

Assessing Knowledge and Utilization of Pharmacological and Non-Pharmacological Interventions for Constipation: A Questionnaire-Based Study in Saudi Arabia

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ABSTRACT

Background: Up to one fifth of people experience chronic constipation, which significantly lowers quality of life and causes psychological discomfort. When nonpharmacologic treatment fails to alleviate symptoms, laxatives ought to be included in the regimen for treating constipation. The distinction between "slow transit" and "normal transit" constipation has influenced the choice of first laxative.

Aim: This study aims to assess knowledge and utilization of adults of pharmacological and non-pharmacological interventions for constipation.

Methods: A descriptive cross-sectional web-based study was conducted. An online questionnaire was developed by the study researchers included participants demographic data, participants utilizations of interventions for constipation, outcome of utilization and their knowledge. The final validated questionnaire was uploaded online using social media plat forms till no more new responses were obtained.

Results: A total of 520 adults were included in the study. Participants ages ranged from 18 to 65 years with a mean age of 33.8 ± 12.4 years old. Exact of 273 (52.5%) complained of chronic constipation, which was for more than 6 months among 172 (63%) of them. Only 60 (11.5%) used medications, 51 (9.8%) used non-pharmacological therapy and 210 (40.4%) used both of them. A total of 199 (38.3%) never used any intervention for constipation. A total of 301 (57.9%) received information about preventing or managing constipation from a health care professional, 64.6% rate their knowledge as good top very good and 120 (23.1%) rated as excellent while 64 (12.3%) rated their knowledge level as poor. The most reported sources of information were Gastroenterologist (25.2%). Old age, having chronic constipation and consultation for specialist were significantly associated with high utilization rate and knowledge level ($P < 0.05$).

Conclusion: In conclusion, the current study showed high frequency of constipation among study adults which was chronic among nearly two-thirds of the adults. Also, most of them used either pharmacological or non-pharmacological interventions to manage constipation. Also, the study participants had high knowledge about these interventions mainly they got their information for health care providers.

Keywords:

Constipation, adults, prevalence, management, interventions, medications, knowledge, Saudi Arabia.1

INTRODUCTION

Functional constipation is a delay or difficulty in defecation that continues 14 days or more with exclusion of organic causes by a history and physical examination. (1, 2) Rome III states that when at least two of the following conditions are satisfied for the last three months, with symptom start occurring at least six months prior to diagnosis, a diagnosis of functional constipation is made: The following symptoms are present in more than 25% of defecations: a) straining; b) lumpy or hard stools; c) feeling of incomplete evacuation; d) feeling of anorectal obstruction/blockage; e) manual maneuvers during more than 25% of defecations; and f) fewer than three defecations per week. (3-5)

Globally, Constipation is a widespread problem. (6) It is challenging to determine the precise prevalence of constipation because so few persons who experience it seek medical attention. Because of this, estimates of its prevalence in adults in Europe, Oceania, and other countries ranged from 2% to 35%, (7, 8) and in children from 0.7% to 29.6%. (9) A recent study conducted in the central region of Saudi Arabia found that just 4.4% of the population experienced constipation, while 95.6% of the volunteers who were chosen said they had never experienced constipation. Constipation was, however, more common in women (79.2%) than in men (20.8%). (10)

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Since treating the underlying cause is crucial to success, constipation treatment should be customized for each patient. (11) When choosing a course of treatment, it is critical to consider the patient's comorbid diseases as well as their concerns and expectations, many of which are influenced by their lifestyle. (11, 12) Non-drug therapy included dietary fiber which is frequently thought to help ease constipation. Nevertheless, several studies have suggested that the quantity of dietary fiber consumed does not always correlate with an improvement in constipation. (13) Also, exercise has also been shown in studies to be an effective treatment for constipation. There isn't much evidence, though. Chronic constipation may begin or worsen as a result of less exercise and physical activity. (14, 15) As for drug therapy, the basis of pharmacological therapy is the use of laxatives, both stimulant and non-stimulant. If an outpatient receives a glycerin enema or a stimulant laxative is used only once to promote defecation, the initial treatment is very effective in patients who have not defecated in a long period. (16, 17) The current study aimed to assess knowledge and utilization of pharmacological and non-pharmacological interventions for constipation among adults in Saudi Arabia.

