A Descriptive study to assess dietary pattern of first year nursing students of selected nursing institutes of the city.

Ms.Ujwala V. Jadhav, Ms.Ashwini Lande, Ms.Avantika Anturkar, Ms. Aaditi Shirke, Ms.Nutan Waghela ,Ms. Vasudha Sapkal
Lecturer, Clinical Instructor, Clinical Instructor, Clinical Instructor
Maharshi Karve Stree Shikshan Samstha;s Smt. Bakul Tambat Institute of Nursing Education, Karvenagar, Pune

,Introduction:

Over the past few years, there has been a significant change in eating habits in Indian people specially the adolescents and youngsters. The new eating habits or pattern consists of consuming more animal food products, junk food, outside foods, prepacked foods and a low-fruits and low-vegetables diet. It is also found that such type of eating habits, lack of exercise, and a sedentary lifestyle have contributed to the rise of various diseases such as Cardiovascular Disease, Diabetes mellitus, Obesity and few more.

In adolescent period the eating habits may get changed as they go away from home for higher education. What's interesting is that moving away from home means that you don't have the time and knowledge to cook and there may be easy options for other food choices like fast food which is high in saturated fats, low in fiber food and mostly processed/prepacked food. This group may also have to face problems like irregular meals, high-energy fat snacks along beverages or sweets. It's not uncommon that meals are skipped by students as it is difficult in managing food preparation. A healthy lifestyle is disrupted by studying hours that may change daily. A cross-sectional survey conducted Sharma S., Maheshwari S., Kuwatada J., Chandrashekhar, Mehra S., on assessing dietary intake patterns through cluster analysis among adolescents in selected districts of Bihar and Assam from India.. The study found that there is high consumption of a low-mixed diet and relatively less milk consumption which can limit the comprehensive growth of adolescents. (1)

A study conducted by Gupta M, Gupta P, Gupta S, Singh D, Sethia S. to assess dietary pattern among school-going adolescents of central India in 2022. It showed that most of the adolescents consume regular meals, but adolescents consumed irregular or skipping of meals and breakfast is still high. And more than 50% adolescents consumed chocolate/pastries/ sweet/ cake/ cookies/ bread/ toast/cookies / biscuits/cold drinks/ soft drinks/ potato chips/ namkeens/ deep-fried snacks/Pizza/burger/Frankie, or any other fast foods.

Nursing students are a particularly interested age group in adopting healthier practices and being deeply informed concerning health issues. This particular group is the future generation in nursing profession and will be doing active role in health education and health promotion.

Aim:

The purpose of the study is to assess the dietary pattern of first year nursing students.

Objectives:

1. To assess the dietary pattern of nursing students.

2. To correlate the dietary pattern and health parameters of first year nursing students.

Research methodology: A quantitative research approach and descriptive exploratory study design was used for the study.

The google form link was sent to the first year nursing ANM,GNM, and BSc nursing students from nursing institutes in the city. Non probability convenient sampling was technique was used in this study.

The institutional Research and Ethical Committee (BTINE 2023) approval was obtained. Before starting the data collection purpose of the study was explained and Informed consent was obtained by the participants. The tool consisted four sections:

1.Demographic variables

3. Health parameteres

4. Frequency of meal

5. Different food groups intake per week

Data collection process:

The data was collected in month of October 2023 through google form link after proper ethical permissions. Total 131 participants were there in this study.

Analysis and interpretation

Table 1: Demographic variables of nursing students in frequency and percentage

N=130

Sr.No.	Demographic Variable	Frequency (*f*)	Percentage %
1.1	**Age in years**		
a.	17-20	123	95
b.	21-23	7	5
1.2	**Gender**		
a.	Male	15	12
b.	Female	115	88
1.3	**12th Std stream**		
a.	Arts	0	0
b.	Commerce	4	3
c.	Science	125	96
d.	Any other	1	1
1.4	**Type of diet**		
a.	Vegetarian	32	25
b.	Non vegetarian	2	1
c.	Mixed	96	74

1.5	Annual Family Income		
a.	Less than 50000/-	56	43
b.	51000 to 100000/-	60	46
c.	More than 100000/-	14	11
1.6	Location		
a.	Samstha/ College Hostel	51	39
b.	Day scholar	58	44
c.	Private hostel	21	16

Above table states that there were 123 (95%) samples were from age group of 17-20 years, 115 (88%) samples were female, 125 (96%) were from Science stream, 96 (74%) were mixed and 32 (25%) were vegetarian, 116 (89%) were from income less than 1,00,000/, 72 (56%) were staying at hostel and 58 (44%) were day scholar.

