

**University of Baghdad**

**College of Nursing**

**Effectiveness of an Educational Program on Nursing College Student's Knowledge about Preventative Measures of Irritable Bowel Syndrome in Al Basra University: Comparison study**

**A Thesis Submitted**

**By**

**Maher Abdulameer Atea**

To

The Department of Adult Nursing

College of Nursing-University of Baghdad

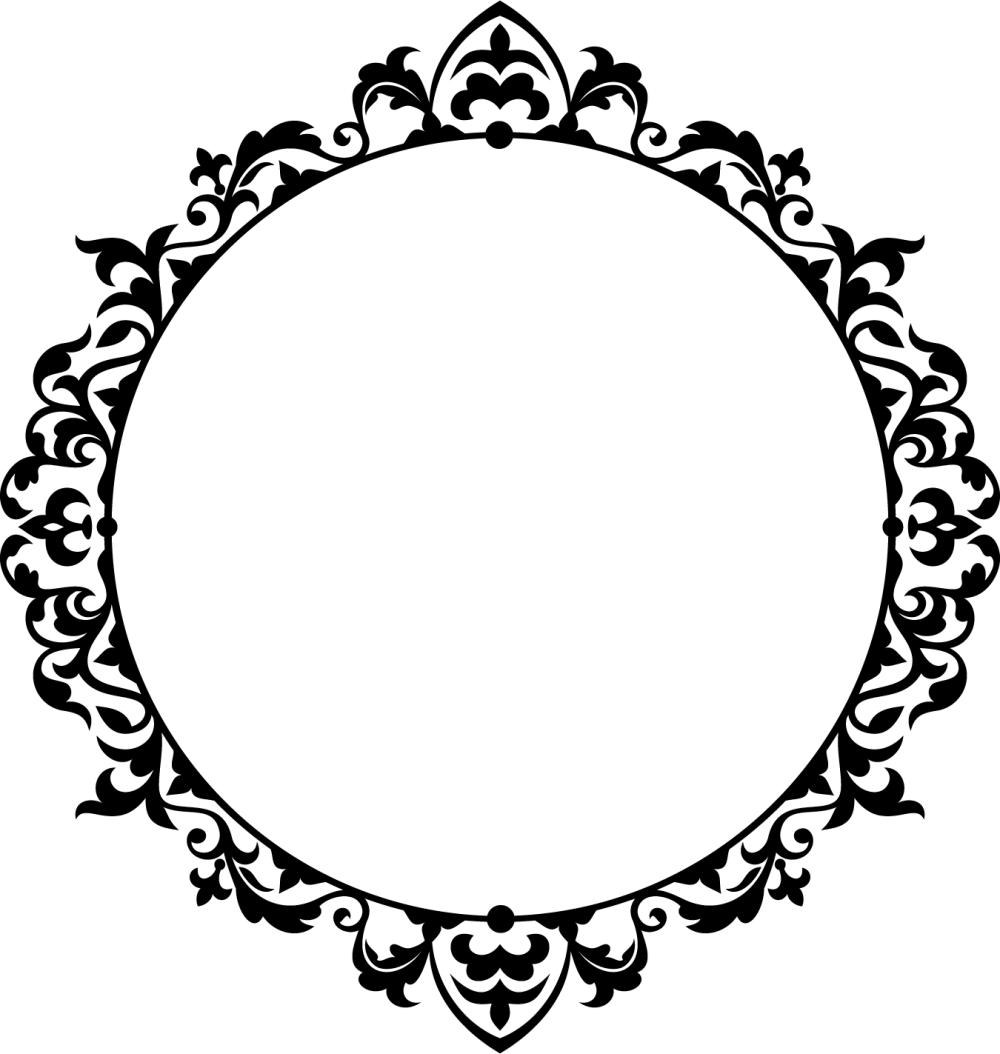
In Partial Fulfillment of the Requirements for the

Degree of Master in Nursing Science

Supervised by

**Prof. Dr. Sabah Abbas Ahmed**

**July 2020 AD Dhu al-Hijjah/1441 AH**

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***Supervisor Certification***

I certify that this thesis was prepared under my supervision, which entitled " **Effectiveness of an Educational Program on Nursing College Student's Knowledge about Preventative Measures of Irritable Bowel Syndrome in Al Basra University: Comparison study** " at the College of Nursing/University of Baghdad in partial fulfillment of the requirements for the degree of Master in Nursing Sciences.

