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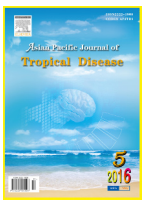

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Flatulence awareness among the masses and its affinity with daily foods along with anti-ulcerant drugs in Bangladesh

Moynul Hasan[1], Jannatul Ferdous[2], Mahmodul Islam[2*]

[1]*Department of Pharmacy, Jagannath University, Dhaka-1100, Bangladesh*

[2]*Department of Pharmacy, Dhaka International University, Banani, Dhaka-1213, Bangladesh*

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ABSTRACT

Objective: To specify the current status of consciousness about flatulence and identify the effect of food and medicine used in gastritis status on it.
Methods: It was an in-depth interview based qualitative analysis. A series of questions were asked to 300 individuals from 110 families about their food habit, knowledge about flatulence, possible cause, self-medication and course-completion of drug.
Results: About 99.99% of respondents took rice, fish and vegetables as their main course, and 90% had self-medication, but only 2%–3% maintained the proper dose of drug. About 30% took antacid and the rest was the type of proton pump inhibitor, anti-ulcerant drugs.
Conclusions: This survey reveals that a significant percentage of people are suffering from flatulence. Proper guidelines for taking medication and the avoidance of oily food and fiber rich diet may reduce its frequencies. Therefore, it is urgent to originate public cognizance and education on the cause and remedied issues through regular crusade.

1. Introduction

The excessive accumulation of air or gas in the stomach or intestines, expelled from the anus is called flatulence. By its very nature, it is a subject of acute personal embarrassment. On an average, about 0.7–1 L intestinal gas are produced by human every day[1,2]. Particularly colon, at gastrointestinal tract, is the main place where flatus is mostly acquired, as a spin-off of bacterial fermentation[2]. Experiments reveal that 99% of the volume of flatus is drawn up by non-smelly gases[3]. The major elements of intestinal gas are confirmed to be the odorless gases, oxygen, nitrogen, hydrogen, carbon dioxide and methane[4,5]. As an element of environmental air, nitrogen is not firmed in the gut. Thus, nitrogen comprises the most part of excessive intestinal gas in aerophagic patients[6]. Carbon dioxide, hydrogen and methane are all farmed in the gut and bestow 74% of the volume of flatus in normal subjects[7]. As hydrogen and methane are flammable, adequate amounts of these constituting flatus can be ignited[8]. For extending trace (< 1% volume), compounds are responsible for the smell in flatus. Previously, indole, skatole, ammonia and short chain fatty acids like compounds were thought to engender the smell of flatus. But recent experiments revealed that a combination of volatile sulfur compounds donates the major smell of flatus[3,9]. Even more, it is known that hydrogen sulfide, methyl mercaptan, dimethyl sulfide, dimethyl disulfide and dimethyl trisulfide are present in flatus. The benzopyrrole volatiles indole and skatole have a mothball smell, and therefore probably do not contribute greatly to the characteristic smell of flatus[10].

On the basis of the observation of tiny curved bacteria, both

*Corresponding author: Mahmodul Islam, Department of Pharmacy, Dhaka International University, Banani, Dhaka-1213, Bangladesh.
Tel: +8801824080725
E-mail: mmislam44@gmail.com
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human and veterinary pathologists have accounted for the bacterial infections in gastric mucosa[11,12]. Later, these beings were brushed aside as irrelevant contaminants. In the year of 1947, when gastroscopy was first used, Jankowski deemed gastritis as one of the most debated diseases of the human body and claimed that the bacteriological etiology of chronic gastritis has not been convincingly proved in a single case[13]. In 1984, Marshall and Warren proposed that chronic idiopathic gastritis had a bacterial cause (*Helicobacter pylori*) and their hypothesis was met with great skepticism. However, within a few years, the association between *Helicobacter pylori* gastritis, peptic ulcer and gastric cancer came to be acknowledged and ultimately accepted[14].

The 2010 Dietary Guidelines for Americans emphasizes the benefits of a plant-based diet for better health. These recommendations include the consumption of legumes, such as beans, several times per week. It is known that some types of food have greater flatulent potential than others. Studies have shown that food with a high fiber content produces increased amounts of intestinal gases. A direct relation between the volume of flatus and the volume of beans consumed exists. The gas accountable for increased flatus volume of beans is primarily carbon dioxide[15]. On the contrary, it is known that flatulence can be reduced by an increasing content of carbohydrate in the diet[16].

In Bangladesh, the issue of the effect of medication used against gastric state and food on flatulence has not previously been inquired. To assure the potential kinship between foods as well as gastritis with flatulence in Bangladesh, it is requisite to ascertain the extent of the medications that are prescribed in gastric state and food consumed by the people and their effects on flatulence. Moreover, if the antiulcerant treatment and food-induced flatulence are identified, it might be possible to reduce such embarrassing situation. Therefore, the objectives of the current study were to examine the impact of medication used against gastric state and food on flatulence among a certain age group of patients and to investigate patients' reasons associated factors.

2. Materials and methods

The work was a qualitative interview-based study, conducted in Manikganj, Dhaka, Bangladesh (geographical coordinates are 23°51'19" N, 90°0'45" E) during May to August, 2015. In accordance with the International Conference on Harmonization Good Clinical Practice guideline and the Declaration of Helsinki and its further amendments, the survey was conducted[17]. The study protocol was reviewed and approved by the Bangladesh Medical Research Council. A total of 300 peoples from 110 families belonging to the same district participated in this survey.

2.1. Selection and description of participants

Bengali-speaking individuals, having an age limit of 45 years old were the objectives. Since gastritis or the flatulence problem was mostly occurring after the age of 30, the participants were restricted to the age limit of above 45 years. The samples were obtained based on ergodicity in each step. The sampling constituted two-steps: firstly, a family was randomly selected under the district and secondly, a family member. In case of unavailability of the samples, he or she was substituted by another randomly selected person in the household or another randomly selected household. Here, wise selection was done to find out the number of family members, facing the flatulence or gastritis. Once the respondent was keyed out, an appointment was fixed to conduct the interview in their house.

2.2. Technical information

The intention of this study was cleared and a verbal consent form was issued by the participants, before the interview. A questionnaire (Table 1) was placed by the interviewer to the individual respondents and their answers contained data sheet were amassed. The questionnaire was made up into three distinct sections. The first section was asked for morphological and geographical data, including age, gender, ethnic group, educational level and monthly income *etc*. In the second and third sections, a series of questions with certain answer sets were used to ask about their diet plan, overweight, the intake of any snack *etc*. and medication used in gastric state, prescribing personnel, rational use and their possible effect on flatulence *etc*. respectively. Here, the predefined answer was set in such an order that the respondent reads all the possible answers for reducing the selection bias of the first displayed answer. The data were then quantified and all of the options given in the other category were identified and collated. Data collected from the participants were compiled and tabulated. The tabulated data were arranged as percent values for understanding and analyzed precisely to have a defined ratiocination. Here, personal interview was done in aid of better understanding of every required information and getting the most accurate data. Besides, according to the data collection, the research was observed that if the patients were taken the prescribed medicines on the exact time (before meal or after meal) as recommended in the prescriptions or if they have any idea about the importance of taking medicines on the exact time recommended.

2.3. Statistics

All the answered data of each question were coded individually and analyzed Using the SPSS version 21 for Windows (Chicago,