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Constipation Frequency and Factors Influencing Constipation in First-year Nursing Students

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Abstract

The aim of this study was to determine constipation frequency and the factors that influence constipation among first-year nursing students. Data collection form and the constipation severity instrument were used for data collection. A total of 149 students, with mean average age of 19.11 ± 1.55 participated in the study; 62.4% was female and 24.2% of the students were constipated. Straining (16.1%) and difficulty (15.4%) during defecation was stressed by some of the students. The constipation complaints were pain (41.7%) and abdominal distention (25%). The mean score of the constipation severity instrument was 27.24 ± 8.38 (obstructive defecation 13.83 ± 3.90, colonic inertia 11.00 ± 4.11 and pain 2.40 ± 2.08).

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Gender, exercising, lifestyle, number of meals and the consumption of liquids influenced the constipation severity. Implementing programmes to prevent constipation may help in reducing the severity of the problem.

Keywords: Constipation, influencing factors, nursing students.

1. Introduction

University students may experience various problems such as difficulty in adapting to the school environment and the place they live in during their education. Besides economic inadequacies, unbalanced diet, nutrition tendencies (especially with fast food), inadequate fluid intake, inactivity and use of drugs are also common among students. One of these problems is constipation [1]. Constipation is not a disease but a subjective symptom that can be influenced by social factors. Although it differs among individuals, its effects on the daily life of a person can be very serious [2, 4]. Constipation is generally defined as a reduction in faecal incidence. In order to define functional constipation medically, two or more factors must exist for at least 3 months. These include difficulty in at least one of the four stools, extraction of stiff and fragmented stools in at least one of the four stools, feeling that the stool is not fully emptied in at least one of the four stools, and bowel movement that is two or less per week [5].

Inadequate fluid intake, poor physical activity, poor nutrition, level of education, changes in environment, postponing the defaecation need, pregnancy, stress, anxiety, depression symptoms and use of some drugs (steroids, anti-inflammatory drugs, etc.) can lead to constipation. Some of the treatments are also among the risk factors for constipation [6, 8].

The rate of constipation is between 1.9% and 35% in adults according to the relevant literature [9, 14]. This rate is between 0.7% and 37% in children [10, 11, 14,15]. In the population-based research done in Turkey, the constipation rate is shown as 22–40% [3].

Constipation is defined as a significant health problem [2]. Although not a life-threatening condition, many of the symptoms associated with constipation, including abdominal pain, faecal incontinence and pain, has serious outcomes on the physical, social and emotional well-being of individuals [16]. It is also an expensive condition to treat. In order to relieve constipation, use of laxatives is on the increase and sometimes, long durations of hospitalisations are also possible [17].

A high rate of constipation has negative effects on the quality of life, healthcare expenditures and health level of individuals. Thus, careful attention should be given to the constipation problem of both young people and adults [3, 4, 8, 11, 14, 17]. Determining the level and severity of constipation is a key to solving the problem [11]. It is very important to have behaviours that protect and improve the health of the individual. Especially, the development of these behaviours is important during the period of adolescence [18, 19].

There are limited studies done in Turkey using the Constipation Severity Scale. One of these studies was conducted on female university students who lived in dormitories [1], while another study was done on nursing students [20]. This study aimed to determine the frequency and factors affecting constipation among first-year nursing students.

2.Methods

2.1.Purpose and Type of Research

This descriptive study was conducted to determine constipation frequency and factors that influence constipation among first-year nursing students.

2.2.Study Subjects and Sample Selection

The study sample consisted of 149 nursing students who agreed to participate in this study during the spring term of 2014–2015

2.3.Data Collection Tools

Data were collected using a data collection form and the Constipation Severity Instrument. The data collection form was prepared based on the relevant literature [3, 10, 15, 20, 21] and consisted of 30 questions. Questions included the socio-demographic characteristics and the constipation status of nursing students.

The Constipation Severity Instrument (16 questions) is a short, easy to use, reliable and valid instrument to assess constipation severity and identify subtypes of constipation. It is used for determining the frequency of bowel movements, intensity and difficulty/strength during bowel movements with internal consistency of α = 0.88 – 0.91 [22]. Validity and reliability of the instrument to Turkish society is done in [23]. Internal consistency was calculated as α = 0.92 and 0.93. The instrument consists of three subscales entitled: obstructive defecation (0–28), colonic inertia (0–29) and pain (0–16). The total score can be obtained from the constipation severity instrument ranging from 0 to 73. High scores from the scale indicate that the symptoms are serious [22, 23].