Table 2: Body mass index of nursing students in frequency and percentage

N=130

BMI	Weight Status	Frequency (f)	Percentage (%)
Below 18.5	Underweight	63	48
18.5 – 24.9	Healthy Weight	55	42
25.0 – 29.9	Overweight	8	7
30.0 and Above	Obesity	4	3

Above table shows that maximum i.e. 63(48%) sample were having BMI below 18.5 (Underweight), 55(42%) sample were having BMI in between 18.5 - 24.9 (Healthy weight), 08 (7%) sample were having BMI in between 25.0 – 29.9 (Over weight), and only 4 (3%) samples were having BMI 30.0 and above (Obese).
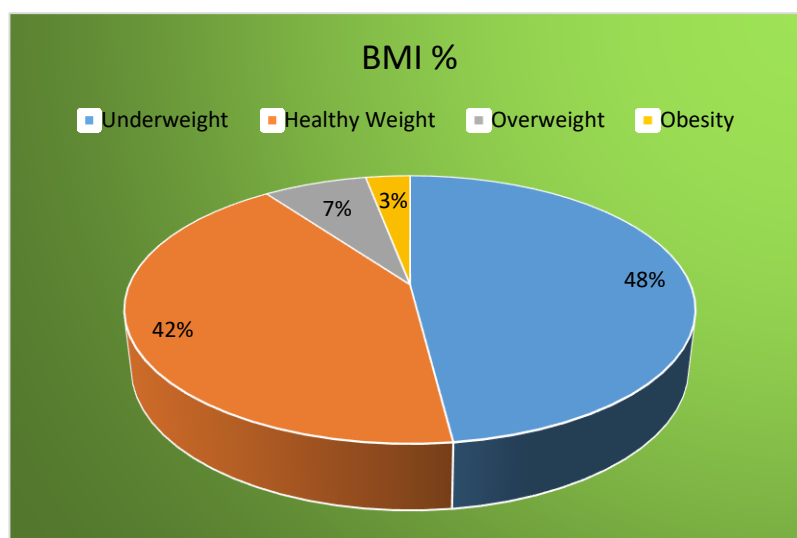
Fig 1: Showing percentage of Body mass index (BMI) of nursing students

Table 3: Haemoglobin level of nursing students in frequency and percentage

N=130

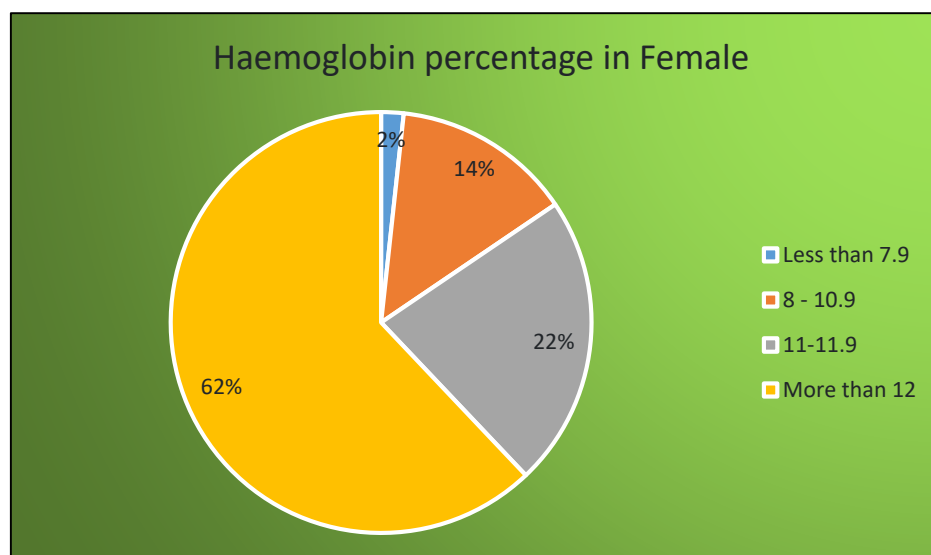| Female	Frequency (*f*)	Percentage (%)
Less than 7.9	2	2
8 - 10.9	15	13
11-11.9	26	23
More than 12	72	62
Total	115	100
Male		
Less than 7.9	0	0
8 - 10.9	5	33
11- 12.9	2	13
More than 13	8	54
Total	15	100