******

**Supervisor**

**Prof. Dr. Sabah Abbas Ahmed**

**Adult Nursing Department**

**College of Nursing**

**University of Baghdad**

**Date: / / 2020**

***Committee Certification***

****** We members of the examining committee, certify that after reading this thesis, which is entitled (**Effectiveness of an Educational Program on Nursing College Student's Knowledge about Preventative Measures of Irritable Bowel Syndrome in Al Basra University: Comparison study**), which is submitted by **(Maher Abdul Ameer Atea)** from the Department of **Adult Nursing**, we have examined the student in its content and what is related to and we decided that it is qualified for pursuing the degree of **Master of Sciences in Nursing** with specialty of **Adult Nursing** and estimate of **( ) on,**

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**Signature**

**Chairman**

Professor Dr. Hussein Hadi Atiyah

**Date: / / 2020**

**Signature**

**Member**

Dr. Consultant

Rushdi Abdel Hamid Kubba

**Date: / / 2020**

**Signature**

**Member**

Associate. Dr.

Abid Salih kumait

**Date: / / 2020**

**Signature**

**Dean & Professor.**

Dr.Iqbal Ghanim Mualla

College of Nursing

University of Baghdad

**Date: / / 2020**

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******

**Chair of the Adult Nursing Department**

**Associate Professor**

**Dr. Sadeq Abdulhussein Hasan AL-Fayyadh**

**College of Nursing**

**University of Baghdad**

**Date: / /2020**

**Associate Dean of the Scientific Affairs & Higher studies & Associate Professor Dr. Wissam Jabbar Kasim**

**College of Nursing**

**University of Baghdad**

**Date: / / 2020**

***Dedications...***

***Dear To who taught me how to stand firmly on the ground***

***My father***

***To the source of love, altruism, and generosity.***

***Distinguished mother***

***To my strength and support me in life.***

***My brothers***

***To the closest people to myself.***

***My sincere wife***

***To my soul, my eyesight, and my heartbeat.***

***my son***

***To all of those who have received advice and support***

***I dedicate my scientific summary***

***Maher***

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**Abstract**

Irritable bowel syndrome (IBS) is a common disorder characterized by abdominal pain and altered bowel habit for at least 3 months that is also characterized by abdominal discomfort associated with altered bowel function; structural and biochemical abnormalities are absent.

A quasi-experimental design was used to carry out this study, it was conducted by the use of pre and post-test approach for two groups of samples (study and control) to determine the effectiveness of an educational program on nursing students knowledge toward the irritable bowel syndrome (IBS) in the nursing college-Al-Basra university through the period from 8 of December 2019, to 8 of July, 2020.

The purposive sample (non-probability) consists of (80) nursing students The sample was selected from the nursing college university of Basra.

A questionnaire was used to collect students data which consists of four parts: the first par tis dealing with the socio-demographic characteristics of the students, the second part is dealing with the general information about IBS, while the third part is dealing with the protection from IBS and the fourth part is dealing with prevention from IBS which consists of (43) items (multiple choices and,

true or false). The questionnaire constructed from the educational program of the study.

The instrument validity is carried out through a panel of (13) experts and a pilot study was conducted to achieve the instrument reliability which consists of (10) students in the nursing college university of Basra. The researcher used SPSS version )16( to analyze the data, and the descriptive and inferential statistical methods were applied.

The results of the pre-test for students' knowledge of preventive measures of IBS was weak-level knowledge, while post-test results showed that for students’ knowledge of preventive measures of IBS had improved to a good level of knowledge because of the positive impact of the instruction program.

The study found that there is a significant difference between the initial period of pre and post-test of the study groups of both stages for students’ knowledge at( P 0.01).

The study concluded that The program had an effect on the students' knowledge of the study groups for both stages, the levels of knowledge improved from a weak level to a good level.

The researcher recommends performing continuous educational programs for students regarding preventive measures for IBS to increase their level of knowledge regarding how to instruct patients how to deal with this syndrome, increase lectures time and number about IBS and takes lectures in more than one course.