METHODOLOGY

A descriptive cross-sectional web-based study was conducted targeting all adults in Saudi Arabia. All persons aged 18 years or above who consented to participate in the study were enrolled in the study's final analysis. Adults who refused to participate, with incomplete survey, and were aged below 18 years were excluded from the study. An electronic questionnaire was developed by the study researchers based on literature review and after consultation of the field experts. Questionnaire validity, applicability and clearness were evaluated by 3 expert staff independently with all suggested changes were applied till achieving the last version of used questionnaire. The anonymous questionnaire was published using the social media platforms from to Respondents were encouraged to participate in this study by clarifying the extent of confidentiality of participation and the importance of this research to the society health. The questionnaire of this study included participants demographic data (Age, Gender, Geographic Location, Education, and Occupation) besides constipation data. The second part covered participants utilization of pharmacological and non-pharmacological interventions for constipation among study adults with associated side effects and adult's satisfaction. Third part covered adult's knowledge of used intervention for constipation with their source of information. Last section covered participants adult's intent to seek for medical consolation for constipation in the future. The final validated questionnaire was uploaded online using social media plat forms till no more new responses were obtained.

Data analysis

The data were collected, reviewed and then fed to Statistical Package for Social Sciences version 21 (SPSS: An IBM Company). All statistical methods used were two tailed with alpha level of 0.05 considering significance if P value less than or equal to 0.05. Adults knowledge level regarding the utilization of pharmacological and non-pharmacological intervention for constipation was assessed by direct question about their perceived rated knowledge level. Descriptive analysis was done by prescribing frequency distribution and percentage for study variables including participants personal data, residence area and occupation. Also, participants knowledge about the interventions, their utilization pattern and their source of information were tabulated. Types of used intervention among adults was graphed. Also, the effect and adult's satisfaction regarding used medications for constipation was displayed in a frequency table. Cross tabulation for showing factors influencing the adoption of pharmacological and non-pharmacological interventions for constipation among adults and also

to assess factors associated with adults Knowledge of Pharmacological and Non-Pharmacological Interventions for Constipation was carried out with Pearson chi-square test for significance and exact probability test if there were small frequency distributions.

RESULTS

A total of 520 adults were included in the study. Participants ages ranged from 18 to 65 years with a mean age of 33.8 ± 12.4 years old. A total of 279 (53.7%) were from the southern region and others from other different regions. Exact of 274 (52.7%) participants were females, 184 (35.4%) were students, 133 (25.6%) work in non-health care field and 131 (25.2%) work in the health-care field. Exactly 273 (52.5%) complained of chronic constipation, which was for more than 6 months among 172 (63%) of them. A total of 273 (52.5%) defecate more than 3 times per week (Table 1).

Table 1. Socio-demographic characteristics of study adults in Saudi Arabia (n=520)

Socio-demographics	No	%
Region		
Central Region	31	6.0%
Northern Region	54	10.4%
Eastern Region	61	11.7%
Western Region	95	18.3%
Southern Region	279	53.7%
Age in years		
< 40	343	66.0%
40-60	156	30.0%
> 60	21	4.0%
Gender		
Male	246	47.3%
Female	274	52.7%
Employment		
Not working	72	13.8%
Student	184	35.4%
Non-health care field	133	25.6%
Health care field	131	25.2%
Have a chronic constipation		
Yes	273	52.5%
No	247	47.5%
Duration of constipation (n=273)		
< 6 months	101	37.0%
> 6 months	172	63.0%
How many times do you defecate a week?		
< 3 times	247	47.5%
> 3 times	273	52.5%

Figure 1. Utilization of Pharmacological and Non-Pharmacological Interventions for Constipation among study adults in Saudi Arabia. Only 60 (11.5%) used medications, 51 (9.8%) used non-pharmacological therapy and 210 (40.4%) used both of them. A total of 199 (38.3%) never used any intervention for constipation.

Table 2. Types and frequency of intervention used by study adults to manage constipation. A total of 270 (51.9%) used pharmacological interventions (medications) to treat constipation mainly Laxatives (52.6%), Softeners Stool (39.6%), Lubricants (28.1%), and Agents Osmotic (12.6%). Also, 261 (50.2%) participants reported using non-pharmacological treatment for constipation mainly Exercises (29.4%), Fiber supplements (24%), Herbal remedies (15.6%) and

Biofeedback therapy (1.9%). A total of 200 (38.5%) used an alternative or complementary therapy to treat constipation, such as acupuncture or massage therapy and 254 (48.8%) consulted a healthcare professional for constipation mainly Gastroenterologist (57.4%), GP (37.5%), and nurse (20.7%), and pharmacist (18.4%).

