionnaire generated to know the sociodemographic profile, co-morbidities, water intake habits and health status of the individuals. Descriptive statistics was used to describe the data. Pearson Chi square test was used to study association between respective study variables. **Results:** Our study showed that 62.5% of participants who had water intake of less than 2 liters and 64.7% had water intake between 2 and 3 liters showed symptoms of inadequate water intake. This finding however was not found to be significant ($p=0.156$). Symptoms reported by the participants were body ache, gastritis, fatigue, headache and dry skin. A large majority of the participants (63%) felt that drinking water during meals is healthy whereas a sizeable number of them (47%) do not feel that drinking water 30 minutes or more before meals is healthy. A large majority (76%) of the participants believe that drinking water immediately after a heavy meal is healthy. **Conclusion:** From our results, we infer that there is a need to educate the geriatric population the importance of hydration, its recommended daily intake and the essential role it plays in homeostasis and elimination of waste.

KEYWORDS

hydration, dehydration, geriatric

INTRODUCTION

Since time immemorial, water has been an essential component for survival of man and its usefulness is varied and paramount.¹ Without water, human beings can survive only for a few days.² From over 70% of water composition during infancy to around 55% in the geriatric age group, water content differs greatly in the human body.^{3,4}

Apart from the effects of dehydration, we rarely focus on how less water intake can cause other symptoms such as fatigue, malaise and diseases such as renal calculi.^{3,6} Dehydration is also associated with negative emotional states such as hostility, irritability, anger and depressed mood.⁷⁻⁹ Hence, this study was conducted to study the drinking water habits of the elderly, the factors associated with inadequate water intake and the impact of this reduced intake on the health status of these individuals.

MATERIALS AND METHODS

A cross sectional study was conducted at an Urban Health Training Centre (UHTC) in North Goa from November to December 2020. The first 100 OPD attendees of the UHTC, were interviewed for the purpose of these study. All patients above the age of 60 years willing to participate in the study and willing to give consent were included in the study, whereas patients less than 60 years of age and those not willing to give consent were excluded.

The patients were interviewed using a pre-designed semi-structured questionnaire to know the sociodemographic profile, co-morbidities, water intake habits and health status of the individuals and symptoms suggestive of inadequate hydration status over the past 4 weeks. Patient information sheet and consent form was attached to the questionnaire.

Ethical approval was obtained from the Institutional Ethics Committee of Goa Medical College before commencement of the study. Data was entered in Microsoft Excel sheet and analyzed using IBM SPSS version 22 (Armonk, N.Y.). The categorical variables and proportions were represented by a percentage (%) along with 95% confidence interval (CI). Chi square test was used to find association between the variables and the patient data.

RESULTS

The present study was conducted among 100 OPD patients of a UHTC in North Goa which consisted of 47% males and 53% females. Majority of the participants (51%) belonged to age group of 61-70 years of age, 36% belonged to age group of 71-80 and a minority (13%) belonged to ages 81 and above.

As far as co-morbidities are concerned, 72 of them had Hypertension, 54 suffered from Type 2 Diabetes Mellitus, 32 were diagnosed with dyslipidemia, 12 with Ischemic heart disease and a small minority (02) suffered from Hypothyroidism. (Table 1)

Table 1: Distribution of study participants as per co-morbidities

Comorbidity	Frequency
Type 2 Diabetes Mellitus	54
Hypertension	72
Dyslipidemia	32
Ischemic Heart Disease	12
Hypothyroidism	02

Our study showed that 62.5% of participants who had water intake of less than 2 liters and 64.7% of the participants who had water intake between 2 and 3 liters showed symptoms of inadequate water intake. In contrast, only 38.9% of the participants with water intake of 3L or more suffered from symptoms of inadequate hydration. However, this finding was not found to be statistically significant ($p=0.156$). (Table 2)

Table 2: Association between levels of 24 hour water intake with symptoms suggestive of inadequate hydration among the study participants

