

A Systematic Review of Digestive Problems in Children and the Elderly Involved in Infectious Diseases, Relying on Nursing and Medical Measures

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Abstract

Children due to their playfulness and the elderly usually have a weak immune system due to underlying diseases and old age. Poor functioning of the digestive system and digestive diseases of children and the elderly can directly affect their growth. Most diseases occur in old age. The cause of this can be wrong lifestyle, environmental factors or genetic factors. But what is important is familiarity with these diseases and ways to prevent their occurrence. In the present study, by examining more than 50 articles according to the key words "Child and elderly immune system", "Genetic factors", "Underlying diseases", it was concluded that digestive problems in children, when they continue, can cause concern. But for most children, many digestive problems arise due to an underdeveloped digestive system or non-rich diets. Dysphagia (difficulty or discomfort when swallowing), gastroesophageal reflux, gastric cancer, irritable bowel syndrome, intestinal obstruction, and constipation are the most common digestive problems in children and the elderly, which may present with various symptoms such as pain, fever, diarrhea, and vomiting. In addition to examining the patient at the bedside, doctors may prescribe various diagnostic methods such as endoscopy and colonoscopy. In summary, digestive problems in the elderly and children can be largely controlled by changing lifestyle and diet in the early stages. But in the middle stages, drug interventions are usually needed for treatment, finally, in the advanced stage of this disease and for the rapid improvement of the patient's condition, it may be necessary to perform surgery in the digestive system.

Key words: Digestive Problems, Child, Elderly, Surgery, Drug Interventions.

Introduction

Digestive issues are especially challenging for the elderly and children, and treating and managing such conditions can be difficult for family caregivers as well [1-3]. Especially if they don't know how to care for loved ones with gastrointestinal disorders [4-6]. The digestive system includes the esophagus [7], stomach [8], small intestine [9], large intestine [10], pancreas and gall bladder [11], any problem and weakness in the normal functioning of each of these parts leads to signs and symptoms in a person, which are called digestive problems [12]. Gastrointestinal problems in the elderly, like in other age groups [13], can have a wide range [14], ranging from basic and mild symptoms to clear and severe symptoms [15]. These problems are usually known as gastroesophageal reflux [16], irritable bowel syndrome [17], lactose intolerance [18], and in severe cases, gastrointestinal cancer [19]. The symptoms of digestive

problems in the elderly and children have different intensities and a wide range from mild to severe [20], when the diagnosis is given at any stage, it needs its own special method [21]. The first person to recognize this problem in patients is the geriatric nurse or someone who cares for the elderly [22]. If an elderly person has these symptoms, it can be a clear sign of a digestive problem [23]. These symptoms include: Bloating, constipation, diarrhea, heartburn, nausea, and the presence of blood in the stool [24].

In the present study, by examining more than 50 articles according to the key words "Child and elderly immune system", "Genetic factors", "Underlying diseases", it was concluded that digestive problems in children, when they continue, can cause concern. But for most children, many digestive problems arise due to an underdeveloped digestive system or non-rich diets.

