Normal bowel habits in a sample of healthy Iraqi population

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ABSTRACT

Background: Clinicians and investigators consider the normal range of bowel habit and frequency as between 3 to 21 motions per week. Stool frequency outside the normal range may be unusual but may not be abnormal in the sense of a disease, and according to the consistency, the normal stool ranges from porridge like to hard and pellety.

Objectives: To establish a basic data about the bowel habits (consistency and frequency) in a sample of healthy Iraqi population; in addition to learn about their definition of constipation and diarrhea.

Methods: Prospective study from Jan 2000- Jun 2000 at Al-Yarmouk teaching hospital, Baghdad. Questionnaires were distributed to 950 healthy persons of different age group .The questionnaire included: Detailed history of bowel habit with definitions of constipation and diarrhea

Results: Five hundred and eighty eight (588) person responded to the questionnaire: Five hundred and twenty three (523) (94.6.6%) of the respondents had a normal frequency 3-21/week. Four hundred and sixty nine (469) (84.4%) have a doughy (normal) consistency. Most of the respondents who have less frequent stool were females (5.9%), comparable to the predominant male gender in the frequent loose stool group (2%). More than seven percent (7.7%) of the respondents had bleeding per rectum once or more in their life, less than half of them sought the advice of the doctor. Increased "liquidity" was the main definition of diarrhea while "straining" was the main definition of constipation.

Conclusions: This study showed that, most of the studied populations have a rather normal frequency and consistency of stool. Those subjects with less frequent and pellet stool were mainly female compared to more frequent motion number in male gender and frequent increase in the liquidity. Blood was not always an alarming feature to seek medical advice.

Keywords: Bowel habit, frequency and consistency of stool.

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The range and pattern of bowel habits in the healthy people needs a sufficient study in order to have a good idea about the normal habits range. About 62% of the public believes that a bowel motion each day is necessary for good digestive health; well over $200 million are spent yearly on non-prescription laxative [1].The knowledge in our country is very limited on the normal bowel habits which stimulated this work.

Clinician and investigators sometimes consider the normal range of bowel habit and frequency as between 3 to 21 motions per week [1-3]. Stool frequency outside the normal range may be unusual but may not be abnormal in the sense of a disease [1]. And according to the consistency, the normal stool ranges from porridge like to hard and pellet [3].

People on the other hand are concerned with the ease of passage and consistency rather than stool number On an average day, 9 liters of fluid enters the gastrointestinal tract: 2 liters by direct ingestion, one liter as saliva, 2 liters gastric juice, 4 liters as biliary, pancreatic and small intestine secretions, on passage through the small intestine 4-5 liters of fluid is reabsorbed in the jejunum and 4-5 liters in the ileum[3]. Therefore approximately one liter of residual fluid enters the colon, where an additional 800 ml is reabsorbed before passage to the rectum and evacuation. Over all fluid excreted in the feces is approximat approximately 200 mg/day of a hard consistency [3, 4]. A variety of neural and non-neural mediators regulate colonic ion transport and motility but the precise mechanism is not well known [4].

Heaton et.al. mentioned in their study on a random sample, that the most common bowel habit was once daily, this was a minority practice in both sexes, a regular 24 hour cycle was apparent in only 40% of men and 33% of women[2]. Another 7% of men and 4% of women seemed to have a regular twice or thrice daily bowel habit [2]. A third of women defecated less often than daily and 1% once a weak or less. Stools at the constipated end of the scale were passed more often by women than men [2]. Age has little effect on bowel habit or stool type [2]. Normal stool types, defined as those least likely to evoke symptoms, accounted for only 56% of all stools in women and 61% in men. Most defecation occurred in the early morning and earlier found in men than in women. They concluded that conventionally normal bowel function is sensed by less than half of the population [2].

Roig-Vila *et. al.* studied the defecation habits in a normal working population in Valencia (Spain) [5]. They found that the average number of stools was 7.1 $\pm$ 3.3 per week, and 62.4% of subjects pass stool between the range of 5 and 8. Bowel movement was less frequent in women than in men, nevertheless there were no differences in regard to age. Although this survey had revealed that a normal function is very variable, only a 7.5% of the subjects consulted a doctor for bowel complaint [5].Tally *et. al.* from

Australia in a study aimed to determine the perceptions of diarrhea in the general population, the results showed that 3.5% reported their usual bowel pattern as diarrhea alone, whereas 9% reported alternating diarrhea and constipation[6]. Among subjects with self-reported diarrhea, loose or watery stools and urgency were the commonest diarrheal symptoms, whereas in those with an alternating bowel habit a feeling of incomplete evacuation was the most common diarrheal symptom [6]. On the other hand dey-Ab from New Delhi (India), stated in a review article that there was a wide variation in the population normal bowel habit, also there was no standard definition for the normal bowel habit [7].