Fig 2: Showing percentage of Haemoglobin level of nursing students

Table 4: Meal pattern of nursing students in frequency and percentage

N=130

Sr.No.	Meal	Frequency (*f*)	Percentage (%)
4.1	**Breakfast**		
	Daily	82	63
	Some times	45	35
	Never	3	2
4.2	**Lunch**		
	Daily	130	100
	Some times	0	0
	Never	0	0
4.3	**Evening snacks**		
	Daily	31	24
	Some times	88	68
	Never	11	8
4.4	**Dinner**		
	Daily	130	100
	Some times	0	0
	Never	0	0

Above table states that all 130 (100%) samples were taking lunch and dinner daily. 82 (63%) sample were taking breakfast daily and 45 (35%) sample were taking breakfast sometimes. 88 (68%) sample were taking evening snacks sometimes and 31 (24%) were taking daily.

Table 5: Frequency and percentage of intake of nursing students as per food groups in less than 3 days and more than 3 days in a week

N=130

Food group	Intake More than 3 times in a week		Intake Less than 3 times in a week	
Fruits and vegetables	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Fruits	38	30	92	70
Green leafy vegetables	77	59	53	41
Other Vegetables	95	73	35	27
Salad	46	35	84	65
TOTAL	**256**	**49**	**264**	**51**
Starchy foods	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Rice	111	86	19	14
Cereals	78	60	52	40
Chapati	129	99	1	1
Bhakri	45	34	85	66
TOTAL	**363**	**70**	**157**	**30**
Dairy products	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Milk	46	35	84	65
Curd/Butter milk	43	33	87	67
Cheeze	7	5	123	95
Butter	12	8	118	92
TOTAL	**108**	**21**	**412**	**79**
Protein	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Pulses	83	64	47	36
eggs	18	14	112	86
Fish	6	4	124	96
Meat	**14**	**10**	**116**	**90**
TOTAL	**121**	**23**	**399**	**77**
Fat	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Nuts - Dry friuts	40	31	90	69
Ghee/oil	69	53	61	47
TOTAL	**109**	**42**	**151**	**58**
Out side foods	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Bakery products	18	14	112	86
Fried snacks	18	14	112	86

Pizza/Burger	4	3	126	97
Soft drinks	5	4	125	96
Ice cream	20	15	110	85
TOTAL	**65**	**10**	**585**	**90**

Above table shows that only 49% of sample having intake of Fruits and vegetables (Fruits, Green leafy vegetables, Other Vegetables, Salad) for more than 3 days in a week and 51% of sample having intake of fruits and vegetables for less than 3 days in a week.

70% of samples were having intake of Starchy foods (Rice, Cereals, Chapati, Bhakri) for more than 3 days in a week and 30% of sample having intake of Starchy foods for less than 3 days in a week.

21% of samples were having intake of Dairy products (Milk, Curd/Butter milk, Cheeze, Butter) for more than 3 days in a week and 79% of sample having intake of Dairy products for less than 3 days in a week.

Only 23 % of samples were having intake of Proteins (Pulses, Eggs, Fish, Meat) for more than 3 days in a week and 77% of sample having intake of Proteins for less than 3 days in a week. It was also seen that the samples from Vegetarian group only 20% samples were having intake of Proteins for more than 3 days in a week and from Mixed and non vegetarian group only 24% samples were having intake of Proteins for more than 3 days in a week.

42% of samples were having intake of Fat (Nuts - Dry friuts and Ghee/oil) for more than 3 days in a week and 48% of sample having intake of Fat for less than 3 days in a week.