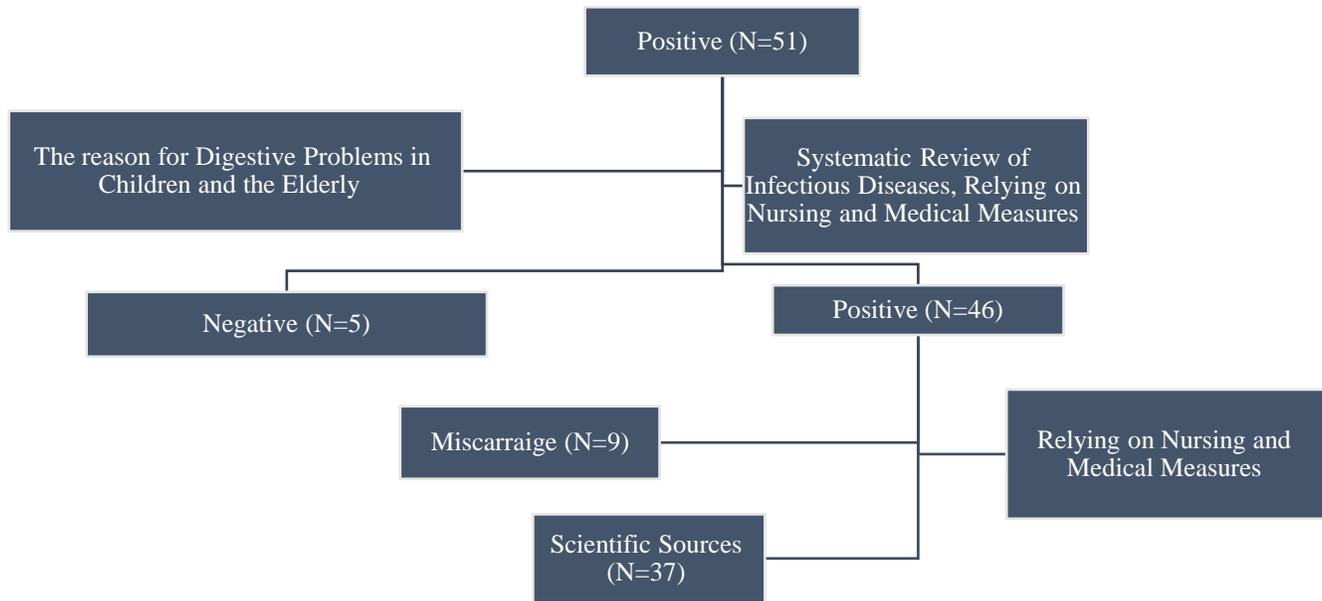


Figure 1. Flow chart of included subjects

Symptoms of digestive diseases in children

Many parents may have heard the phrase "I'm sick" from their children. But if your child often complains of stomach problems, he may have indigestion [25]. These complications can be related reasons for children's digestive problems [26], but most children's digestive diseases have similar symptoms. Symptoms of diarrhea and indigestion: Gastrointestinal tract infections are one of the most common digestive diseases in children. Gastrointestinal tract infections have one symptom among the people around them [27]. Children start the disease with lethargy [28], low temperature [29], mild nausea [30], diarrhea and vomiting.

How are children's digestive diseases diagnosed? Your pediatrician or family doctor can help diagnose and treat digestive problems [31]. Your pediatrician may also refer you to a pediatric gastroenterologist [32]. A specialist who has better training in the diagnosis and treatment of digestive diseases in children. He or she may perform tests to diagnose digestive disorders [33].

Tests related to digestive problems include: Colonoscopy, endoscopy of the upper part of the digestive tract [34], capsule endoscopy [35], ultrasound [36], flexible sigmoidoscopy [37], blood test [38], biopsy [39], CT scan.

How are digestive disorders treated? Treatment depends on the diagnosis, but in general, treatment options include: Proper diet [40], medications prescribed by a doctor [42], surgery, and swallowing therapy [43]. The use of complementary treatments such as medicinal plants and traditional medicine is also effective in reducing the symptoms of these disorders if they are operated under the supervision of a specialist and their arbitrary use is avoided, especially for children [44].

Gastrointestinal diseases and problems in the elderly

One of the most common problems observed among the elderly with increasing age is digestive disorders and problems [45]. Of course, these disorders may occur at any age, but approximately 40% of elderly people experience one or more age-related digestive problems every year. Digestive problems are only one of the diseases that cause discomfort to the elderly [46], the people who take care of the elderly should be familiar with all the diseases that threaten the health of the elderly. This device may malfunction with age [47]. Symptoms of digestive problems in the elderly may include complications such as heartburn, stomach pain and discomfort after eating, gas, changes in bowel habits such as diarrhea or constipation, a feeling of heaviness and distress after meals, and excessive secretion of stomach acid [48]. These symptoms can indicate problems such as stomach ulcers, intestinal

inflammation, under- or over-functioning of the digestive glands, or problems related to nutrient deficiency [49].

The most common digestive diseases of the elderly

Some of the digestive diseases of the elderly that the majority will experience in some way during this period are:

Gastric reflux: Reflux is the abnormal return of stomach contents to the esophagus, which is a common disease that increases in the elderly [50]. Research has found a relationship between overweight and reflux. In case of infection, by following the nutritional tips, the person's tolerance can be increased to a great extent. Heartburn is known as reflux pain, which is often confused with heart pain [51]. Also, sometimes the pain spreads to the back, which most people think of as a simple back pain. Men, obese people, smokers and those who consume alcohol, experience this pain more often [52]. By monitoring the symptoms and helping the elderly to eliminate the undesirable habits that contribute to this disease, the elderly nurse increases the health level of these elderly.

Stomach ulcer: The prevalence of stomach and intestinal ulcers and the resulting bleeding is higher in the elderly than in other people [53]. Chemical, infectious and nervous factors are among the things that cause digestive diseases and stomach ulcers. Of course, the most common cause of gastric ulcer is *Helicobacter pylori* infection, which has attributed 60-70% of gastric ulcer cases to *Helicobacter* [54].