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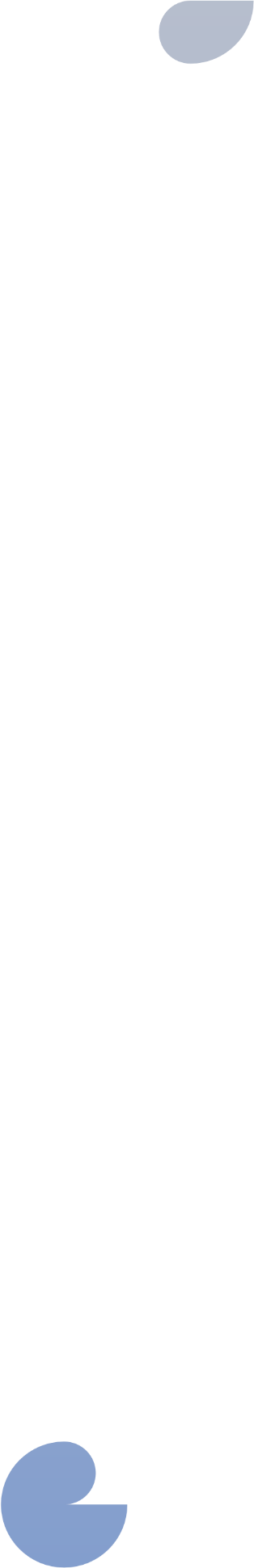
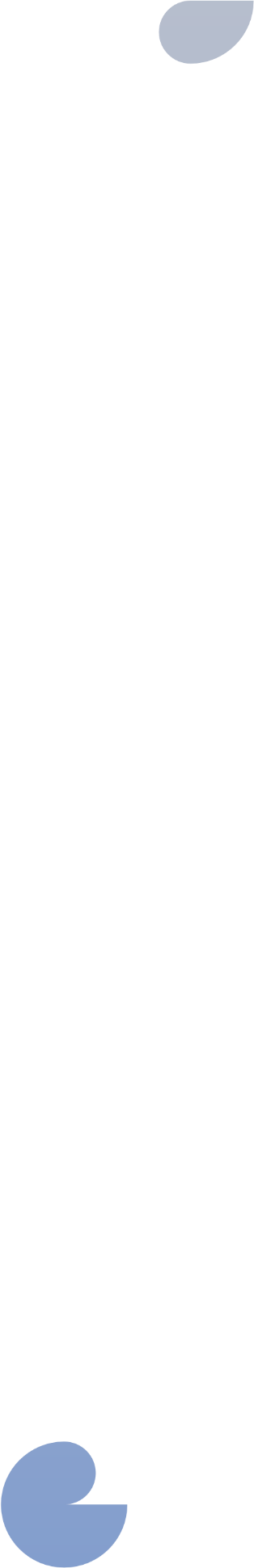
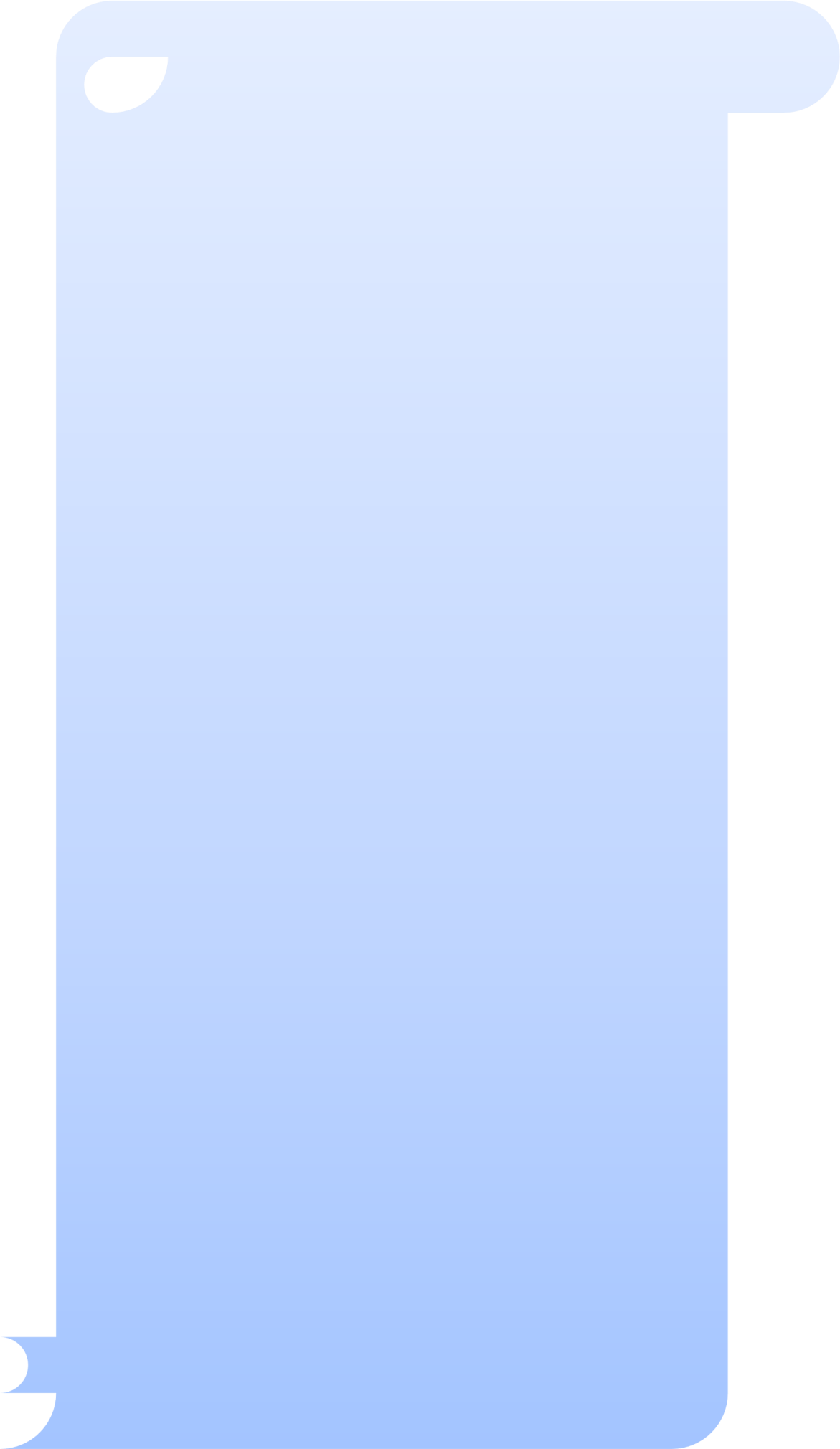
