

# Constipation in nursing students and factors affecting

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## Abstract

**Aim:** The aim of this study was to determine the constipation problems of nursing students and the variables that affect it.

**Material and Methods:** The research was conducted on the first, second, third and fourth year students of Batman University School of Nursing in 2018-2019 academic year. The sample of the study consisted of 218 nursing students who accepted to participate voluntarily. In the collection of data, a "Student Information Form" and the "Constipation Severity Scale" (CSS) were used.

**Results:** The average age of the students included in the study was 21.14±2.34 (17-39 years), 55.5% of the students were female, 33% were in their senior year, 55% were living at home with their parents, 85.6% did not smoke, 93.6% had no chronic disease and 76.6% performed regular exercise. It was found that 56.9% of the students ate three times a day and 38.5% twice a day; 67.9% of the students consumed pulpy or fibrous foods occasionally; the daily average of water consumed by the students was 7.69±4.16 cups and 3.83±2.44 cups of coffee were consumed. The mean total CSS score of the students was 27.83±7.85 and the mean scores of the sub-scales were calculated as "Intestinal Obstruction" 12.53±3.48, "Lazy Bowels" 11.56±3.84 and "Pain" 2.29±2.62. It was determined that there were differences between the variables of gender, exercise status, consumption of pulpy or fibrous foods and the daily consumption of tea or coffee and the mean score of CSS.

**Conclusion:** It was observed that there were the incidence of constipation was not very high in nursing students and that this problem was experienced more by students who did not perform exercise, who consumed less pulpy or fibrous food, and who were female.

**Keywords:** Constipation; health status; nursing students.

## INTRODUCTION

The activity of excretion is a daily life activity (DLA) that individuals perform throughout their lives. Human beings have to respond to the need for excretion anywhere, anytime or no matter what they do (1).

Constipation is not a disease, but a symptom that is perceived differently from person to person. The number of defecation varying between three times a day and once in three days is considered normal. Generally, the defecation habit of two or fewer times a week is defined as constipation; however, the number alone is not a sufficient criterion. The number and amount of defecation highly vary across individuals and societies (2). Signs and symptoms of constipation are solid shaped stools and/or defecation less than three times a week, abdominal and rectal pain, decreased bowel sounds, rectal fullness, pressure in rectum, uneasiness and pain during defecation, feeling of fullness, and loss of appetite, headache, fatigue and hemorrhoids (3). This condition should be recovered since it leads to the development of diseases such as spastic colon and cancer (2).

Constipation is a common gastrointestinal problem in society. Its prevalence varies between 2-28% according to the definition used (4). According to the various studies conducted, it is more frequently seen in women compared to men, in black people compared to white people, in children compared to adults, in elderly compared to youth (5-9).

Risk factors for constipation include physical inactivity, gender, age, low educational level, socio-economic status, history of sexual abuse, presence of depression symptoms, use of nonsteroidal anti-inflammatory drugs (NSAI) and use of other drugs causing constipation, and some diseases such as inflammatory bowel disease, hypercalcemia, Parkinson's, neurofibromatosis and diabetes mellitus disease (10-12). Considering the factors that increase the risk of constipation, especially students who live in dormitories, young individuals who have malnutrition and unbalanced nutrition and who have low economic status may have an increased risk of constipation (13). On the other hand, university students may experience

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constipation problems due to the difficulties in adapting to school, environment and dormitory environment, economic insufficiencies, unconscious and unbalanced nutrition, especially tendency to consume fast-food, insufficient fluid intake, immobility and drugs used (14,15). In the study conducted by Uysal et al. (2010) with healthy female university students, it was determined that 56.7% of the students identified themselves as constipated, that 87.7% had at least two of the Rome II criteria, also that the ratio of constipation was higher in those who lived in a dormitory and that this was statistically significant (13). In studies conducted to determine the constipation problem in university students, it has been revealed that constipation is an important problem that should be considered due to its high ratio and negative effect on quality of life (13,16,17).

As a result of the literature review, it has been seen that in Turkey, there is a limited number of studies for determining the occurrence of constipation in the nursing students and investigating the variables that influence it, and that not so much variable is addressed in these studies. Nursing students should be educated as the future healthcare professionals whose tasks are providing care, training and consultancy for the healthy/sick individuals and they should first become aware of their own constipation problem and find solutions. In this context, nursing students are expected to have sufficient knowledge and practices on constipation. In this direction, the purpose of this study was to determine the constipation problems of nursing students and affecting variables.