Diarrhea: Elderly people who have decreased ability to move, especially those who are not fully mobile; They suffer from diarrhea more than others. This is if it is determined by conducting examinations that a hardened fecal mass is stuck at the end of the intestine of these people and this mass itself is the cause of the problem [55]. In fact, not only is there no diarrhea, but the person has some kind of blockage in his intestinal tract. In such cases, the elderly are even given anti-diarrhea medicine by the family and friends, which makes this problem acute. To the extent that the person suffers from wounds and bleeding and is sometimes taken to surgery [56].

Constipation: Constipation refers to emptying the bowels less than three times a week. This disease is caused by factors such as inactivity, reduced consumption of water and dietary fibers, especially soluble fibers. Constipation can be solved simply by making changes in the diet such as consuming vegetables, fruits, in moderation, consuming whole grains and also consuming enough water [57].

Irritable bowel syndrome (IBS): Irritable bowel syndrome is one of the most common diseases, which is

very common in children, but it also occurs in the elderly [58]. Women are more prone to this disease than men. Intestinal nerves and muscles are extremely sensitive in this disease, so that they contract strongly after eating and cause diarrhea after eating. Therefore, IBS is a type of digestive disease of the elderly [59].

Diverticulitis: Diverticulitis is a type of digestive disease that is called inflammation of small pouches that are formed in the wall of the large intestine. The cause of these bags is chronic constipation and the use of low-fiber foods. This inflammation is caused by the entry of bacteria or irritants into these cavities [60]. Bloating, nausea, vomiting, constipation or diarrhea, bleeding from the anus, and fever are some of the symptoms caused by the inflammation of these bags [61].

Anemia: Anemia in the elderly may occur due to various causes. But in the elderly, the symptom of many digestive diseases, such as colon tumor in the area of the cecum or the beginning of the colon, is anemia [62]; It is not recommended to take iron tablets and red meat. Because it may cover the symptoms of other diseases [63].

Stomach ulcer in the elderly: Stomach ulcer is one of the problems of the digestive system of the elderly that many elderly people experience. The most important cause of this disease in the elderly is stomach infection or excessive use of some drugs [64]. But there are other causes, some of which are: Excessive consumption of acidic foods, excessive consumption of fast foods, smoking, alcohol consumption, aging, long-term use of arthritis drugs [65].

Fatty liver disease in the elderly: One of the most important digestive problems of the elderly are liver problems. The liver is one of the most important organs of the digestive system, which plays a very important role in the absorption, storage and detoxification of food [66]. Fatty liver disease, which you must have heard of, occurs when the amount of fat in the liver is more than normal. The elderly who suffer from diabetes, high blood pressure, high blood fat or obesity are more at risk of developing fatty liver disease [67].

Gallstones in the elderly: The gallbladder is a small, pear-shaped organ in the digestive system that is located under the liver. This organ stores some of the bile produced in the liver and transfers it to the intestine. Among the problems that may occur to the elderly is the deposition of bile fluids in the gallbladder and the formation of stones in it [68]. Gallstones come in a variety of sizes, and the largest can be the size of a golf ball. If these stones block the entrance of the intestine, they cause unbearable pain.

Discuss

Methods of treating digestive problems

The treatment of diseases related to the digestive system depends on the diagnosis of the type of disease, but in general, the treatment methods include: Nutritional counseling, proper diet, regular use of medicine, swallowing treatment and, if necessary, surgery. Also, herbal medicines and traditional medicine can be mentioned as complementary treatments to reduce the symptoms of these disorders [69].

Dehydration and digestive disorders

Severe dehydration causes problems such as strong smell of urine, concentration of urine, heartburn, nausea and dizziness, liver disease, kidney disease and food allergies and many other cases. You should know that sometimes parents may not notice the child's dehydration. The lack of water in the body of children and even adults have serious consequences that may eventually lead to serious digestive diseases [70].

Methods of diagnosing digestive disorders

To diagnose and treat digestive problems in children, it is better to consult experienced doctors in this field. Ultrasound is one of the first methods for examining the digestive system of children. Colonoscopy, endoscopy, urine test, and blood test are among the other methods used to investigate digestive problems [71].

Avoiding overeating: One of the things that should be mentioned when this disease occurs is to avoid eating too much food. By controlling and observing the child's diet, these problems can be prevented [72].