Methods. The study was conducted at Al Yarmouk teaching hospital during the period between Jan. 2000 – Jun. 2000 , healthy visitors and companions of patients admitted to the different wards of the hospital were selected randomly for the questionnaire, we excluded any person with any history of abdominal surgical intervention ,chronic gatro-intestinal disease like ulcerative colitis or crohns disease and those on regular drugs intake for different reasons or those known to have any chronic general disease like diabetes mellitus was excluded.

Detailed information about the frequency and consistency of the bowel motion with the definition of the meaning of constipation and diarrhea answered by the respondents.

Statistical analysis was performed for the collected data and was presented in simple measures of mean, standard deviation, frequency, and percentage. Testing of the significance of difference was done using Chi-square test and 0.05 was used as the level of significance.

Results. Five hundred and fifty three (553) responded for the questionnaire concerned with bowel habits. They were 305females and 248 males, their age ranges from 10 years to 80 years.

Table 1 shows that out of the 248 male respondents, 221(89.1%) had normal consistency, 10 (4%) had loose stool, and 17 (6.9%) had hard pellet stool. Of the 305 female respondents, 248 (81.3%) had normal consistency, 8 (2.6%) had loose stool, and 49 (16.1%) hard pellet stool. Table 2 shows that out of 248 male respondents, 240 (96.8%) had their frequency fall in the accepted normal range, while 5 (2%) of them had more frequent motion than normal and 3 (1.2%) had less than 3 motions per week. However, 283 of the respondent females had accepted normal range of frequency and 4 (0.9%) had more than 21 motion per week and 18 (5.9%) had less than three motions per week.

Forty persons (7.7%) of the total reported blood in their stool, thirteen subjects (32.5%) of them had hard stool, while in 3 (7.5%) the stool was in liquid form, 23 (60%) had normal (doughy) stool type. Those who visited the doctor were 16 (40%), 6 from the total had hard consistency, 2 (5%) were liquid, 8 (20%) were normal consistency, those 24 (60%) who did not visit the doctor had normal consistency. As regard the definition of diarrhea 214 (38.6%) of the respondents defined it as an increased liquidity, followed by 88 (15.9%) considered increased frequency as diarrhea, then by 68 (12.3%) defined it as both increased frequency and liquidity and 42 (7.6%) as abdominal pain only, while constipation defined by 186 (33.6%) as difficulty in defecation (straining), 85 (15.4%) defined by hard stool, while straining with hard stool defined by 57 (10.3%) subjects and 19(3.5%) defined it as abdominal pain and hard stool.

Discussion. There are wide variations in normal bowel habit and there is no standard definition, however clinicians agree that the frequency is between 3-21 motions /week and the consistency is from porridge like to pellety. Table 1 demonstrates different consistencies in relation to gender where eighty four percent (84.8%) of the total had doughy consistency, equally distributed in both sexes. This is similar to Heaton's study that he reported (60%) of the surveyed population to have normal consistency, again it is equally distributed between both genders [(2)].Table 2 shows the frequency of defecation in relation to gender, where more than ninety four percent (94.6%) had normal range of moton (3-21 motion/ week), which is equally divided between male and female. However, there is a significant difference between both sexes when we compare the bilateral extremes. In frequency we find that (5.9%) of females had frequency of less than (3 motion / week) compared to only (1.2%) of male gender (P = 0.000001), and (14.8%) of female had less than 1 motion a day compared to (6%) of male. Similarly Heaton *et. al.* in their study of the East Bristol population found that clear gender related differences in the bowel habit in the rate of less than once daily bowel motion [2]. A consistent observation reported by Hammond *et. al.* who presented their findings on physical complaints from a prospective study of 1,064,004 men and women who were surveyed by American cancer society volunteers [1]. In the youngest age stratum (30-34 year), more than twelve percent (12.5%) of the men and (27.9%) of the women reported "constipation". Women were more likely to report constipation than men, the differences in bowel function may not be fully explained by gender differences in reporting their complain, there are physiologic studies that suggest a possible role for hormonal factors [8 - 12]. Increased "liquidity" alone is the most common definition of diarrhea (38%), then frequency alone (15.9%), then both increased frequency and liquidity of the stool (12.3%), similarly Sandler reported the same distribution of definition by the population being in increased liquidity of stool (84%) then frequency (26%) [1].

