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A study to assess the effectiveness of consumption of flaxseeds on constipation among the old age people in a selected community area in Bengaluru

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Abstract

One of the most common complaints among older folks is constipation. Despite not being a physiological effect of aging, constipation may be more common in older persons due to a combination of comorbid medical disorders and diminished mobility. The first line of treatment is dietary change, with a major emphasis on fiber consumption. Flaxseeds (*Linum usitatissimum*) the natural sources of dietary fiber, have drawn interest due to their ability to support digestive health. The aims of the study were (i) To identify the level of constipation among the old age in a selected community area. (ii) To assess the effectiveness of consumption of Flaxseeds on constipation among the old age people. (iii) To associate the level of constipation of old age people with selected demographic variables. A Quasi-experimental study was conducted on 30 old age people using purposive sampling technique. After the intervention 50% of the old age people were having no constipation in the post test, 53% had mild constipation in the pre -test while 33% had mild constipation in post-test, 30% old age had moderate constipation in pre- test while 10% had moderate in the post test and 16% person reported severe constipation in pre- test while no one reported severe constipation in post-test. There is a significant difference in the level of constipation in pre-test and post-test. Therefore, we conclude that Flaxseed supplementation appears to be safe, effective, and natural option for improving bowel function in older adults with constipation.

Keywords: Constipation, flaxseeds, old age, community, physiological effect, digestive health

1. Introduction

Compared to younger adults, older adults are more prone to disease, syndromes, and illness and frequently have lower regeneration capacities. The age at which someone is considered to be "old age" varies throughout history and culture. Therefore, rather than being a distinct "biological stage", old age is "a social construct" [1]. As people age, their bodies undergo physiological changes that eventually cause different organ systems to perform less well. A decline in cardiac output and an increase in vascular resistance are two alterations in the cardiovascular system that are indicative of aging. Hepatic blood flow decreases when cardiac output declines [2]. A number of physical changes occur as adults reach age 65. The most common are listed below. Hearing impairment among older adults is often moderate or mild, yet it is widespread; 48 percent of men and 37 percent of women over age 75 experience hearing difficulties. Visual changes among aging adults include problems with reading speed, seeing in dim light, reading small print, and locating objects. The amount of time it takes to respond to features in the environment once they are detected is typically slower among older adults [3]. Indeed, while constipation is not a physiological effect of aging, aged persons may witness it more constantly due to a combination of comorbid medical diseases and lowered mobility. Constipation symptoms are soothed and stool frequency is increased by fiber and laxatives [4]. Every time, constipation causes over 2.5 million doctor visits and is current among aged persons. The chance of people who experience constipation rises with age, and the estimated frequency ranges from 22 to 28 percent, lower than three bowel movements per week is the standard description of constipation in clinical practice [5]. Herbs like flaxseed, fenugreek or barley work as bulk forming laxatives and are excellent habitual constipation cures. They contain soluble fibre that helps soften stools and reduces discomfort during bowel movements. Studies have supported some of these claims and defatted flaxseed meal was initiated to help in the treatment of constipation [6]. Flax (also known as common flax or linseed), with the binomial name *Linum usitatissimum*, is a member of the rubric Linum in the family. It's a food and fibre crop that's grown in cooler regions of the world. The fabrics made from flax are known in the West as linen, and traditionally used for bed sheets, underclothes and table linen. The oil is known as linseed oil [7].

2. Materials and Methods

One group pre-test post test was conducted on 30 old age people of 60-80 years from selected community area using purposive sampling. A consent was initially obtained from

all the samples as part of ethical practice, followed by data collection using a demographic questionnaire and Constipation Assessment Scale. The inclusion criteria for the participants were old age people between 60-80 years, both male and female, and who has got the range of 1-42 points on the constipation assessment scale, self-reported or clinically diagnosed constipation, whereas the exclusion criteria were those who are not willing to participate.

3. Intervention

Participants received 10-15g (1-2 tablespoons) of ground flaxseed daily, administered orally mixed into meals (e.g., porridge, yogurt, or juice). The intervention lasted for 28 days. Participants were advised to maintain a daily fluid intake of at least 1.5-2 litres to support fiber efficacy.