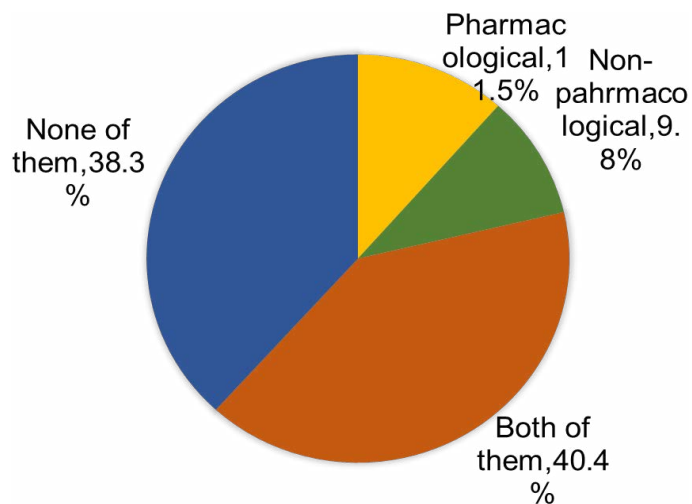


Figure 1. Utilization of Pharmacological and Non-Pharmacological Interventions for Constipation among study adults in Saudi Arabia

Table 2. Types and frequency of intervention used by study adults to manage constipation

Interventions	No	%
Have you ever used pharmacological interventions (medications) to treat constipation?		
Yes	270	51.9%
No	250	48.1%
If yes, type of medications (n=270)		
Laxatives	142	52.6%
Softeners Stool	107	39.6%
Lubricants	76	28.1%
Agents Osmotic	34	12.6%
Stimulants	23	8.5%
Others	2	.7%
Non-pharmacological treatment for constipation		
Yes	261	50.2%
No	259	49.8%
Non-pharmacological treatment for constipation (n=261)		
Never	259	49.8%
Exercises	153	29.4%
Fiber supplements	125	24.0%
Herbal remedies	81	15.6%
Biofeedback therapy	10	1.9%
Have you ever used any alternative or complementary therapies to treat constipation, such as acupuncture or massage therapy?		
Yes	200	38.5%
No	320	61.5%

Have you ever consulted a healthcare professional for constipation?

Yes	254	48.8%
No	266	51.2%

Which health care professional did you consult? (n=254)

Gastroenterologist	147	57.4%
GP	96	37.5%
Nurse	53	20.7%
Pharmacist	47	18.4%
None	5	2.0%

Table 3. The effect and adult's satisfaction regarding used intervention for constipation in Saudi Arabia. The vast majority (206; 76.3%) of the study adults who used intervention for the constipation experienced side effects. The most reported side effects included Abdominal pain or cramps (49.5%), vomiting (38.3%), nausea (29.1%), and diarrhea (24.3%). As for adult's satisfaction about treatments used, 198 (61.7%) were satisfied and 366 (70.3%) reported that they mostly seek medical advice for constipation in the future.

Table 3. The effect and adult's satisfaction regarding used medications for constipation in Saudi Arabia

Outcome of intervention	No	%
Have you ever experienced any side effects from using pharmaceutical interventions to treat constipation?		
Yes	206	76.3%
No	64	23.7%
If yes, what are the side effects? (n=206)		
Abdominal pain or cramps	102	49.5%
Vomiting	79	38.3%
Nausea	60	29.1%
Diarrhea	50	24.3%
Dehydration	35	17.0%
How satisfied were you with the treatments you used to control your constipation?		
Very dissatisfied	4	1.2%
Dissatisfied	22	6.9%
Neutral	97	30.2%
Satisfied	97	30.2%
Very satisfied	101	31.5%
How likely are you to seek medical advice for constipation in the future?		
Very unlikely	32	6.2%
Somewhat unlikely	39	7.5%
Neutral	83	16.0%
Fairly likely	125	24.0%
Very likely	241	46.3%

Table 4. Knowledge of Pharmacological and Non-Pharmacological Interventions for Constipation among study adults. A total of 301 (57.9%) received information about preventing or managing constipation from a health care professional, 64.6% rate their knowledge as good top very good and 120 (23.1%) rated as excellent while 64 (12.3%) rated their knowledge level as poor. The most reported sources of information were Gastroenterologist (25.2%), GP (18.5%), internet (15.6%), Pharmacist (12.3%), and nurse (11%).