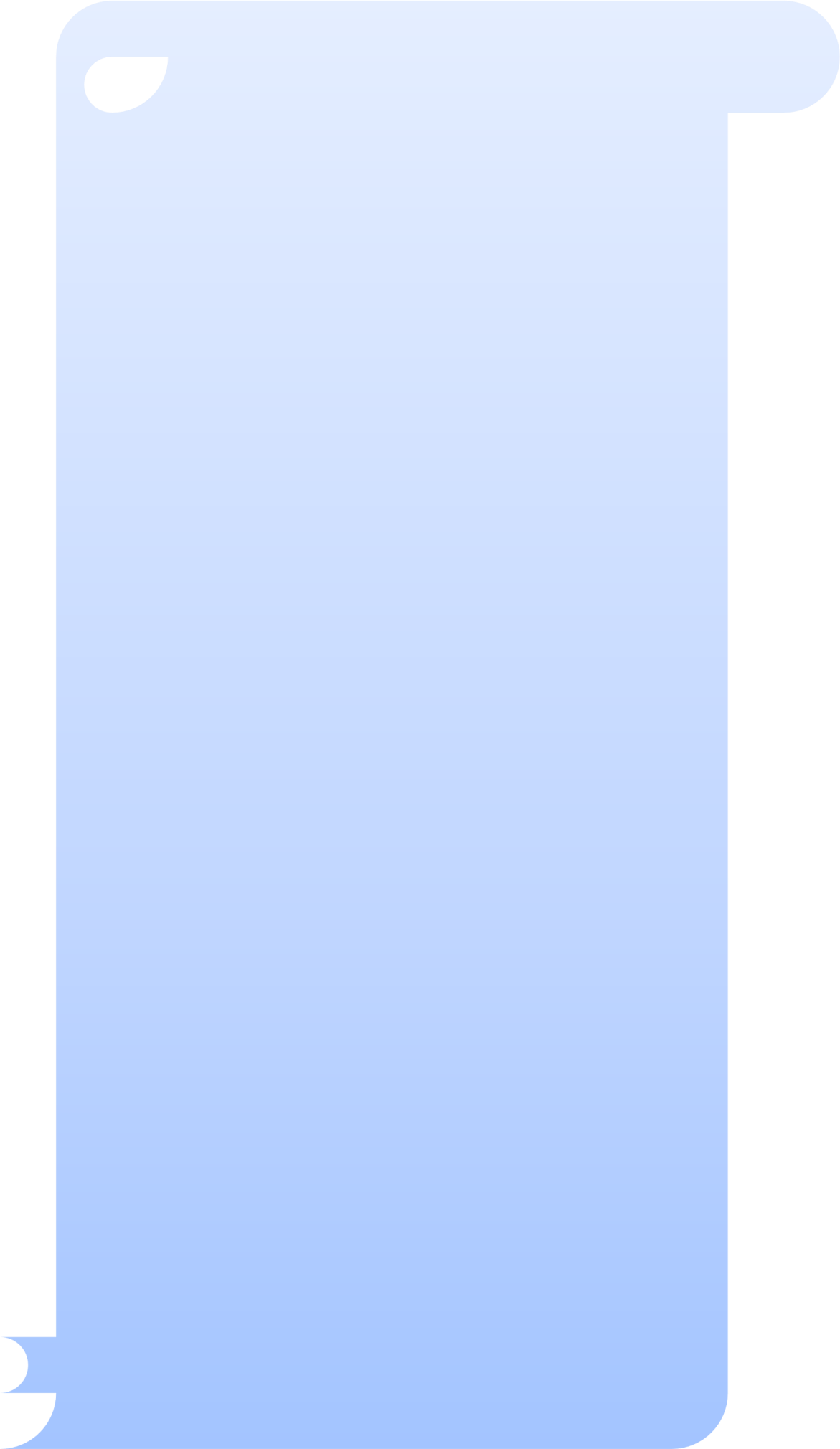
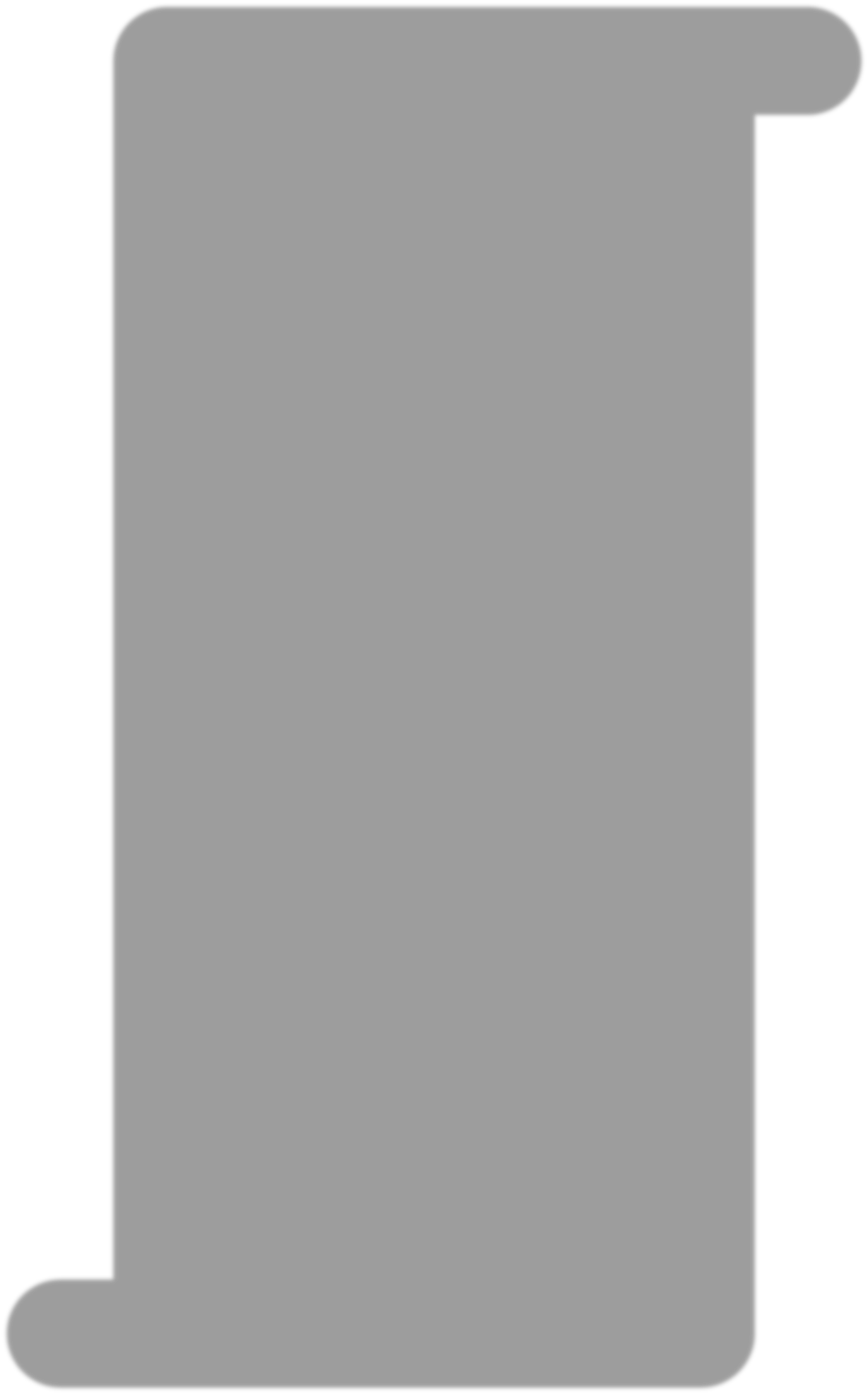
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**List of Abbreviations****and statistical Symbols**