2.4.Ethical Considerations

This study was approved by the Research Committee of the related institution. Written permission was obtained from Kaya, regarding the use of the instrument and students were informed about the purpose of the study both in writing and verbally.

2.5.Statistical Analysis

Statistical analyses were conducted using the Statistical Package for Social Sciences program (SPSS Version 20.0 for Windows). Results were given by mean and standard deviation, numbers and percentages. *T*-tests, one-way ANOVA and Pearson's correlation analysis were used to determine the relationship between the variables.

3.Results

Of the students enrolled in the study, 62.4% was female and the average age was calculated as 19.11 ± 1.55 years (range: 17–26). A total of 71.1% had insurance and 48.3% were staying in the dormitory. A great majority of the students had a moderate income. A very small percentage of the students (3.4%) had chronic illness and received medical treatment. Only 12.1% exercised regularly, 64.4% have an active lifestyle and 44.3% consumed two main meals and two snacks a day. The distribution of the socio-demographic characteristics and nutritional habits of students are presented in Table 1.

Table 1. Distribution of socio-demographic characteristics and habits of students (*N* = 149)

Variable		*n*	%
Age		19.11 ± 1.55	Min = 17 and Max = 26
Gender	Female	93	62.4
	Male	56	37.6
Insurance	Available	106	71.1
	No	43	28.9
Place of residence	Dormitory	72	48.3
	With friends	37	24.8
	With family	40	26.8
Income status	Less than income	22	14,8
	Equal to income	108	72.5
	More than income	19	12.8
Chronic illness	Yes	5	3.4
	No	144	96.6
Receive medical treatment regularly	Yes	5	3.4
	No	144	96.6
Exercising regularly	Yes	18	12,1
	No	131	87.9
Lifestyles	Active	96	64.4
	Passive	53	35.6
Number of daily meals	3 meals	23	15.4
	3 main meals and 3 snacks	16	10.7
	2 main meals	33	22.1
	2 main meals and 2 snacks	66	44.3
	1 main meal and 1 snack	11	7.4
Average fluid consumption (daily)	1–5 glasses	63	42.3
	6–10 glasses	61	40.9
	11–15 glasses	25	16.8
Mainly preferred food group	Vegetable	29	19.5
	Protein	76	51.0
	Grain	29	19.5
	Fruit	3	2.0
	Milk and milk products	3	2.0
	Ready to eat	9	6.0
Having diet programme	Yes	5	3.4
	No	144	96.6

A total of 47.7 % of the students reported having bowel movements on a daily basis, 24.2% of them several times a day, 21.5 % every two days, 6% every three days and 0.7 % once a week.

Most of the symptoms experienced by students during defecation were staining (16.1%) and difficulty while passing the stool (15.4%) (Figure 1).

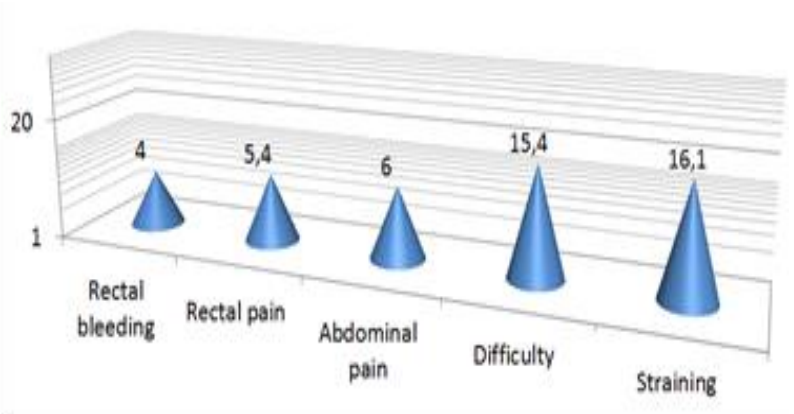

Figure 1. Symptoms experienced during defecation

Around 24.2% of the students reported having a constipation problem and. 77.8% of the female and 22.2% of the male students suffered from constipation. Students who lived in the dormitory suffered from constipation more than the students who lived with their families (27.8%) and friends (11.4%). A very small number of the students (8.3%) received treatment for constipation. Half of them expressed that their school and social life were not affected by constipation and. 41.7% reported having a problem with constipation in the family. Students who suffered from constipation reported being constipated sometimes (33%) and some of them constantly (25%). Constipation complaints stated by the students were abdominal pain (41.7%), abdominal distention (25%) and loss of appetite (5.6%). Only 27.8% of the students reported not having any complaints. Students combatted their constipation problems by increasing fluid intake (63.9%) and eating vegetables (13.9%) (Figure 2).