## MATERIAL and METHODS

This research is descriptive research in order to determine the constipation problems of nursing students and the variables that affect it. The study was conducted on the first, second, third and fourth-grade students of Batman University School of Nursing between 30 January 2019 and 1 March 2019. Population of the research consisted of 248 nursing students. The sample of the study consisted of 218 nursing students who were reached on the dates during which the research was conducted, and accepted to participate in the research voluntarily (Participation rate; 87.90%). For data collection, a "Student Information Form" which included the introductory information about the students and a "Constipation Severity Scale (CSS)" were used.

"Student Information Form": In this form developed by the researchers, questions about students' age, gender, grade level, region where they live, place of residence, smoking status, presence of a chronic disease, exercise status, liquid, tea / coffee intake status, the number of main meals/snacks and pulpy food intake status were included.

"Constipation Severity Scale (CSS)": The Turkish validity and reliability version of CSS developed by Varma et al. in 2008 was provided by Kaya and Turan in 2011 (18,19). It is a scale for determining the individuals' frequency and consistency of defecation, as well as the difficulty during defecation. The scale comprises 16 questions. CSS has three sub-scales: Intestinal Obstruction; Lazy Bowel and Pain. The score that can be taken from the Intestinal

Obstruction sub-scale is between 0-28, the score that can be taken from the Lazy Bowel sub-scale is between 0-29, and the score that can be taken from the pain sub-scale is between 0-16. In CSS, the maximum score is 73 and the minimum score is 0. High scores from the scale indicate that the symptoms are serious (18,19). In this study, the Cronbach Alpha coefficient was calculated as 0.81. In order to use the Constipation Severity Scale in the research, written permission has been obtained from the author who made the Turkish validity and reliability version of the form, by an e-mail.

In order to conduct the research, necessary legal permissions were obtained from the Local Ethics Committee (Decision no: 2019-133), the institution where the research was conducted and the students who participated in the study. The students who accepted to participate in the study were informed of the research and their consent was obtained. Care was taken to ensure that the time to fill the questionnaires did not influence the students' course hours. The time taken for the students to answer was calculated as maximum 25 minutes. The forms from the students who completed the answers to the questions in the questionnaire form were collected and evaluated. For the evaluation of the research data, the descriptive statistics, an Independent T-test and an ANOVA test were used in the Statistical Package For Social Science (SPSS) 20.0 package program.

## RESULTS

The socio-demographic characteristics of the students are presented in Table 1.

**Table 1. Sociodemographic characteristics of students**

Demographic characteristics	n	%
<b>Age</b>		
21 and down	140	64.2
22 and up	78	35.8
<b>Gender</b>		
Male	97	44.5
Female	121	55.5
<b>Class</b>		
1 <sup>st</sup> Grade	49	22.5
2 <sup>nd</sup> Grade	38	17.4
3 <sup>rd</sup> Grade	59	27.1
4 <sup>th</sup> Grade	72	33.0
<b>Region of Living</b>		
Southeastern Anatolia Region	190	87.2
Eastern Anatolia Region	19	8.7
Western Region (Aegean Region, Mediterranean Region, Marmara Region, Central Anatolia Region)	9	4.1
<b>Place of Living</b>		
Living with family	121	55.1
Living in dormitory	71	32.6
Living alone	2	0.9
Living with a friend at home	23	11.0
<b>Smoking</b>		
Yes	31	14.2
No	187	85.8
<b>Diagnosis of a disease</b>		
Yes	14	6.4
No	204	93.6
<b>Status of exercising</b>		
Yes	51	6.4
No	167	93.6

When Table 1 was examined, it was determined that 64.2% of the students were at the age of 21 years and down, 55.5% were female, 33% were 4th grade students, 87.2% lived in Southeastern Anatolia Region, 55.1% lived with their family, 14.2% were smokers, 76.6% were not active on a daily basis and 93.6% were not diagnosed with a disease. The distribution of students' fluid consumption is given in Table 2.

Consumption of fluid, fruits, vegetables	n	%
<b>Number of main meals</b>		
One-two	75	34.4
Three	124	56.9
More than three	19	8.7
<b>Number of snacks</b>		
One-two	192	88.1
More than three	26	11.9
<b>Amount of daily water consumption</b>		
1-5 glasses	73	33.5
6 and over	145	66.5
<b>Amount of daily tea/coffee consumption</b>		
1-5 glasses	178	81.7
6 and over	40	18.3
<b>Amount of Pulpy Food Consumption</b>		
Always	13	6.0
Mostly	54	24.8
Occasionally	148	67.9
Never	3	1.4

When Table 2 was examined, of the students, 66.5% stated that they consumed more than 6 glasses of water daily, 81.7% stated that they consumed 1 to 5 glasses of tea and coffee daily, 67.9% stated that they sometimes consumed pulpy and fibrous food, 56.9% stated that they had three main meals a day and 88.1% stated that they had one-two snacks a day.