4. Results

The demographic data was analysed using descriptive measures (frequency & percentage). Effectiveness of flax seeds consumption was analysed by using paired "t" test. The association between levels of constipation and the selective demographic variables among old age people was analysed using inferential statistics (chi square test). A p value < 0.05 was considered statistically significant.

Table 1: Comparison of level of constipation in pre and post-test

Level of bowel Movements	Pre-test		Post-test	
	Frequency	Percentage	Frequency	Percentage
Absent	-	-	15	50%
Mild constipation	16	53.34%	10	33.34%
Moderate constipation	09	30%	05	16.67%
Severe Constipation	05	16.67%	-	-

Table 1 depicts that 50% of the old age people reported no constipation in the post test, 53% reported mild constipation in the pre-test while 33% reported mild constipation in post-test, 30% old age reported moderate constipation in pre- test while 10% had moderate constipation in the post test and 16% people reported severe constipation in pre-test while no one reported severe constipation in post-test.

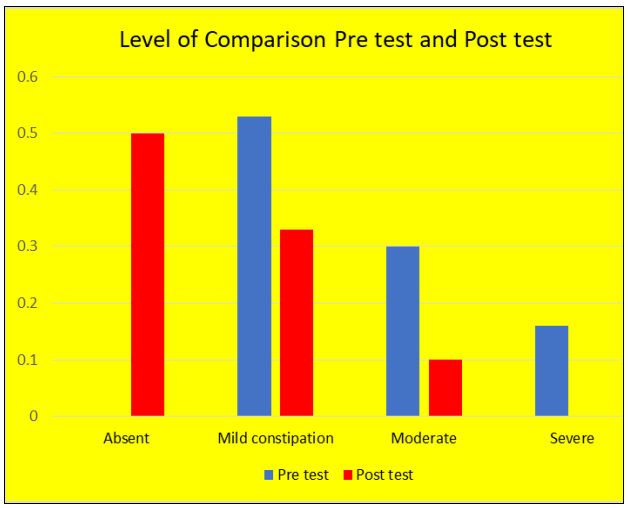

Fig 1: Bar diagram showing the level of comparison between the pre-test and post of old age people with their level of constipation

Comparison of mean, standard deviation and mean difference of pre-test and post-test level of constipation.

Table 2: Comparisons of mean, standard deviation and mean difference of the pre-test and post-test level of constipation

Score	Mean	Standard Deviation	Mean differences	'T' Value	'P' Value
Pre test	10.9	1.44	1.44	1.699	0.04
Post test	4.13	0.42			

The data presented in Table 2 indicates a significant difference in the level of constipation between the pre-test and post-test scores. The mean pre-test score was 10.9 with a standard deviation of 1.44, while the mean post-test score was 4.13 with a standard deviation of 1.42. The mean difference was 1.44. The paired 't' test value was found to be 1.699 with a p-value of 0.04. As the p-value is less than the level of significance (p<0.05), it is inferred that the difference is statistically significant. Hence, it is concluded that the intervention was effective in reducing the level of constipation among the old age people.

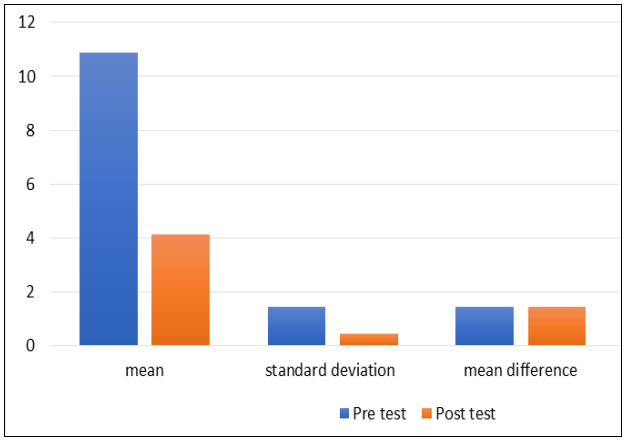

Fig 2: Bar diagram showing mean, standard deviation and mean difference of scores of levels of constipation of old age

Association between the selected demographic variables

The Chi-square value shows that there is significance association between the score level and Age, Type of family, Monthly Income and education. The calculated chi-square values were more than the table value at the 0.05 level of significance. There is no significance association between the level of scores and other demographic variables like sex, area of residence, Dietary habits, religion, and source of information, occupation and any other associated illness. The calculated chi-square values were less than the table value at the 0.05 level of significance.