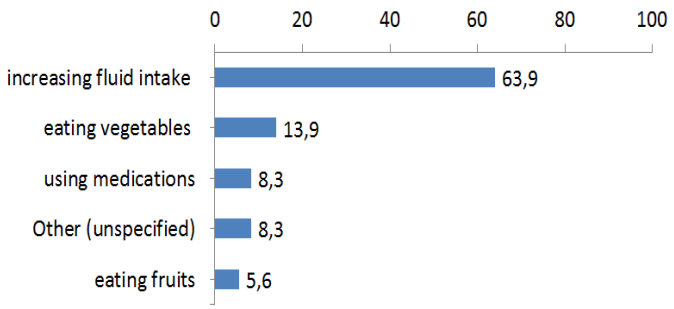

Figure 2. Students' approaches to combat constipation problems

The total score obtained from the constipation severity instrument was 27.24 (SD = 8.38). Scores obtained from subscales were as follows: obstructive defecation 13.83 (SD = 3.90), colonic inertia 11.00 (SD = 4.11) and pain 2.40 (SD = 2.08) (Table 2).

Table 2. Total score obtained from the constipation severity instrument and subscales (*n* = 149)

CSI and subscales	Mean ± SD	Minimum	Maximum
Obstructive defecation	13.83 ± 3.90	8.00	23.00
Colonic inertia	11.00 ± 4.11	3.00	20.00
Pain	2.40 ± 2.08	0.00	7.00
CSI total	27.24 ± 8.38	13.00	46.00

Factors affecting students' constipation are given in Table 3. Female students obtained higher scores from CSI than male students. Gender also had an influence on the students' total scores (p = 0.001), obstructive defecation (p = 0.001) and colonic inertia subscale scores (p = 0.007) significantly. Exercising on a regular basis, consuming adequate meals every day and liquid consumption have influence on the CSI scores and subscale scores. Consuming milk and milk products also increases the obstructive defecation and colonic inertia subscale scores of the students. Students who suffer constipation have significantly higher scores from CSI and two of the subscales (obstructive defecation and pain). Age, having social security, place of residence, income level, having a chronic disease and regular medication use do not have any influence on CSI scores of the nursing students (p > 0.05). (Table 3).

Table 3. Factors affecting students' constipation severity (n = 149)

Variables		Obstructive defecation	Colonic inertia	Pain	CSI total
Gender	Female	12.00 ± 3.67	9.65 ± 4.33	1.68 ± 1.90	23.34 ± 8.26
	Male	9.87 ± 3.96	7.71 ± 3.90	1.19 ± 1.96	18.78 ± 8.42
		t = 3.316	t = 2.747	t = 1.507	t = 3.238
		p = 0.001*	p = 0.007*	p = 0.134	p = 0.001*
Insurance	Yes	11.00 ± 3.70	9.12 ± 4.23	1.40 ± 1.91	21.52 ± 8.31
	No	11.69 ± 4.38	8.44 ± 4.37	1.74 ± 2.00	21.88 ± 9.31
		t = −0.986	t = 0.881	t = −0.966	t = −0.228
		p = 0.326	p = 0.380	p = 0.335	p = 0.820
Place of residence	Dormitory	11.29 ± 3.94	8.72 ± 3.97	1.48 ± 2.05	21.50 ± 8.02
	With friends	11.00 ± 3.97	8.86 ± 4.30	1.13 ± 1.63	21.00 ± 8.79
	With family	11.22 ± 3.90	9.35 ± 4.79	1.87 ± 1.95	22.45 ± 9.48
		F = 0.068	F = 0.280	F = 1.416	F = 0.287
		p = 0.934	p = 0.756	p = 0.246	p = 0.751
Income status	Less than income	12.63 ± 4.43	8.13 ± 0.96	1.22 ± 1.71	22.00 ± 8.52
	Equal to income	10.94 ± 3.81	9.25 ± 4.36	1.64 ± 2.03	21.85 ± 8.78
	More than income	11.00 ± 3.68	7.94 ± 3.99	1.00 ± 1.49	19.94 ± 7.69
		F = 1.754	F = 1.208	F = 1.169	F = 0.418
		p = 0.177	p = 0.302	p = 0.313	p = 0.659
Chronic illness	Yes	11.40 ± 5.31	7.80 ± 4.32	1.00 ± 1.00	20.20 ± 9.28
	No	11.19 ± 3.88	8.96 ± 4.27	1.52 ± 1.96	21.68 ± 8.59
		t = 0.115	t = −0.599	t = −0.59	t = −0.378
		p = 0.909	p = 0.550	p = 0.556	p = 0.706
Receiving medical treatment regularly	Yes	11.40 ± 5.31	7.80 ± 4.32	1.00 ± 1.00	20.20 ± 9.28
	No	11.19 ± 3.88	8.96 ± 4.27	1.52 ± 1.96	21.68 ± 8.59
		t = 0.115	t = −0.599	t = −0.590	t = −0.378
		p = 0.909	p = 0.550	p = 0.556	p = 0.706
Exercising regularly	Yes	9.88 ± 4.39	6.55 ± 3.27	1.27 ± 1.90	17.72 ± 8.73
	No	11.38 ± 3.82	9.25 ± 4.29	1.53 ± 1.94	22.16 ± 8.45
		t = −1.524	t = −2.559	t = −0.526	t = −2.083
		p = 0.130	p = 0.012*	p = 0.600	p = 0.039*
Life style	Active	11.01 ± 3.80	8.22 ± 3.96	1.52 ± 2.05	20.76 ± 8.39