It was found that the incidence of constipation in nursing students was 7.8%. The mean total CSS score of the students was  $27.83 \pm 7.85$  and the mean score of the sub-scales was calculated as Intestinal Obstruction  $12.53 \pm 3.48$ , Lazy bowels  $11.56 \pm 3.84$  and the Pain  $2.29 \pm 2.62$ . It was observed that there were the incidence of constipation was not very high in nursing students.

The comparison of students' demographic characteristics and mean CSS scores are given in Table 3.

A statistically significant difference was found between mean CSS score and gender and status of exercising ( $p < .05$ ). It was observed that constipation problem was experienced more by students who did not perform exercise and who were female.

The comparison of students' distribution on fluid consumption and mean CSS scores are given in Table 4.

Demographic characteristics	Pain Mean $\pm$ SD	Intestinal Obstruction Mean $\pm$ SD	Lazy Bowels Mean $\pm$ SD	Total Mean $\pm$ SD
<b>Age</b>				
21 and down	2.12 $\pm$ 2.64	9.75 $\pm$ 5.52	8.33 $\pm$ 5.21	20.22 $\pm$ 11.10
22 and up	2.58 $\pm$ 2.56	9.60 $\pm$ 5.95	9.29 $\pm$ 5.34	21.48 $\pm$ 11.84
<b>Gender</b>				
Male	2.39 $\pm$ 2.65	10.42 $\pm$ 5.80	9.56 $\pm$ 5.63	9.56 $\pm$ 5.63
Female	2.16 $\pm$ 2.59	8.79 $\pm$ 5.38	7.57 $\pm$ 4.56	7.57 $\pm$ 4.56
Significance	t= .64 p=.51	t= 2.13 p=.03	t=2.80 p=.03	t=2.51 p=.013
<b>Class</b>				
1 <sup>st</sup> Grade	2.53 $\pm$ 3.04	9.44 $\pm$ 6.25	7.73 $\pm$ 5.51	19.17 $\pm$ 12.90
2 <sup>nd</sup> Grade	2.07 $\pm$ 2.63	9.44 $\pm$ 5.48	8.94 $\pm$ 4.46	20.97 $\pm$ 10.46
3 <sup>rd</sup> Grade	1.86 $\pm$ 2.33	8.79 $\pm$ 5.41	7.61 $\pm$ 4.98	18.27 $\pm$ 10.27
4 <sup>th</sup> Grade	2.56 $\pm$ 2.53	10.75 $\pm$ 5.50	10.05 $\pm$ 5.47	23.40 $\pm$ 11.27
Significance	F=1.067 p=.36	F= 1.38 p=.24	F=3.02 p=.05	F=2.43 p=.05
<b>Region of Living</b>				
Southeastern Anatolia Region	2.28 $\pm$ 2.54	9.82 $\pm$ 5.60	8.88 $\pm$ 5.28	21.00 $\pm$ 11.10
Eastern Anatolia Region	2.50 $\pm$ 3.51	8.84 $\pm$ 6.51	7.63 $\pm$ 5.23	19.00 $\pm$ 14.10
Western Region	1.88 $\pm$ 2.42	8.88 $\pm$ 5.53	6.44 $\pm$ 4.66	17.22 $\pm$ 11.19
Significance	F= .70 p=.49	F=.181 p=.83	F=1.34 p=.26	F=.70 p=.498
<b>Place of Living</b>				
Living with family	1.86 $\pm$ 2.25	9.41 $\pm$ 5.95	8.41 $\pm$ 5.33	19.69 $\pm$ 11.71
Living in dormitory	3.00 $\pm$ 3.17	10.29 $\pm$ 5.61	9.69 $\pm$ 5.47	22.98 $\pm$ 11.49
Living alone	2.50 $\pm$ 0.71	15.00 $\pm$ 4.24	9.00 $\pm$ 0.00	26.50 $\pm$ 3.53
Living with a friend at home	2.33 $\pm$ 2.25	8.95 $\pm$ 4.16	7.00 $\pm$ 3.95	18.72 $\pm$ 8.23
Significance	F= 2.85 p=.05	F=1.08 p=.35	F=.1.18 p=.14	F=.70 p=.498
<b>Smoking</b>				
Yes	2.87 $\pm$ 3.21	9.74 $\pm$ 5.89	7.83 $\pm$ 5.15	20.45 $\pm$ 11.76
No	2.19 $\pm$ 2.50	9.69 $\pm$ 5.64	8.81 $\pm$ 5.28	20.71 $\pm$ 11.32
Significance	t=1.32 p=.18	t=.04 p=.96	t=.95 p=.33	t=.11 p=.907
<b>Diagnosis of a disease</b>				
Yes	4.28 $\pm$ 3.02	9.71 $\pm$ 3.91	9.50 $\pm$ 5.50	20.45 $\pm$ 11.76
No	2.15 $\pm$ 2.54	9.70 $\pm$ 5.77	8.62 $\pm$ 5.25	20.48 $\pm$ 11.54
Significance	t=2.91 p=.03	t=.01 p=.99	t=.90 p=.54	t=0.62 p=.337
<b>Status of exercising</b>				
Yes	2.11 $\pm$ 2.55	9.31 $\pm$ 5.67	8.42 $\pm$ 5.04	18.53 $\pm$ 10.45
No	2.88 $\pm$ 2.79	10.98 $\pm$ 5.51	9.50 $\pm$ 5.92	21.62 $\pm$ 11.65
Significance	t= 1.91 p=.05	t= 1.90 p=.05	t= 1.89 p=.05	t= -1.86 p=.04