Water Intake	Have symptomsn (%)	Do not have symptomsn (%)	Total n (%)
Less than 2 Liters	30 (62.5)	18 (37.5)	48 (100%)
2 to 3 Liters	22 (64.7%)	12 (35.3%)	34 (100%)
3 Liters or more	7 (38.9%)	11 (61.1%)	18 (100%)

$X^2=3.710$, $df=2$, p value = 0.156

Figure 1 shows symptoms suggestive of inadequate hydration reported by the participants suffered in the four weeks prior to the interview. The most common symptom reported was body ache (27) while a significant share (24) of the participants also complained of gastritis. A small group of participants (15) of them complained of fatigue and a minor group of participants (10) complained of headache. A minority suffered from dry skin.

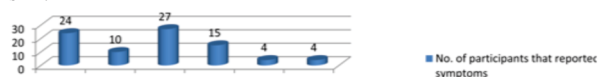


Figure 1: Figure showing symptoms suggestive of inadequate hydration among the study participants

Table 3 shows the perceptions of the study participants regarding drinking water habits. Nearly two-thirds of the study participants (63%) felt that drinking water during meals is healthy. Almost half (47%) of the patients do not feel that drinking water 30 minutes or more before meals is healthy. A large majority (76%) of the participants believe that drinking water immediately after a heavy meal is healthy.

Table 3: Perceptions of the study participants regarding drinking water habits.

Perceptions	Yes	No	Don't know
Drinking water during meals is healthy	63	30	7
Drinking water 30 mins or more before meals is healthy	24	47	29
Drinking water immediately after a heavy meal is healthy	76	10	14

DISCUSSION

Inadequate hydration can lead to a multitude of problems suggestive of ill-health. In a study conducted by Malisova et al, it was seen that women, had better hydration status than men. The author justified that it may reflect different levels of hydration, dietary and/or lifestyle choices between men and women.¹⁰ In contrast to the findings by Malisova et al, differences were also observed between sexes; wherein when compared to females, males recorded higher total water consumed from beverages and received higher calories from beverages ($p < 0.001$).

Our study findings were similar to a study conducted by Picetti D et al wherein about 56% of respondents reported consuming >6 glasses of fluid/day¹¹, whereas 9% reported drinking ≤ 3 glasses and study by Shaheen N et al wherein 47.3% participants reported drinking 4 to 7 glasses.¹²

Results comparable to our findings was seen in a study by Shaheen et al wherein symptoms of inadequate hydration were noticed with dry lips, thirst, dry tongue, being the most common symptoms followed by dry skin and decreased urination. The other symptoms like fatigue, lack of focus, headache, light headedness were less recognized as dehydration symptoms.¹²

In a study conducted by Picetti et al, dizziness (70%, $p < 0.05$), was the most commonly associated with dehydration. Also seen in that study was that many respondents were unaware that low blood pressure, fainting, increased heart rate, excessive sleepiness, seizures and even death could be a consequence of dehydration ($p < 0.05$).¹¹

Our study findings were comparable to a study conducted by Zizza et al wherein it was found that water intake from beverages consumed during meals did not vary significantly for the middle-aged ($p = 0.172$) or the oldest ($p = 0.057$) compared with the young-old participants. However, water intake from other beverages consumed during snacks was significantly lower for both the middle-aged ($p < 0.001$) and the oldest-old ($p < 0.001$) compared with the young-old.¹³

Since our study employed purposive sampling for selection of participants, selection bias may have affected the results.

CONCLUSION

From the results of this study, we infer that there is a need to educate the geriatric population regarding the importance of hydration status, its recommended daily intake and the essential role it plays in homeostasis and elimination of waste. This can be achieved with good doctor-patient interaction.

Sustained high levels of awareness about hydration practices should be maintained in the community with health education and integrated level of efforts at all levels of health care.

Conflict of Interest: None

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