Only 10% of samples were having intake of Outside food (Bakery products Fried snacks, Pizza/Burger, Soft drinks, Ice cream) for more than 3 days in a week and 90% of sample having intake of Outside food for less than 3 days in a week.
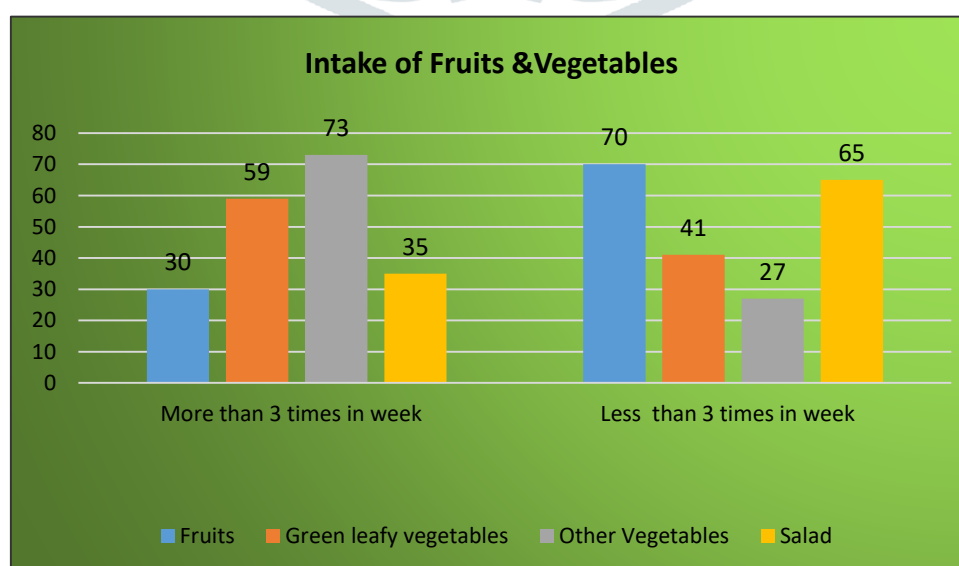

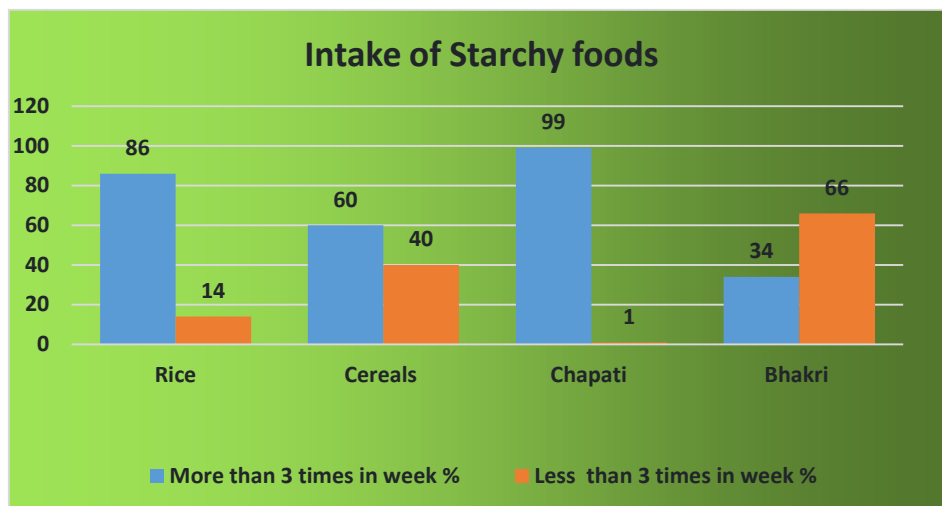**Fig 3: Showing intake of fruits and vegetables of nursing students**
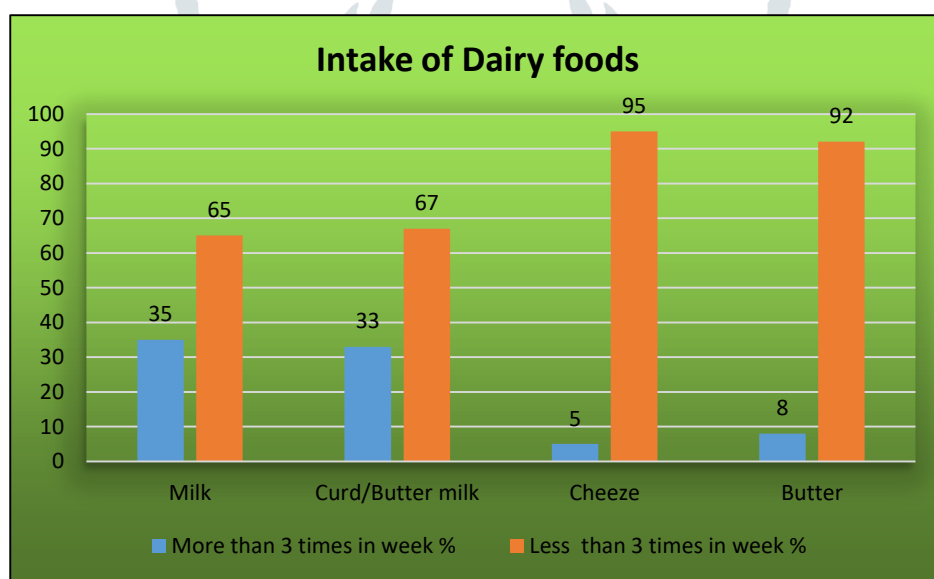
Fig 4: Showing intake of starchy foods of nursing students

