



Correlation of Fiber Intakes with Incidence of Constipation in the Elderly



Savitri Gemini ^a, Lestari Lorna Lolo ^b, Sumiati ^c, Awaliyah Ulfah Ayudytha Ezdha ^d, Neny Yuli Susanti ^e

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Corresponding Author ^a

Abstract



Keywords

constipation;
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fiber intakes;
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nutrition;

Constipation becomes one of the diseases that are often suffered by the elderly, many factors that affect constipation one of which is fiber intake. The goal of the study was to find out the relationship of fiber intake with the incidence of constipation in the elderly (*elderly*). The research is conducted with a *cross-sectional* approach. The number of samples in the study as many as 65 elderly, sampling using *purposive sampling techniques*. The majority of research results obtained fiber intake of fewer than 50 people (76.9%), constipation as many as 34 people (52.3%), adequate fiber intake as many as 15 people (23.1%), and not constipation as many as 31 people (47.7%). The *chi-square* test result was *p-value* 0.010 ($\alpha = <0.05$), suggesting there was a meaningful relationship between fiber intake and constipation events. The conclusion of a study of less fiber intake can result in constipation in the elderly. The implications of the research are shown so that the elderly can maintain fiber intake patterns and avoid the occurrence of constipation.

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^a Mitra Bunda Health Institute, Batam, Indonesia

^b Kurnia Jaya Persada Institute of Health and Business, Palopo, Indonesia

^c Kurnia Jaya Persada Institute of Health and Business, Palopo, Indonesia

^d Pekanbaru Medical Center College of Health Sciences, Pekanbaru, Indonesia

^e Ibrahimy University, Situbondo, Indonesia

1 Introduction

An elderly person is someone who has reached the age of 60 years and above. Aging is not a disease, but is a process that gradually results in cumulative changes, is the process of decreasing endurance in the face of stimulation from inside and outside the body. With age, the elderly experience various changes in the body, namely the decrease in the function of various organs and tissues of the body (Purnomo et al., 2019). These changes include sensing organs that lower appetite, weakening of the digestive system becomes more sensitive to food, and constipation (Aspiani, 2014). Constipation is defined as changes in the frequency of defecation, volume, and consistency of feces. Constipation is not a disease, but rather a symptom of decreased frequency of defecation (>3 days once or <2 times a week) followed by the production of long stools with a hard and dry consistency (Damon et al., 2004; Locke III et al., 2000). Constipation occurs due to decreased colon motility thus extending the transit time of feces in the colon and resulting in the water content continuing to be absorbed from the fecal mass so that the stool becomes dry, hard, and difficult to remove in the defecation process (Gutzwiller, 2011). According to (Dennison et al., 2005), elderly people in the United States who experience complaints of constipation as many as 2.5 million people, the prevalence of constipation in the elderly >65 years as much as 30%-40%. Studies of the population in Turkey show constipation rates from 22% to 40%. Constipation occurs in Indonesia by 3.8% for the elderly aged 60-69 years, and the elderly over 70 years of age by 6.3% (Kemenkes, R.I, 2017). The incidence of constipation in Indonesian women is higher than men 2-3 times. The prevalence of constipation in the elderly >60 years of age is 33.5% and 80% of the elderly are hospitalized (Mansouri et al., 2018). According to Riwidikdo (2009), elderly people who experience constipation are as many as 20 people with a prevalence of low fiber intake as much as 100%, fluid intake less as much as 38.5%, and less physical activity as much as 10%. The main causes of constipation are lack of fibrous food consumption, lack of fluid intake, physical activity, prolonged baring, heavy laxative use that leads to loss of normal reflex defecation (Potter & Perry, 2005). Adequate fiber intake can facilitate the defecation process (Mustika & Harini, 2017). This fiber will bind to fat so that the fat will not be absorbed by the body, but will be removed from the body with feces (Reicks et al., 2014; Dukas et al., 2003; Marlett & Cheung, 1997). Less fiber intake can cause constipation (McCrea et al., 2009). The more adequate fiber intake, the more normal the frequency of defecation is above 3 times a week and vice versa the less fulfilled fiber intake than the frequency of defecation will be reduced, which is below 3 times/week (Sugiyanto et al., 2017). Lack of fiber intake is one of the causes of difficulty defecating, because the lack of fiber intake results in feces that form become hard, dry, and difficult to remove, and if ignored can cause severe obstipation. Severe obstipation can result in colon cancer that is fatal for the sufferer (Mulyani, 2019), Various changes experienced by the elderly, ranging from decreased body function, physical ability, patterns of dietary consumption of fiber sources, and fulfillment of fluid intake in the body cause the risk of elderly experience constipation to be greater than at a young age (Hajjar et al., 2007; Kerrigan et al., 1998).