t: Independent t-test, F: ANOVA (one-way) test

<b>Table 4. Comparison of students' distribution on fluid consumption and mean CSS sub-scale scores</b>				
<b>Demographic characteristics</b>	<b>Pain Mean±SD</b>	<b>Intestinal Obstruction Mean±SD</b>	<b>Lazy Bowels Mean±SD</b>	<b>Total Mean±SD</b>
<b>Number of main meals</b>				
One-two	2.42±2.62	11.09±5.39	10.05±5.19	10.05±5.19
Three	2.28±2.66	9.45±5.70	8.20±5.26	8.20±5.26
More than three	1.84±2.43	5.78±4.55	6.47±4.45	6.47±4.45
Significance	F=6.10 p=.003	F=.377 p=.68	F=4.79 p=.009	F=6.10 p=.003
<b>Number of snacks</b>				
One-two	2.26±2.63	9.57±5.67	8.90±5.35	21.15±11.33
More than three	2.50±2.59	7.65±5.32	7.00±4.30	17.15±11.15
Significance	t=.427 p=.67	t=1.97 p=.040	t=2.05 p=.040	t=1.69 p=.005
<b>Amount of daily water consumption</b>				
1-5 glasses	2.34±2.55	10.08±5.57	9.35±5.07	21.78±11.07
6 and over	2.26±2.66	9.51±5.72	8.33±5.34	20.11±11.50
Significance	t=1.02 p=.30	t=.198 p=.89	t=1.35 p=.79	t=1.02 p=.30
<b>Amount of daily tea/coffee consumption</b>				
1-5 glasses	2.39±2.72	10.08±5.79	8.83±5.36	21.32±11.70
6 and over	1.82±2.04	7.97±4.81	8.00±4.79	17.80±9.20
Significance	t=2.06 p=.040	t=2.14 p=.030	t=.98 p=.36	t=1.77 p=.040
<b>Amount of Pulpy Food Consumption</b>				
Always	1.46±2.43	7.30±5.25	6.38±4.89	22.75 ± 9.74
Mostly	1.90±2.25	9.53±5.48	7.90±4.83	24.82±7.06
Occasionally	2.49±2.75	10.10±5.69	9.12±5.43	29.10±7.78
Never	3.00±2.64	3.33±5.77	10.66±1.52	26.00±11.71
Significance	F=1.18 p=.345	F=2.33 p=.070	F=.71 p=.16	F=2.87 p=.030

t: Independent t-test, F: ANOVA (one-way) test

There was a statistically significant difference between students' mean CSS scores and the number of main meals, number of snacks, amount of daily tea/coffee consumption and pulpy and fibrous food consumption ( $p<.05$ ). It was determined that the students who consumed more than three main courses and snacks, 6 and more glasses of tea/coffee and who always consumed pulpy food experienced less constipation than other students. Also, there were statistically significant differences between the students' mean scores of Pain and Lazy bowels sub-scales and the number of main meals, mean scores of Intestinal Obstruction and Lazy bowels sub-scales and the number of snacks, mean scores of Intestinal Obstruction and Pain sub-scales and the amount of daily tea/coffee consumption ( $p<.05$ ).

## DISCUSSION

Constipation is generally defined as a decrease in the frequency of defecation, increased stool hardness, the number of defecation less than normal, the need for intensive straining, incomplete bowel emptying and dry feces (12,20,21). Constipation is not a disease, but a symptom. Multiple variables may lead to constipation (10-12). Constipation decreases the quality of life, may cause labour loss and may negatively affect the success of the students (13).