|  |  |
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| **Symbol** | **The meaning** |
| BDA | British Dietetic Association |
| BSFS | Bristol Stool Form Scale |
| CBT | Cognitive-behavioral therapy |
| CCK | Cholecystokinin |
| CDI | Clostridioides difficle infection |
| FODMAPs | fermentable oligo-, di-, and mono-saccharides and polyols |
| GI | Gastrointestinal |
| GIT | Gastrointestinal Tract |
| HPA | Hypothalamic-pituitary-adrenal |
| IBD | Inflammatory bowel disease |
| IBS | Irritable bowel syndrome |
| IBS-C | Irritable bowel syndrome – constipation |
| IBS-D | Irritable bowel syndrome – diarrhea |
| IBS-M | Irritable bowel syndrome- mixed |
| IECs | Intestinal Epithelial Cells. |
| IgE | Immunoglobulin type-E |
| LFD | low FODMAP diet |
| NICE | National Institute for Health and Care Excellence |
| RCT | Randomized Controlled Trial |
| SERT | Serotonin |
| SIBO | Small Intestinal Bacterial Overgrowth |
| SSRIs | Serotonin reuptake inhibitors |
| **Statistical Symbols** | |
| **Symbol** | **The meaning** |
| F | Frequency |
| % | Percentage |
| ≤ | More than or Equal |
| ≥ | Less than or Equal |
| ∑ | Summation |
| X | Value |