Eliminate processed foods: Children who have digestive problems should consume food according to the doctor's prescription and the specified diet and meal plan. In fact, all packaged and prepared foods should be removed from their diet [73].

How to prevent digestive problems in the elderly?

Adherence to the points related to diet, physical activity and taking supplements under the supervision of a doctor can prevent many digestive problems in the elderly. Elderly caregivers should include the following in their plan in the field of elderly nutrition.

- Elderly people should avoid high salt foods and nitrate containing foods in their diet;
- Add foods containing antioxidants to your diet [74];
- Include fresh fruits and vegetables in your diet throughout the day. Broccoli prevents the growth of Helicobacter bacteria and prevents the formation of tumors and stomach ulcers;

- Have a regular plan for their physical activity and avoid inactivity and inactivity;
- The use of probiotic foods for the elderly in order to relieve constipation and also prevent diseases caused by bacteria [75];
- The elderly should avoid spicy food, especially pepper in their food;
- The use of fish is recommended for the elderly because of the Omega-3 fatty acids in it.

Irritable bowel syndrome is a chronic digestive disorder characterized by symptoms such as abdominal pain, changes in bowel habits (diarrhea, constipation, or both), and bloating. Irritable bowel syndrome has no definite and known cure and it is not surprising that up to 40% of patients with this syndrome use alternative and traditional treatments [76]. Herbal medicines are one of the most common medicines that patients use for this disease. The use of some herbal products such as peppermint oil and ginseng play an effective role in improving IBS symptoms. The use of peppermint can be effective in improving the symptoms of irritable bowel syndrome (IBS). Mint is a medicinal plant with natural properties that is used as one of the common compounds in the treatment of digestive problems [77]. Peppermint has anti-inflammatory and antispasmodic properties (reducing abnormal muscle contractions) that can help reduce abdominal pain associated with IBS. Consuming peppermint can also facilitate the improvement of IBS-related symptoms such as diarrhea, constipation, and bloating. Ginseng is a medicinal plant with natural properties. Research has shown that ginseng can be effective in improving some of the signs and symptoms of irritable bowel syndrome (IBS) [78]. Ginseng can improve IBS symptoms with its anti-inflammatory and anti-anxiety effects.

Research results show that ginger has antioxidant properties and antioxidants help prevent chronic diseases by protecting healthy cells from damage caused by free radicals. Of course, ginger has anti-inflammatory effects. Some medicinal plants such as licorice, chamomile and mint are also effective for calming the stomach. Because chamomile has anti-nausea and anti-inflammatory properties and helps to reduce gas and relieve stomach discomfort [79]. Also, licorice root has properties that strengthen the immune system and helps to treat stomach pain. Plain white rice is easily digested and provides energy because it contains carbohydrates. Boiled or grilled unseasoned, skinless chicken, turkey or fish is easily digested and provides protein and satiety. Oatmeal and whole grains can usually act as a reliever. Oats are a source of soluble fiber that can normalize bowel movements and may be better tolerated than wheat, which is a significant source of insoluble fiber [80]. Chewing sugar-free gum may also help with stomach upset. The results of some

research show that chewing gum for 30 minutes after a meal can be beneficial. Chewing gum increases the secretion of saliva and returns acid to the stomach. Unsweetened applesauce can be a useful short-term diet for people who suffer from stomach upset. Applesauce is gentle on the stomach, although it does contain some fiber. This fiber can be useful in case of diarrhea. Yogurt is an excellent source of probiotics, which are beneficial bacteria that can aid in healthy digestion. It is also an excellent source of important nutrients such as protein and calcium [81]. Of course, fat-free or low-fat yogurt may be better for an upset stomach than high-fat varieties. Ulcerative colitis (UC), which is one of the inflammatory bowel diseases. It is associated with increased inflammation and oxidative stress. Research conducted on saffron has shown that this plant can have anti-inflammatory and antioxidant properties. These features can help reduce inflammation and damage to the intestinal wall and be effective in improving the symptoms of ulcerative colitis. In a study, the effect of saffron supplementation on the serum concentration of inflammatory and anti-inflammatory markers and the quality of life of patients with UC was investigated. This

clinical trial was conducted on 80 patients with mild to moderate ulcerative colitis. The intervention group received 100 mg of saffron per day and the placebo group received 100 mg of malt dextrin per day. Eight weeks of saffron supplementation led to a significant decrease in the serum levels of TNF- α and CRP and a significant increase in the level of IL-10 in patients compared to the placebo group [82]. Also, a significant decrease in ESR and IL-17 levels was seen in both groups [83]. The findings of this study showed that consuming saffron for eight weeks along with medicine can reduce the level of some inflammatory cytokines in patients with ulcerative colitis [84]. The most herbal researches for the treatment of liver diseases have been conducted around the milk thistle plant [85]. Its active compounds are collectively known as silymarin. Several studies have shown that the consumption of silymarin reduces liver enzymes AST and ALT [86]. Silymarin can also modulate apoptosis (programmed cell death) by interfering with the expression of cell cycle regulators and proteins related to apoptosis, and thus exert its anti-cancer effect [87]. In addition to anti-metastatic activity, silymarin also has anti-inflammatory activity [88].