Also the definition of constipation is commonly defined as "straining" which is the most common definition used by the studied group (33.6%) then increased hardness of stool (15.3%), then both straining and abdominal pain (3.2%), again this is similar to the distribution of definitions of constipation reported by Sandler (52%) for straining, (44%) for hard stool [1]. Straining in our study group is used by over 56.8% of the definitions either alone or with other complain (hard stool , abdominal pain).

Lastly, we found twenty four persons from forty (24/40 person) (60%) of those having blood in their stool had a normal "doughy" consistency of stool, only one third of them (with normal bowel motion) visited the doctor and (32.5%) had hard stool, half of them (hard stool) consulted the doctor, seven and a half (97.5%) percent of persons who had blood in stool had liquid motion but actually two third of them (blood in the stool) consulted the doctor for their type of motion . Looking at table 3 we find that the most common definition of diarrhea is liquidity while straining was considered to be the definition of constipation in 56.8% of respondents. There may be an important implication to these results, if physicians define constipation as fewer than 3 stools / week, while a good

Table 1: The consistency of stool according to gender.

Gender	Normal	Loose	Hard
Male (248)	221 (89.1%)	10 (4%)	17 (6.9%)
Female (305)	248 (81.3%)	8 (2.6%)	49 (16.1%)
X^2 = 11.53, d.f. = 2, P = 0.003			

Table 2: The distribution of Frequency of defecation in relation to gender.

Gender	> 21/week	3/Day	2/Day	1/Day	<1/Day - ≥ 3/Week	< 3/week
Male (248)	5 (2.01%)	33 (13.3%)	76 (30.6%)	119 (47.9%)	12 (4.9%)	3 (1.2%)
Female (305)	4 (1.3%)	13 (4.2%)	51 (16.8%)	192 (63.3%)	27 (8.9%)	18 (5.9%)
X2 = 38.75, d.f. = 3, P = 0.000001						

Table 3: The distribution of different definition of diarrhea and constipation according to the subjects. answers.

Diarrhea	**F**	**L**	**P**	**U**	**F+L**	**F+P**	**F+U**	**L+P**	**L+U**	**P+U**	**F+L+U**	**F+L+P**	**ALL**
Total number= 553	88 15.9%	214 38.6%	42 7.5%	14 2.5%	68 12.3%	13 2.3%	11 1.9%	28 5.%	13 2.3%	7 1.2%	2 0.3%	34 6.2%	14 2.5%
Constipation	D	S	P	T	R	D+S	D+P	D+T	S+P	S+T	P+T	D+S+P	ALL
Total number= 553	186 33.6%	85 15.3%	33 5.9%	30 5.4%	32 5.7%	57 10.3%	18 3.2%	36 6.5%	19 3.4%	25 4.5%	14 2.5%	13 2.3%	5 0.9%

D=difficulty in defecation (straining). L=increased liquidity of stool S=stony like stool (hard)

R=remaining stool in the rectum P=pain in the abdomen T=time needed in the bathroom

F=increased frequency of defecation R=remaining stool in the rectum U=urgency for defecation

percentage of subjects consider straining is the definition of constipation. Accordingly, clinician must determine the meaning of their patient complaint and search for common language in order to diagnose and treat accordingly.

In conclusion, Most of the studied population had normal frequency and consistency of stool. the group of subjects with pellety and less frequent motions were mainly female while those with more frequent and liquid stool were mainly of male gender,Varied definitions for constipation and diarrhea were used by the respondents; the most commonly used definition was "straining" for constipation and increased "liquidity" for diarrhea. Which emphasize the importance of determining the actual meaning of the patient complaint to achieve better management.

Most of the group of subjects with bleeding per rectum did not considered it as an alarm symptom to seek the advice of their doctor , which raise the need for better health education of the population. It is recommended to study a wider section of population and adding detailed information about the type of their diet and fiber content of a cross section of population.

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