2 Materials and Methods

This research is included in the type of analytical research WI cross-sectional *design*. The sample in this study was elderly people aged ≥ 60 years in the working area of the health center said Langkawi with a large sample of 65 people. Sampling technique using *non-probability sampling* with *purposive sampling* technique. The instrument used in this study was a questionnaire. Questionnaires used for fiber intake are SQ-FFQ (*Semi-Quantitative Food Frequency Questioner*) and Nutri survey software 2007. This SQ-FFQ questionnaire consists of 5 indicators of fiber intake, namely whole grains, vegetables, fruits, nuts, and drinks. Questionnaire assessments use a rating *scale* by answering using respondents' perceptions. Nutrisurvey software consists of a menu of foods, amounts, various sources of nutrition (carbohydrates, proteins, fats, fiber, vitamins, sodium, potassium, calcium, magnesium, zinc, etc.), age, and portions (Wild et al., 2010; Gramlich et al., 2004). The constipation questionnaire used is a CSS questionnaire (*Constipation Scoring System*) consisting of 8 indicators of constipation, namely the frequency of bowel movements, difficulty emptying. Or painful, complete

emptying, abdominal pain, length in the toilet to defecate, the type of help used, emptying efforts failed for 24 hours, and the length of constipation (Mustika & Sudiantara, 2019). Assessment using a *Likert* scale in the form of a statement with a value of 4 for answers has been always a value of 3 for frequent answers, a value of 2 for answers sometimes, the value of 1 for the answer is rare, the value of 0 for the answer never. The data analysis used in this study is a univariate analysis of this study consisting of free variables, namely fiber intake and bound variables that are constipation events, carried out by calculations (Suwananta et al., 2020). Presentation. Bivariate analysis is used using a *chi-square* statistical test.

3 Results and Discussions

The results of this study were conducted in the working area of Puskesmas Sei lanky Batam city in 2020, starting with spreading questionnaires about fiber intake and constipation events to 65 elderly people. The data of questionnaire deployment results consists of general data and specialized data.

Table 1
Elderly demographic data in the working area of Puskesmas Sei Langkai in Batam city in 2020

Variable	Sum	Percentage (%)
Age		
60-64	41	63,1
65-69	14	21,5
70-74	5	7,7
75-80	5	7,7
Gender		
Man	24	36,9
Woman	41	63,1
Work		
Work	8	12,3
Not Working	57	87,7
Education		
Not school	10	15,4
Primary Education	41	63,1
Secondary Education	14	21,5
Higher Education	0	0
Elderly Height		
148-150 cm	11	16,9
151-153 cm	7	10,8
154-156 cm	14	21,5
157-159 cm	10	15,4
160-162 cm	14	21,5
163-165 cm	5	7,7
166-168 cm	1	1,5
169-171 cm	3	4,6
Elderly Weight		
48-52 kg	12	18,5
53-57 kg	14	21,5
58-62 kg	24	36,9
63-67 kg	5	7,7
68-72 kg	7	10,8
73-77 kg	2	3,1
78-82 kg	1	1,5

Table 2
Distribution of elderly stick character frequency based on fiber intake

Fiber Intake	Sum	
	Frequency	(%)
Enough	15	23,1
Less	50	76,9
Total	65	100

From Table 2 above known most of the fiber intake of the elderly less amounted to 50 elderly (76.9%).

Table 3
Distribution of elderly stick character frequency based on constipation events

Constipation Event	Sum	
	Frequency	(%)
No Constipation	31	47,7
Constipation	34	52,3
Total	65	100

Table 3 data shows beware most of the elderly experiencing constipation amounted to 34 elderly (52.3%).

Table 4
Results of analysts' relationship of fiber intake with constipation events in the elderly

Fiber Intake Variables	Constipation Event				Total		p-area
	No constipation		Constipation		n	(%)	
	Σ	(%)	Σ	(%)			
Enough	12	80	3	20	15	100	
Less	19	38	31	62	50	100	0,010
Total	31	47,7	34	52,3	65	100	

Based on table 4 above, the *chi-square* test result with a *p-value* of 0.010 ($\alpha = \leq 0.05$) was obtained so that H_0 was rejected and H_a accepted. So the conclusion is that there is a relationship between fiber intake with the occurrence of constipation in the elderly in the working area of Puskesmas Sei Langkai Batam City in 2020.

Fiber is a non-pathic polysaccharide in the form of complex carbohydrates formed from the combination of several simple sugar groups. Fiber is a non-nutritional nutrient that cannot be digested by human digestive enzymes so the fiber does not produce energy and nutrients (Winarto, 2004). The function of fiber in the digestive system is to increase the volume of feces, and facilitate defecation or defecation, so that fiber can prevent constipation (Sugiyanto et al., 2017). A fiber consisting of soluble and insoluble fiber, dietary fiber has been shown to overcome the problem of constipation in the elderly, a good source of fiber found in grains, vegetables, fruits, and nuts. Insoluble dietary fiber consists of cellulose, hemicelluloses, and lignin. Cellulose and hemicellulose are found in wheat, sweet potatoes, kale, chickpeas, Tampa, guava, lignin widely found in the wood section grainy plants, apples, cabbage. While soluble dietary fiber consists of gum, pectin, and mucilage. Pectin is found on the skin of vegetable plants, such as apples, oranges, and sesame. Gum is widely found in nuts such as soybeans, chickpeas, and mucilage. On the outside of the grain cell (Senate, 2018). People who consume low fiber will slow down the transit time of food in the intestines that can cause because fiber also serves to facilitate the volume of feces so that it will facilitate the disposal process, if the respondent's fiber consumption is low it will cause constipation (Mardalena, 2018). In this study, the fulfillment of fiber needs is very affordable and easy to obtain. Supposed fiber intake is likely to be enough, but