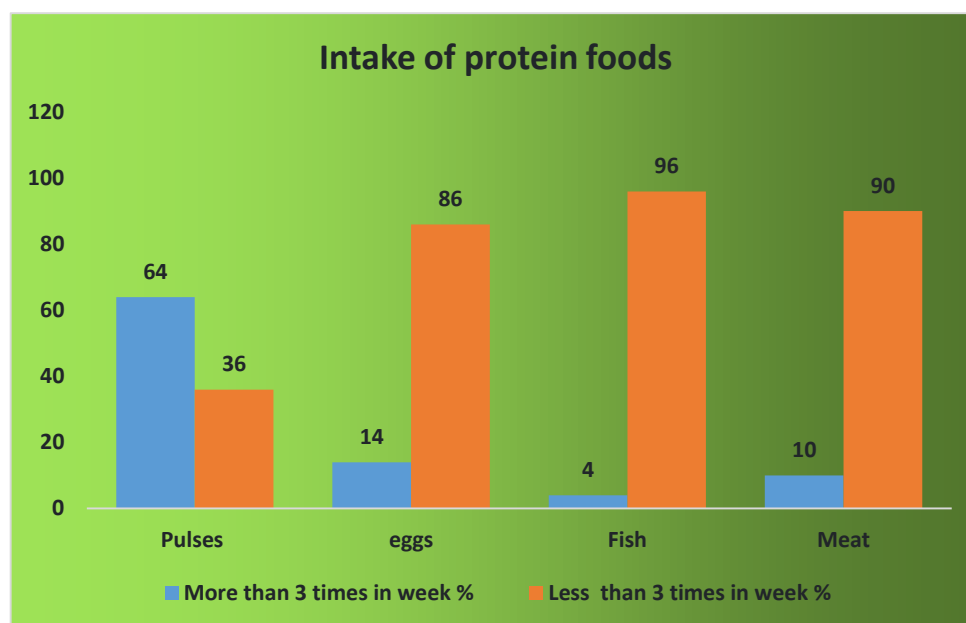**Fig 5: Showing intake of dairy foods of nursing students**

Fig 6: Showing intake of protein foods of nursing students

Table 6: Fisher's exact test for the associations BMI with Starchy food group intake per week

N=130

Food Item		BMI				p-value
		Under-weight	Healthy weight	Over-weight	Obese	
Rice	Daily	49	44	3	3	
	>=3 times a week	5	7	0	0	
	<= 3 times a week	4	2	2	0	0.015
	Rarely	6	0	2	1	
	Never	0	2	0	0	
Cereals	Daily	21	14	1	1	
	>=3 times a week	22	18	0	1	
	<= 3 times a week	6	8	1	1	0.214
	Rarely	14	15	4	1	
	Never	1	0	1	0	
Chapati	Daily	60	53	7	4	
	>=3 times a week	4	1	0	0	0.576
	Rarely	0	1	0	0	
Bhakri	Daily	19	15	1	1	
	>=3 times a week	5	3	0	0	
	<= 3 times a week	8	10	2	1	0.983
	Rarely	26	23	3	2	
	Never	6	4	1	0	

Since p-value corresponding to rice was small (less than 0.05), rice from starchy foods group was found to have significant association with the BMI. There was no significant association of Fruits and vegetables, dairy foods, protein foods, fat and other outside foods with BMI.