Table 4. Knowledge of Pharmacological and Non-Pharmacological Interventions for Constipation among study adults

Knowledge	No		%	
	No	%	No	%
Have you ever received information about preventing or managing constipation from a health care professional?				
Yes	301	57.9%		
No	219	42.1%		
How do you rate your knowledge about constipation?				
Very poor	22	4.2%		
Poor	42	8.1%		
Good	180	34.6%		
Very good	156	30.0%		
Excellent	120	23.1%		
What sources of information did you find most useful?				
None	219	42.1%		
Gastroenterologist	131	25.2%		
GP	96	18.5%		
Internet	81	15.6%		
Pharmacist	64	12.3%		
Nurse	57	11.0%		

Table 5. factors influencing the adoption of pharmacological and non-pharmacological interventions for constipation among adults in Saudi Arabia. Exact of 72.2% of adults at northern region utilized the intervention for constipation versus 71.6% for western region and only 55.6% for southern region with a recorded statistical significance (P=.022). Also, 71.8% of adults aged 40-60 years utilized interventions compared to 56.9% of others aged less than 40 years (P=.006). Utilization of interventions for constipation was reported among 83.2% of adults in the health care field compared to 43.5% of students (P=.001). Likewise, it was utilized among 94.9% of those with chronic constipation compared to 25.1% of others (P=.001). Similarly, higher utilization rate was reported among those who defecate less than 3 times a week (88.7% vs. 37.4%), those who consulted health care professionals for constipation (97.2% vs. 27.8%), among adults who mostly will seek medical advice for constipation in the future and adults who gained their information from health care staff (P<.001).

Table 5. Factors influencing the adoption of pharmacological and non-pharmacological interventions for constipation among adults in Saudi Arabia

Factors	Utilization of Pharmacological and Non-Pharmacological Interventions				p-value
	Yes		No		
	No	%	No	%	
Region					
Central Region	21	67.7%	10	32.3%	.022*
Northern Region	39	72.2%	15	27.8%	
Eastern Region	38	62.3%	23	37.7%	
Western Region	68	71.6%	27	28.4%	
Southern Region	155	55.6%	124	44.4%	
Age in years					
< 40	195	56.9%	148	43.1%	.006*^
40-60	112	71.8%	44	28.2%	
> 60	14	66.7%	7	33.3%	

Gender					
Male	154	62.6%	92	37.4%	.699
Female	167	60.9%	107	39.1%	
Employment					
Not working	43	59.7%	29	40.3%	.001*
Student	80	43.5%	104	56.5%	
Non-health care field	89	66.9%	44	33.1%	
Health care field	109	83.2%	22	16.8%	
Have a chronic constipation					
Yes	259	94.9%	14	5.1%	.001*
No	62	25.1%	185	74.9%	
Duration of constipation					
< 6 months	95	94.1%	6	5.9%	.641
> 6 months	164	95.3%	8	4.7%	
How many times do you defecate a week?					
< 3 times	219	88.7%	28	11.3%	.001*
> 3 times	102	37.4%	171	62.6%	
Consulted a healthcare professional for constipation?					
Yes	247	97.2%	7	2.8%	.001*
No	74	27.8%	192	72.2%	
How likely are you to seek medical advice for constipation in the future?					
Very unlikely	8	25.0%	24	75.0%	.001*
Somewhat unlikely	15	38.5%	24	61.5%	
Neutral	35	42.2%	48	57.8%	
Fairly likely	74	59.2%	51	40.8%	
Very likely	189	78.4%	52	21.6%	
Sources of information did you find most useful					
None	70	32.0%	149	68.0%	.001*^
Gastroenterologist	116	88.5%	15	11.5%	
GP	82	85.4%	14	14.6%	
Nurse	56	98.2%	1	1.8%	
Pharmacist	59	92.2%	5	7.8%	
Internet	54	66.7%	27	33.3%	