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| Appendix (A2) | Facilitation mission from Baghdad University, College of Nursing, to Basra University, College of Nursing |
| Appendix (B1) | Ethical consideration |
| Appendix(B2) | Ethical pledge of scientific research |
| Appendix(B3) | Participant approval page |
| Appendix (C1) | Preliminary assessment |
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| Appendix (D) | Questionnaire in Arabic |
| Appendix (E) | Educational program |
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**Chapter One**

**Introduction**

**Chapter One**

**Introduction**

**1.1. Introduction**

Irritable bowel syndrome (IBS) is a common disorder characterized by abdominal pain and altered bowel habit for at least 3 months that is also characterized by abdominal discomfort associated with altered bowel function; structural and biochemical abnormalities are absent (Yamamoto et al., 2019).

Irritable bowel syndrome is common in the general population; the prevalence of this disease in European countries was about 20%; in recent years, the morbidity of Asian countries is rising year by year, which is near to that in Western countries (Selvaratnam et al., 2019).

The world-wide prevalence of Irritable bowel syndrome (IBS) is 11.2%. Patients with Irritable bowel syndrome (IBS) have a significantly lower quality of life, and the economic and societal costs associated with IBS are considerable (Trott et al., 2019 ; Lacy et al., 2016).

Currently, the medical treatment of Irritable bowel syndrome (IBS) is considered suboptimal and its pathophysiology is poorly understood. It is thought that IBS results from abnormalities of the “gut–brain axis” (a bidirectional circuit of communication between the gut and the brain) that may involve both mucosal and neuro-inflammation (Chong et al., 2019 ; O’Malley et al., 2017).

Nutrition appears to play an important role in Irritable bowel syndrome (IBS), both in exacerbating (approximately 60% of patients) or providing relief of symptoms (D’Silva et al., 2019).

The change in stool form and frequency is the best important step to make a positive diagnosis with irritable bowel syndrome, so these

changes allowed to classify the irritable bowel syndrome to subgroups based on predominant stool pattern experience (Blake et al., 2016).

Over the last 10 years, dietary research has focused on the role of fermentable oligo-, di-, and mono-saccharides and polyols (FODMAPs) in relation to the induction of IBS symptoms. A substantial body of research has demonstrated the effectiveness of reducing dietary FODMAPs in treating IBS symptomology (Camilleri et al., 2017).