Table 7: Fisher's exact test for the associations Haemoglobin among females with Fruits and vegetables food group intake per week

N=130

Food Item		Haemoglobin among females				p-value
		Less than 7.9	8 - 10.9	11-11.9	More than 12	
Fruits:	Daily	0	3	2	7	0.937
	>=3 times a week	0	3	5	13	
	<= 3 times a week	0	3	7	22	
	Rarely	2	7	12	29	
Green leafy vegetables	Daily	0	7	1	14	0.014
	>=3 times a week	0	6	13	29	
	<= 3 times a week	0	2	10	19	
	Rarely	2	1	2	9	
Other Vegetables	Daily	0	7	11	31	0.017
	>=3 times a week	0	8	8	22	
	<= 3 times a week	0	0	7	9	
	Rarely	2	1	0	9	
Salad	Daily	0	1	7	11	0.172
	>=3 times a week	1	4	8	11	
	<= 3 times a week	0	3	3	14	
	Rarely	0	7	8	25	
	Never	1	1	0	10	

Since p-value corresponding to Green leafy vegetables and Other Vegetables were small (less than 0.05), Green leafy vegetables and Other Vegetables from Fruits and vegetables foods group was found to have significant association with the haemoglobin among females. There was no significant association of starchy foods, dairy foods, protein foods, fat and other outside foods with haemoglobin percentage.

Discussion:

The study result shows that there is need to provide proper information about healthy food habits and dietary pattern to maintain normal body weight and haemoglobin level as this is the important age group to have proper nutritional intake. These findings support to the findings from a mixed-method study done by Hadaye, R., Pathak, B., & Lavangare, S. in 2019 on Nutritional status of the student nurses of a tertiary health-care center. This study findings shows that about 67.5% of nursing students had BMI less than 18. Faulty dietary habits, recurrent minor health issues, and lack of good health habits can cause mal nourishment. Another predisposing factors such as inadequate knowledge of balanced diet , study stress financial issues, peer pressure, along with wrong perception of body image can also be there.

Mengi Celik O., Semerci, R. (2022) conducted a study on The determination of nutritional knowledge and nutrition literacy among nursing students. 690 nursing students from the Faculty of Health Sciences, Department of Nursing at a university in Turkey were included in the study. The study data were collected with information Form, Anthropometric Measurements, Nutrition Knowledge Level Scale for Adults (NKLSA) and Evaluation Instrument of Nutrition Literacy on Adults (EINLA). Descriptive analysis and non matric tests were used for analysis. The score of nutrition knowledge is 56.6 ± 6.8 and 50.5 %of them have a good nutrition knowledge. The total nutrition literacy score is 28.6 ± 4.4 and 91.6% of them have a sufficient nutrition literacy level. It was no significant difference between students' characteristic features and nutrition knowledge score and nutrition literacy total score ($p > 0.05$). It has been determined that the nutrition knowledge and nutrition literacy levels of nursing students correlated with each other. There should be nutritional topics in the curriculum to improve the nutrition literacy.

Conclusion: It was concluded that there is need to provide proper health information about healthy food habits to maintain normal body weight and haemoglobin level as this is the important age group to have proper nutritional intake.

References:

1. Sharma, S., Maheshwari, S., Kuwatada, J., Chandrashekhar, & Mehra, S. (2021). Assessing dietary intake patterns through cluster analysis among adolescents in selected districts of Bihar and Assam from India: a Cross-Sectional survey. Frontiers in Nutrition, 8. https://doi.org/10.3389/fnut.2021.592581

2. Gupta M, Gupta P, Gupta S, Singh D, Sethia S. A study to assess dietary pattern among school-going adolescents of central India. J Med Sci Res 2022;5:355-8

3. https://www.foodstandards.gov.scot/consumers/healthy-eating/nutrition/the-five-food-groups

4. Hadaye, R., Pathak, B., & Lavangare, S. (2019). Nutritional status of the student nurses of a tertiary health-care center - A mixed-method study. *Journal of family medicine and primary care*, *8*(3), 1028–1034.

5. Mengi Çelik, Ö., Semerci, R. Evaluation of nutrition literacy and nutrition knowledge level in nursing students: a study from Turkey. *BMC Nurs* **21**, 359 (2022). https://doi.org/10.1186/s12912-022-01146-z