P: Pearson X² test ^: Exact probability test
* P < 0.05 (significant)

Table 6. Factors associated with adults Knowledge of Pharmacological and Non-Pharmacological Interventions for Constipation. A total of 94.7% of adults in health care field had good to excellent knowledge level versus 84.7% of those who not working (P=.048). Also, 96% of adults with chronic constipation had good / excellent knowledge about constipation management compared to 78.5% of others (P=.001). Exact of 94.3% of those who defecate less than 3 times of week had good knowledge, 93.1% of those who utilize of Pharmacological and Non-Pharmacological Interventions, 96.5% of adults Consulted a healthcare professional for constipation also had good/ excellent knowledge level (P<0.001 for all). Higher knowledge was also assessed among adults who showed more likelihood for future consultations about constipation and among those who gained their information from Gastroenterologist (98.5%), pharmacists (96.6%) than among those with no source of information (74.9%).

Table 6. Factors associated with adults Knowledge of Pharmacological and Non-Pharmacological Interventions for Constipation

Factors	How do you rate your knowledge about constipation?				p-value
	Very poor / poor		Good / excellent		
	No	%	No	%	
Age in years					
< 40	48	14.0%	295	86.0%	.108
40-60	16	10.3%	140	89.7%	
> 60	0	0.0%	21	100.0%	
Gender					
Male	32	13.0%	214	87.0%	.645
Female	32	11.7%	242	88.3%	
Employment					
Not working	11	15.3%	61	84.7%	.048*
Student	27	14.7%	157	85.3%	
Non-health care field	19	14.3%	114	85.7%	
Health care field	7	5.3%	124	94.7%	
Have a chronic constipation					
Yes	11	4.0%	262	96.0%	.001*
No	53	21.5%	194	78.5%	
Duration of constipation					
< 6 months	3	3.0%	98	97.0%	.495
> 6 months	8	4.7%	164	95.3%	
How many times do you defecate a week?					
< 3 times	14	5.7%	233	94.3%	.001*
> 3 times	50	18.3%	223	81.7%	
Utilization of Pharmacological and Non-Pharmacological Interventions					
Yes	22	6.9%	299	93.1%	.001*
No	42	21.1%	157	78.9%	
Consulted a healthcare professional for constipation?					
Yes	9	3.5%	245	96.5%	.001*
No	55	20.7%	211	79.3%	
Seek medical advice for constipation in the future?					
Very unlikely	15	46.9%	17	53.1%	.001*
Somewhat unlikely	9	23.1%	30	76.9%	
Neutral	12	14.5%	71	85.5%	
Fairly likely	11	8.8%	114	91.2%	
Very likely	17	7.1%	224	92.9%	
What sources of information did you find most useful?					
None	55	25.1%	164	74.9%	.001*
Gastroenterologist	2	1.5%	129	98.5%	
GP	4	4.2%	92	95.8%	
Nurse	3	5.3%	54	94.7%	
Pharmacist	2	3.1%	62	96.9%	
Internet	4	4.9%	77	95.1%	
P: Exact probability test (significant)					

DISCUSSION

Constipation is a prevalent gastrointestinal disorder affecting a significant proportion of the global population, including residents of Saudi Arabia. (18) Characterized by difficulty passing stools, infrequent bowel movements, discomfort, bloating, and abdominal pain, constipation can significantly impact an individual's quality of life. (19) Although various pharmacological and non-pharmacological interventions are available for treating constipation, the understanding and application of these interventions among residents of Saudi Arabia remain underexplored. This study aims to evaluate adults' knowledge and usage of pharmacological and non-pharmacological interventions for constipation in Saudi Arabia.

The current study showed that more than half of the study adults experienced constipation which lasted for more than 6 months among nearly two-thirds of them. A systematic review conducted by Schmidt FM and de Gouveia Santos, (20) including eleven studies that revealed a prevalence of constipation ranged from 2.6% to 26.9%. The most frequently cited associated factors were female gender and advanced age. Also, Mugie and coworkers, (21) in their systematic review documented that the worldwide estimated prevalence of constipation in general population ranged from 0.7% to 79%.