Table 1. Forest Plot Digestive Problems in Children and the Elderly Involved in Infectious Diseases, Relying on Nursing and Medical Measures

Raw	Study	Year		Proportion	Wight 98%	Weight %
1	Abdollahi et al.	2014		0.92	[0.39 – 1.06]	2.03
2	Afshari et al.	2022		0.87	[0.54 – 1.02]	2.02
3	Ahmadi et al.	2020		0.88	[0.63 – 1.01]	3.57
4	Akhlaghdoust et al.	2019		0.60	[0.25 – 1.08]	3.13
Heterogeneity $t^2=0.02$, $I^2= 0.00$, $H^2=1.02$				0.95	[0.22 – 1.07]	
Test of $\Theta= \Theta$, $Q (4) =5.55$, $P= 0.74$						
1	Aldulaim et al.	2022		0.84	[0.27 – 1.08]	3.08
2	Azarpey et al.	2023		0.76	[0.52 – 0.22]	3.82
3	Beiranvandi et al.	2022		0.11	[0.54 – 0.89]	2.85
4	Danesh et al.	2022		0.39	[0.12 – 0.99]	4.09
Heterogeneity $t^2=0.14$, $I^2= 0.11$, $H^2=0.42$				0.77	[0.19 – 1.00]	
Test of $\Theta= \Theta$, $Q (4) =3.35$, $P= 0.34$						
1	Eskandar et al.	2020		0.92	[0.39 – 1.06]	4.03
2	Imani et al.	2023		0.87	[0.54 – 1.02]	2.33
3	Irajian et al.	2016		0.99	[0.63 – 1.01]	3.50

4	Jamali et al.	2022		0.68	[0.25 – 1.08]	2.03
Heterogeneity $t^2=0.14$, $I^2= 0.00$, $H^2=1.02$				0.87	[0.22 – 1.07]	
Test of $\Theta= \Theta$, $Q (4) =3.55$, $P= 0.12$						
1	Mahmoudi et al.	2022		0.84	[0.27 – 1.08]	2.08
2	Mirakhori et al.	2022		0.76	[0.52 – 0.22]	3.82
3	Nabiuni et al.	2023		0.11	[0.54 – 0.89]	3.85
4	Naghdipour et al.	2021		0.39	[0.12 – 0.99]	2.09
Heterogeneity $t^2=0.19$, $I^2= 0.09$, $H^2=0.16$				0.77	[0.19 – 1.00]	
Test of $\Theta= \Theta$, $Q (4) =3.11$, $P= 0.04$						

Conclusion

The most important point in preventing digestive problems is maintaining a healthy lifestyle and adjusting the expectations of the digestive system according to the patient's age. It is far-fetched to expect an old man or a child to have the same nutrition as a young man. It is not reasonable to expect different and heavy foods to be digested with the right speed and quality. Drinking a lot of water to keep the body hydrated, reducing fats and increasing fibers in the daily diet, maintaining a healthy weight and regular physical activity (if possible) are the most important points that prevent the elderly and children from facing digestive problems. Some diseases and digestive problems are more common in a certain group of people; For example, some people genetically have a weaker stomach and digestive system, and for this reason, they have a high probability of contracting these diseases. Also, children with autism are prone to digestive problems, and parents of autistic children should control and take care of these conditions. To treat digestive problems with traditional medicine, you may be able to overcome digestive problems with treatment and lifestyle changes. Some gastrointestinal illnesses can be long-term, but medications can help ease symptoms. Thin soups like chicken soup are easily digestible and provide vitamins, protein and other nutrients that the body needs. If you suffer from vomiting or diarrhea, soups can help keep you hydrated. Simple bread considering that a person with an upset stomach may not have much appetite, he can consume light foods that are easy to digest to meet his daily needs Ginger. If you suffer from nausea, ginger can help ease the symptoms.

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