	Passive	11.54 ± 4.12	10.18 ± 4.53	1.47 ± 1.72	23.20 ± 8.79
		t = −0.800	*t* = −2.740	*t* = 0.148	*t* = −1.676
		p = 0.425	*p* = 0.007*	*p* = 0.883	*p* = 0.096
Number of meals a day	3 meals	10.30 ± 4.62	8.26 ± 0.50	2.00 ± 2.33	0.56 ± 10.20
	3 main meals 3 snacks	10.25 ± 3.58	7.12 ± 4.54	0.93 ± 1.56	18.31 ± 7.88
	2 main meals	11.69 ± 4.11	9.63 ± 4.40	1.15 ± 1.46	22.48 ± 8.59
	2 main meals 2 snacks	11.07 ± 3.40	8.80 ± 3.91	1.42 ± 1.77	21.30 ± 7.65
	1 main meal and 1 snack	13.72 ± 4.40	11.54 ± 4.13	2.81 ± 3.02	28.09 ± 9.04
		F = 1.876	*F* = 2.197	*F* = 2.371	*F* = 2.440
		p = 0.118	*p* = 0.072	*p* = 0.055	*p* = 0.050*
	1–5 glasses	11.79 ± 4.61	9.93 ± 4.29	1.76 ± 1.90	23.49 ± 9.34
Daily fluid consumption (average)	6–10 glasses	10.83 ± 3.02	8.40 ± 4.23	1.49 ± 1.92	20.73 ± 7.63
	11–15 glasses	10.60 ± 3.87	7.64 ± 3.83	0.88 ± 1.96	19.12 ± 8.11
		F = 1.287	*F* = 3.455	*F* = 1.879	*F* = 2.955
		p = 0.279	*p* = 0.034*	*p* = 0.156	*p* = 0.055
	Vegetable	11.41 ± 2.83	8.79 ± 4.34	1.65 ± 1.71	21.86 ± 7.61
	Protein	10.75 ± 3.94	8.50 ± 3.98	1.19 ± 1.68	20.44 ± 8.22
	Grain	10.72 ± 3.56	8.62 ± 4.93	1.72 ± 2.25	21.06 ± 8.91
Mainly preferred food group	Fruit	15.33 ± 6.11	12.66 ± 1.52	4.00 ± 1.73	32.00 ± 9.00
	Milk and milk products	19.33 ± 2.51	15.33 ± 2.08	3.66 ± 3.51	38.33 ± 2.08
	Ready to eat	11.77 ± 4.40	10.55 ± 3.04	1.33 ± 2.39	23,66±7,95
		F = 3.963	*F* = 2.365	*F* = 2.352	*F* = 3.916
		p = 0.002*	*p* = 0.043*	*p* = 0.044*	*p* = 0.002*
	Yes	11.80 ± 3.11	8.40 ± 4.39	2.40 ± 3.04	22.60 ± 9.96
Having diet programme	No	11.18 ± 3.94	8.94 ± 4.28	1.47 ± 1.89	21.59 ± 8.57
		t = 0.347	*t* = −0.279	*t* = 1.053	*t* = 0.256
		p = 0.729	*p* = 0.780	*p* = 0.294	*p* = 0.798
Having constipation problem	Yes	12.75 ± 4.11	9.88 ± 4.33	2.77 ± 2.25	25.41 ± 9.01
	No	10.70 ± 3.73	8.61 ± 4.22	1.09 ± 1.63	20.42 ± 8.12
		t = 2.787	*t* = 1.561	*t* = 4.868	*t* = 3.127
		p = 0.006*	*p* = 0.121	*p* = 0.000*	*p* = 0.002*
Constipation problem in the family	Yes	13.83 ± 3.90	11.00 ± 4.11	2.40 ± 2.08	27.24 ± 8.38
	No	10.33 ± 3.52	8.24 ± 4.11	1.20 ± 1.79	19.77 ± 7.84
		t = 5.111	*t* = 3.538	*t* = 3.381	*t* = 4.935
		p = 0.000*	*p* = 0.001*	*p* = 0.001*	*p* = 0.000*