Both the National Institute for Health and Care Excellence (NICE) and the British Dietetic Association (BDA) have adopted the low FODMAP diet (LFD) into their guidelines for the treatment of IBS. These guidelines emphasize the need for this approach to be delivered by a clinician/therapist who has both the necessary experience and expertise (Schaefer & Schlander, 2019).

**1.2. Importance of the study**

Irritable bowel syndrome (IBS) is the most prevalent functional gastrointestinal disorder noted in the general population worldwide. Its chronic nature, signs and symptoms which vary periodically from mild to severe have many negative effects on the quality of life (Drossman, 2019).

Irritable bowel syndrome (IBS) is a functional disorder which affects a large proportion of the population globally. IBS is a common functional gastrointestinal disorder characterized by chronic recurrent abdominal discomfort and pain, with change in bowel habits (Hayes et al., 2014).

Irritable bowel syndrome (IBS) patients reportedly represent (10–70%) of the patients attending primary care and about 28% of referrals to gastroenterologists The prevalence of IBS varies widely between countries and within different geographic regions in the same country, A meta-analysis showed a worldwide IBS prevalence of (11.2%), with it being lowest in South Asia and highest in South America (Walker,2019).

Studies show IBS syndrome is a common disorder worldwide, for example (5-20%) in the United States have irritable bowel syndrome, mostly among adults with age < 50 years old (Werlang et al, 2019).

Irritable Bowel Syndrome (IBS) is a common chronic functional gastrointestinal disorder characterized by abdominal pain or discomfort and alteration in bowel habits. It is more common among adolescents and young age groups. Irritable Bowel Syndrome (IBS) is a common disorder among adolescents in Iraq particularly females. Hereditary, environmental, psychosocial factors play an important role in the conception of the disease and stress was the most important modified risk factor affecting its prevalence (El Amrousy et al., 2018).

Hassan and Najm, (2016) conducted quasi-experimental design study at Baghdad City. the finding of the study revealed that their effectiveness of instructional program on IBS clients at P≤ 0.05 level. Therefore researcher noticed to increase health awareness among people through the implementation of courses and lectures in coordination with the Ministries of Health and Education and Higher Education in order to control the causes of disease and reduce symptoms of IBS.

**1.3. Statement of the Problem:**

Insufficient preventative measures programmed lectures of irritable bowel syndrome. Increase nursing college students knowledge about preventative measures of irritable bowel syndrome lead to learn the students how to instruct the patients with IBS to control stress and diet modification and motivate them to adhere to treatment, improve the quality of life and how to deal with the syndrome that result prevent the complication of the syndrome.

**1.4. Research question:**

Is the educational program improve nursing college students knowledge about preventative measures of irritable bowel syndrome

**1.5. Objective of the Study to:**

1- Identify the effectiveness of the educational program in developing information and preventive measures for Irritable Bowel Syndrome.

2- Identify the differences between study and control samples after the educational program in raising the level of information and preventive measures for Irritable Bowel Syndrome.

3- Identify the difference between the answers of the study samples to all questions pre and post the educational program.

4- Determine the evaluation of study samples in the three domains of the questionnaire (information, prevention, and protection) and for all questions.

5- Find out association between students' knowledge and soci- demographic characteristics (age, gender, level of educational, month income, eating and marital status).

**1.6. Research hypothesis:**

**Null hypothesis**: there is no association between educational program and nursing college students knowledge.

**Alternative hypothesis**: there is an association between educational program and nursing college students knowledge.

**1.7. Definition of the Terms:**

**1.7.1. Effectiveness:**

**1.7.1. A. Theoretical Definition:**

Spijkerman, (2016**)** defines effectiveness it is a measure of outcome from those health services that contribute towards reducing the dimension of a problem or improving an unsatisfactory situation.

**1.7.1 B. Operational Definition:**

The extent to which the objectives of the educational program on Nursing College Student's Knowledge about Preventative Measures of Irritable Bowel Syndrome in Al Basra University: Comparison study were achieved through positive outcomes.

**1.7.2. Educational Program**

**1.7.2. A. Theoretical Definition:**

Education program is the repetition of educational activities with special design and then applied it them upon a particular group to achieve the intended goals. The success of the program can be measured through the change in behavior of individuals after the program (Kerzner, 2017).

**1.7.2. B. Operational Definition:**

Refers to a program written by the institution or ministry of [education](https://en.wikipedia.org/wiki/Education) which determines the learning progress of each subject in all the stages of formal education.