in the results of research that fiber intake tends to be less, then there is a problem with the consumption of foods consumed foods that make the fiber. Unfulfilled. Constipation is a disorder of the digestive tract caused by dry and hard stool through the large intestine and caused by various actors such as fiber, fluids, and Poor lifestyle, such as physical activity, stress, and bowel movements (Oktaviana & Setiarini, 2013) Elderly is someone who has reached the age of 60 years and above, elderly is the aging process, not a disease. This process is characterized by changes from inside and outside the body, one of which is a functional problem in the digestive system that causes constipation in the elderly (Stanhope & Lancaster, 2019). Constipation In the elderly occurs due to weak peristaltic, tooth loss, decreased intestinal motility, and loss of abdominal muscle elasticity (Aspiani, 2014). According to Potter & Perry (2005), constipation is caused by irregular defecation habits, consumption of a low-fiber diet, long boring, age, and drug use. Sedating. In this study, the elderly pay less attention to bowel habits, the elderly delay defecation due to emptying that is difficult/painful and not the completion of defecation so that the elderly tend to hold or delay it. The way to avoid constipation is to get used to regular bowel movements and consume foods that contain fiber. Elderly people who experience constipation tend to be due to less fiber intake. This happens because the elderly do not spend their food on the grounds of not appetite, another factor that worsens fiber intake in the elderly, namely the completeness of teeth that are already a lot of dates result in the inability to chew foods that contain fiber sources (Massacre & Audina, 2018). Factors associated with constipation, according to Turan et al. (2011), i.e. Irregular defecation habits, lack of Fiber intake, prolonged baring, taking drugs such as sedatives, Parkinson's drugs, increased psychological stress, and weakening of muscle tone.

4 Conclusion

The results of the above research, researchers assume that the relationship fiber intake with the incidence of constipation most respondents consumes less fiber. Fiber serves to increase the volume of feces and facilitate bowel movements, so that fiber can prevent constipation. This suggests that fiber has a significant role to play in the increased frequency of constipation. So it can be concluded based on the results of research that there is a relationship between the two variables, namely the less fiber intake, the higher the incidence of constipation. And adequate fiber intake then the occurrence of constipation can be overcome.

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Biography of Authors

	<p>Savitri Gemini A lecturer in Nursing and Professional Education undergraduate study program at the Mitra Bunda Persada Health Institute and the head of the study program. completed his master's degree in Nursing in 2015 at Andalas University <i>Email: savitrigemini79@gmail.com</i></p>
	<p>Lestari Lorna Lolo Lecturer at the bachelor of nursing Department at the Institute of Health and Business Kurnia Jaya Persada. There have been several research results published in national journal articles in Indonesia and international journals since 2016 until now. In addition, she is also active as a researcher in the field of nursing. She is also active as a book editor and also writes books. Currently, 10 books have been published as a result of his editing and 2 books by his writings. <i>Email: thenextambition1@gmail.com</i></p>
	<p>Sumiati Lecturer of Bachelor of Nursing at the Kurnia Jaya Persada Institute of Health and Business located in Palopo City, South Sulawesi, Indonesia. So far, She has been actively teaching, researching, and serving the community since becoming a Lecturer, Her areas of interest are health science and health nursing. <i>Email: nssumiatigo@gmail.com</i></p>
	<p>Awaliyah Ulfah Ayudytha Ezdha Lecturer of the Nursing Profession Program at STIKes Pekanbaru Medical Center since 2016. Currently, her functional position is Lector (300). Actively running the tri dharma of higher education until now. Specialization in Nursing Management and Basic Nursing graduated from Nursing at the University of Riau and Master in Hospital Administration at the University of Indonesia in 2016. Before becoming a lecturer, she worked at Eka Hospital Pekanbaru. <i>Email: ditarhmn@gmail.com</i></p>
	<p>Neny Yuli Susanti She is a researcher at the Midwifery Study Program, Faculty of Health Sciences, Ibrahimy University. In 2008 she graduated from D3 Midwifery at Darul Ulum Islamic Boarding School Jombang, in 2010, graduated from D4 Midwifery at Stikes Unggul Surabaya, and in 2017 graduated from S2 Midwifery at Padjadjaran University Bandung. Currently, she is interested in Midwifery Care in Maternal Maternity, has previously published several publications on technology-based midwifery care such as the "Sahabat Umi" expert system, and is active in community service activities, especially those based on midwifery care for children, adolescents, pregnant women and mothers in labor. <i>Email: nenyulisusanti@gmail.com</i></p>