In a study carried out in South Korea, Jong and colleagues, (22) showed a lower prevalence rate (prevalence, 2.6%), whereas Esteban y Peña and colleagues (23) reported a 4.1% in a study of the general population of Spain. Esteban y Peña's group employed Rome II criteria, while Jeong's group used self-report to diagnose constipation. For South Korean individuals, the Rome II criteria yielded a prevalence of 9.6% for functional constipation, 16.5% for self-reported constipation, and 3.9% for constipation linked to irritable bowel syndrome. (24) A study conducted in Riyadh, 2019 revealed that the prevalence of constipation was 4.4%, which was more among females. (10) Another study found that the prevalence of constipation in general population was 43%, 60% and 25% according to self-perception, Rome III and Bristol's criteria. Females tend to have greater prevalence than males. Which is concordant with the current study self-reported prevalence. In the current study, age and life style are mostly not associated with this estimated high frequency of constipation as most study participants aged less than 40 years and also were either students or working with highly dynamic daily life.

Considering management of constipation, the current study revealed that about two-thirds of the participants utilized an intervention. In more details, most of users had pharmacological and non-pharmacological interventions where about one-tenth either received drugs or non-pharmacological intervention alone. Laxatives, stool softeners, lubricants and osmotic agents were the most drug used modalities. Exercises, fiber supplements, and herbs were the most used non-pharmacological modalities. Also, more than one-third of the study adults used an alternative or complementary therapy to treat constipation, such as acupuncture or massage therapy. Literature showed that regular dosage of laxatives is recommended for constipation that is more severe or chronic. High dosages of polyethylene glycol may result in excessive bowel frequency, particularly in older nursing home residents, and may also cause nausea, stomach bloating, cramps, and flatulence, according to US Food and Drug Administration (FDA)-approved prescribing instructions. (25-27) These medications, however, are best saved for those who have not responded well to osmotic agents and might be necessary to treat constipation brought on by opioids. Konradsen H et al. (28) in their study documented that 6% of the patients had an ICD-10 diagnosis of constipation, 65% had signs and symptoms of constipation, and 60% had been prescribed laxatives.

Other studies also revealed that drug interventions were the most use for constipation cases. (29-31) Regarding non-pharmacological treatment, it was used by half of the study patients. Some studies revealed that exercise has been shown to be an effective treatment for constipation. There isn't much evidence, though. Chronic constipation may begin or worsen as a result of less exercise and physical activity. (14,15) Also, a randomized trial proved that abdominal wall massage for 15 min a day, 5 times a week, is effective in improving the symptoms of chronic constipation. (32) A previous study has also reported that non-pharmacological treatments were rarely used. (29) The study also showed that about three-fourths of the users experienced side effects such as abdominal pain or cramps, vomiting, nausea and diarrhea. Irrespective of that, around half of them showed satisfaction towards intervention used effect and most of them more likely will seek fir consultation in the future.

With regard to adult's knowledge about pharmacological and non-pharmacological interventions for constipation, the current study showed that more than three-fourths of the adults ranked their knowledge about constipation intervention as good to excellent. Also, it was noticed that health care providers manly gastroenterologist constituted the main source of adults' information about interventions for constipation and this explains high knowledge level. Being health care provider, having chronic constipation, with defecation low frequency, utilization of interventions, consultation of a healthcare professional for constipation, and having information from health care staff were the significant predictors for high knowledge level. A low knowledge about constipation and its management among nurses was reported by Richmond JP and Devlin R. (33) Another study by Alfawaz H et al. (34) showed that the majority of participants knew that diets high in fiber can help with blood sugar management, GIT motility, obesity (70.5%), cardiovascular illnesses (68.9%), and other health issues.

CONCLUSIONS AND RECOMMENDATIONS

In conclusion, the current study showed high frequency of constipation among study adults which was chronic among nearly two-thirds of the adults. Also, most of them used either pharmacological or non-pharmacological interventions to manage constipation mainly old age, those with chronic constipation and consulted health care staff. Exercises and fiber rich diet were the most non-drug therapy used with high satisfaction regarding the outcome. Side effects were frequent but not severe and traditional. Also, the study participants had high knowledge about these interventions mainly they got their information for health care providers. Health education campaigns are advised to improve public awareness regarding constipation and associated lifestyle modifications to minimize this preventable issue and to avoid using medications.

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Competing Interest: None

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