5. Discussion

The present study aimed to evaluate the effectiveness of flax seed in alleviating constipation among the elderly population. The findings indicate that regular consumption of flax seed significantly improved bowel movements and reduced the severity and frequency of constipation symptoms in older adults.

Prior to the intervention, 53% of participants reported mild constipation, 30% had moderate constipation, and 16% experienced severe constipation. Post intervention data revealed a notable improvement: 50% of participants reported no constipation, 33% had mild symptoms, and only 10% contributed to experience moderate constipation. Importantly, no cases of severe constipation were recorded

after flax seed intake. These results strongly suggest the efficacy of flax seeds as a natural dietary intervention for constipation relief in older adults.

The improvement may be attributed to the high fiber content and mucilage of flax seeds, which contribute to increased stool bulk, enhanced water retention, and improved bowel motility. In addition, flax seeds may exert a mild prebiotic effect, further supporting intestinal health.

Statistical analysis using the chi-square test showed a significant association between constipation relief and several demographic factors, specifically age, type of family, monthly income, and education level ($p<0.005$). This implies that these variables may influence awareness, access, and adherence to dietary interventions like flax seed supplementation.

However, no statistically significant associations were observed between constipation improvement and other demographic factors such as sex, area of residence, dietary habits, religion, source of information, occupation, or other associated illnesses. These findings suggest that while flaxseed is broadly effective, certain socio-economic and educational factors may modulate its perceived or actual benefit.

Flax seeds are rich in both soluble and insoluble fiber, which play a central role in enhancing gut motility. The soluble fiber increases stool bulk by absorbing water and forming a gel-like consistency, while the insoluble fiber contributes to mechanical stimulation of the bowel wall, promoting peristalsis. Additionally, the mucilage components in flax seeds, including polysaccharides such as arabinoxylans and pectins, appear to support stool softening and easier passage [8]. The improvement in bowel habits observed in this study could also be attributed to the prebiotic properties of flaxseed components, which support gut micro biota diversity and function. Emerging research suggests that dietary flaxseeds promote the growth of beneficial gut bacteria, such as Bifidobacterium and Lactobacillus species, which in turn produce Short-Chain Fatty Acids (SCFAs) that support intestinal health and motility [9]. Moreover, flaxseeds are a low-cost natural intervention, making them a promising dietary approach for the management of functional constipation, particularly in populations where pharmaceutical interventions may be limited or undesirable. Importantly, our findings indicate that flaxseeds are well tolerated and do not cause significant adverse effects when consumed in appropriate amounts [10].

However, certain limitations should be acknowledged. The self-reported nature of bowel habit improvements may introduce bias, and future studies with objective assessments, such as colonic transit time or stool sample analyses, would provide more robust conclusions [11]. Furthermore, while the study included a representative elderly population, the findings may not be directly generalizable to paediatric, adult or chronically ill populations, who may have different gastrointestinal responses or comorbidities influencing outcomes.

6. Conclusion

This study demonstrates that flaxseeds can serve as an effective and well-tolerated dietary intervention for managing constipation in older adults. Participants who incorporated flaxseeds into their daily regimen experienced significant improvements in bowel movement frequency, stool consistency and overall gastrointestinal function. The absence of major adverse effects further supports the safety profile of flaxseeds in this demographic. Given their natural origin, ease of use, and additional nutritional benefits, flaxseeds represent a promising adjunct or alternative to pharmacologic laxatives in the management of chronic constipation in the elderly. Further research with larger sample sizes and longer follow-up periods is warranted to confirm these findings and to investigate underlying mechanisms.

7. Acknowledgement

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9. Conflict of Interest

The study has no conflict of interest to declare by any author.

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Not available

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