***p* < 0.05**

4.Discussion

Constipation is accompanied by a change in the nutrition and lifestyles of university students. Based on a systematic review of the literature prevalence, constipation in the general population ranges from 2.5% to 79% in adults [11]. Arslan and Hisar [1] reported that 14.9% of female students experience constipation as well. In another Turkish study done with university students, 56.7% of the students reported being constipated [3]. In our study the constipation rate was calculated as 24.2%, which is similar to previous studies done in Turkey. Our study population also reported receiving treatment for constipation (8.3%). According to our study, the total score obtained from CSI was 27.24 and the scores obtained from subscales were as follows: 13.83 (obstructive defecation), 11.00 (colonic

inertia) and 2.40 (pain). Severity of the constipation in this study is congruent both with Turan *et al*. [20] and Arslan and Hisar's [1] study.

Constipation is more commonly seen among females rather than males [15], [20], [24]. This is due to the extended time of faeces passing the colon in females and the inadequate relaxation of the pelvic floor muscles during defecation [25]. In this study, CSI total score, obstructive defecation and colonic inertia subscale scores of female students were significantly higher than male students' scores, which are similar to previous studies.

Colonic inertia subscale scores of students with active lifestyles and of those who exercise regularly were significantly lower than those whose lifestyles were passive and did not exercise regularly. A study conducted by Orhan *et al*. [25] shows that as the exercise activity increases, constipation severity decreases. These results can be explained by increase in bowel motility and increase in blood supply while exercising. Running also leads to increased colonic compression of the abdominal muscles and mechanical vibration of the body during exercise results in increased colonic motility [25].

In our study, constipation severity was higher in students who consumed one main meal and one snack a day. In a study conducted in [20], about 3.8% of students consumed one main meal and one snack [20]. This may be due to the difference in the number of sample sizes in our study.

Inadequate fluid intake is defined as a risk factor for constipation [1]. Low intake of water can reduce the water content of stools and, hence, lead to constipation [26]. In the literature, it is suggested that 1.5–2 L fluid should be taken daily to reduce the risk of constipation [1]. In our study, only 42.3% of the students consumed 1–5 glasses of liquid a day. It was demonstrated that the colonic inertia subscale scores of students who consumed 1–5 glasses daily were significantly higher in than the other groups.

It was demonstrated that the constipation severity instrument total score and obstructive defecation, colonic inertia and pain subscale scores of students who mainly preferred milk and milk products were significantly higher than in the other groups. According to the literature, consuming too much milk leads to difficulty in defecation. Due to lactose deficiency or lactose sensitivity to milk, gas accumulation in the intestines and abdominal distension occurs because of insufficient digestion of lactose [27]. As a result, the abdominal muscles undergo colonic compression and constipation develops [28]. In our study, students who were constipated had higher scores on obstructive defecation, pain subscales and CSI and the difference was statistically significant ($p < 0.05$).

Students with a family history of constipation also obtained higher scores from CSI, besides all subscale scores of the instrument. Behaviours that affect the lifestyle and habits of individuals are shaped in the family environment. Choices of the family in selecting foods, nutritional styles, liquid consumption and exercising are linked to constipation severity in individuals as well [29, 30]. Considering that the behaviours of the individual will continue in their future life, it is not surprising that constipation is seen more frequently in students who have an individual with a constipation problem in the family. In our study, constipation severity is higher in students who live in dormitories (61.1%). This could be a result of unhealthy eating habits among university students, which is also the case in the study of Uysal *et al*. [3].

5.Conclusion

The constipation rate of first-year nursing students was determined as 24.2%. The gender, regular exercise, lifestyle, nutrition regimen, fluid intake, and having an individual with constipation problem in the family all have an influence on constipation severity ($p < 0.05$). The age, having social security, place of living, economic status, presence of chronic illness, regular medication use and any dietary restrictions do not influence the constipation severity significantly ($p > 0.05$).

According to the results of this study, consulting nursing students and emphasising the importance of preventing constipation are important implementations in dealing with this problem. Repeating this study with large samples could guide us towards eliminating this problem among university students.

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