As a result of this study performed to determine the constipation problems of the nursing students and the variables that affect it, the total CSS score average of the students was found as 27.83±7.85. Considering that a high score obtained from the scale indicated serious symptoms and that the maximum score to be obtained was

73, it was found that the incidence of constipation is not very high in nursing students (7.8%). University students may experience nutrition problems due to the difficulties in adapting to school, environment and dormitory environment, economic insufficiencies, unconscious and unbalanced nutrition, especially tendency to consume fast-food, insufficient fluid intake, immobility and drugs used (13-17). In the study conducted by Uysal et al. (2010) with university students, it was determined that 56.7% of the students identified themselves as constipated (13). In the study conducted by Lim et al. it was determined that 16.2% of the university students had constipation problems (22). In another study, 14.9% of the university students had constipation problems (16). The constipation problems seen in healthy young individuals have revealed that constipation is an important problem that should be considered due to its negative effect on quality of life.

Considering the factors affecting the constipation problems of the students who participated in the study, it was found that the constipation problems experienced by the female students were statistically more significant than that of the male students (Table 3,  $p=.013$ ). In the studies, it was determined that females experienced constipation problems more frequently than males (13,16,23-26). Constipation may be increased in females due to chronic immobility, insufficient fluid intake, insufficient / inappropriate diet, and side effects of the drugs (27). It is seen that the results of our study support the literature results.

It was found that the students, who participated in the study and had regular exercise habits, had significantly fewer

constipation problems than the other students (Table 3,  $p=.04$ ). Constipation is the most common problem among inactive individuals. Muscle tone and bowel movements increase with regular physical exercise (28). It is stated in the literature that the movements of an individual to meet the need for emptying the bowel at certain hours in a day increases the bowel movements and accelerates the excretion. In particular, leg movements have a peristaltic-increasing effect. It is also recommended that exercise should be done frequently to eliminate constipation (13,16,29). According to these results, our research results are similar to the literature.

It has been observed that the variables of the students participated in the study such as age, grade level, region where they live, place of residence, smoking status, and presence of a chronic disease did not affect the constipation status in a statistically significant manner (Table 3). In some studies, it was found that the grade level (22) and smoking status (13,17,22), did not affect the constipation status of the individuals. Our study results are similar to the results of this study. On the other hand, although not statistically significant, the CSS scores of the students living with family were lower than that of the students living in the dormitory, whereas the CSS scores of the students living in the western region of Turkey were lower than that of the students living in the eastern region. This result was interpreted as the fact that the students staying in the dormitories have inadequate / unbalanced eating habits and may have different food culture and nutrition style in the regions where they lived.

Pulp decreases the pressure in the intestinal lumen, causes the water to be drawn to the intestine by increasing the water absorption and increases the volume and softness of the feces (25,30). In many studies, it is recommended to take fibrous foods in the case of constipation problem (2,8,16,31,32). It is emphasized that besides a pulpy diet, it is necessary to have regular main meals and snacks and to eat meals every day at regular intervals without skipping a meal (29). As a result of this study, it has been found that the students who always consume pulpy foods, and have regular and frequent main meals and snacks had less frequent constipation problems as compared to the other students (Table 4). It has been concluded that our study results are consistent with the above literature results.

As a result of this study, although not statistically significant, the total CSS score average of the students who consumed six glasses and more of water per day was lower than that of the students who consumed less water. In the literature, it is emphasized that sufficient fluid intake is important for reducing the risk of constipation (5,8,15,16,25,32,33). Our study results are consistent with the literature. On the other hand, in contrast to the literature, the total CSS score average of the students who consumed six or more glasses of tea/coffee per day was lower than that of the students who consumed less tea/coffee. The consumption of more than six glasses of coffee

per day increases the frequency of low bowel movements, while low and moderate consumption of coffee reduces the risk of constipation (29). It is reported in the literature that high caffeine consumption increases the risk of constipation (29,34). It is thought that the reason why our results are different from the literature may be due to the sample-dependent variables.

## CONCLUSION

As a result of this study, it has been concluded that the nursing students have constipation problems and this problem is encountered more in the students who do not exercise and consume less pulpy/fibrous foods, and in female students. According to these results, it is recommended:

- to generalize education and consultancy services to provide proper nutrition, fluid consumption, exercise habits and to stop harmful consumption habits, necessary for reducing/preventing constipation problem,
- to increase attempts to provide healthy foods in the refectory and social areas,
- to conduct the research in a large sample by addressing the different variables.

## Limitations of Research

Limitations of research are that the research is conducted on the nursing students in a single center and the answers of the questionnaire questions are based on the expressions of the students.

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