**1.7.3. Knowledge:**

**1.7.3. A. Theoretical Definition:**

Knowledge is information and skills which the human beings gain by continuous searching process to improve their life and find the truth of self-development (Hislop, et al., 2018).

**1.7.3. B. Operational Definition:**

Student information which is acquired by applied education program about preventive measures of IBS.

**1.7.4. Nursing College:**

**1.7.4. A. Theoretical Definition:**

Is a type of [educational institution](https://en.wikipedia.org/wiki/Education), or part thereof, providing education and training to become a fully qualified [nurse](https://en.wikipedia.org/wiki/Nurse). The nature of [nursing education](https://en.wikipedia.org/wiki/Nurse_education) and nursing qualifications varies considerably across the world. Since the mid-20th century nursing education in many countries has undergone many enhancements (Vuolo, 2019).

**1.7.4. B. Operational Definition:**

It is a governmental educational institution working to educate and train international students and increase their knowledge and skills to become qualified register nurses who are able to manage hospitals and health centers.

**1.7.5.** **Preventative measures**

**1.7.5. A. Theoretical Definition:**

Preventive Health Measures encompass a variety of interventions that can be undertaken to prevent or delay the occurrence of disease or reduce further transmission or exposure to disease. Preventive health measures are an important part of health promotion efforts and many have been recognized as a cost-effective way to identify and treat potential health problems before they develop or worsen (Butler, 2019).

**1.7.5. B. Operational Definition:**

Includes the measures or steps taken for prevention of disease as opposed to disease treatment. Preventive care strategies are typically described as taking place at the primary, secondary, and tertiary prevention levels.

**1.7.6.**  **Irritable Bowel Syndrome**:

**1.7.6. A. Theoretical Definition:**

Irritable bowel syndrome (IBS) is one of the most common gastrointestinal (GI) diseases. It is characterized by chronic abdominal pain, cramps and bloating in association with altered bowel habits such as diarrhea, constipation or a mix of both (Lacy et al., 2016).

**1.7.6. B. Operational Definition:**

Irritable Bowel Syndrome is a chronic condition of the lower gastrointestinal tract. The symptoms of IBS may include abdominal pain, distention, bloating, indigestion, and various symptoms of defecation. These are pain associated with diarrhea; pains associated with constipation; and pain and diarrhea alternating with constipation.

**1.7.7. Students:**

**1.7.7. A. Theoretical Definition:**

is a person who goes to school and is learning something. Students can be children, teenagers, or adults who are going to school, but it may also be other people who are learning, such as in college or university (Lipsitz, 2019).

**1.7.7. B. Operational Definition:**

is primarily a person enrolled in a school or other educational institution who attends classes in a course to attain the appropriate level of mastery of a subject under the guidance of an instructor, a student is anyone who applies themselves to the intensive intellectual engagement with some matter necessary to master it a part of some practical affair in which such mastery is basic or decisive.

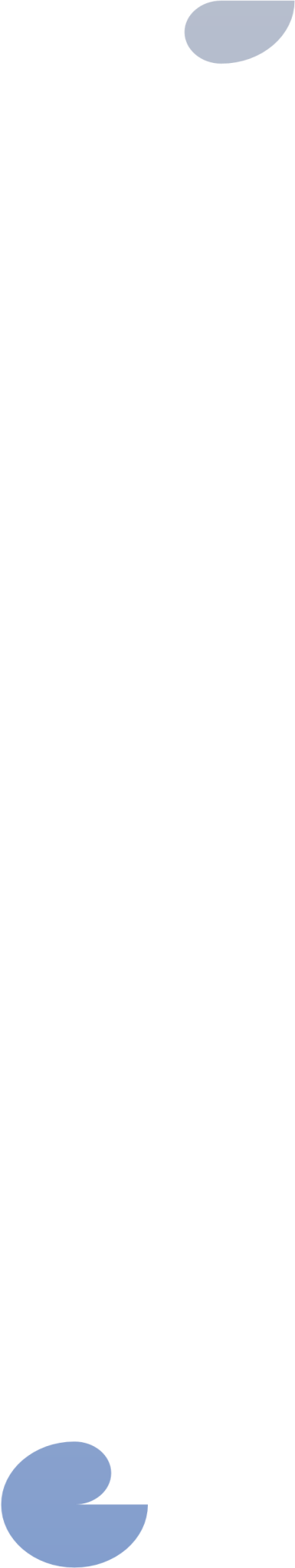
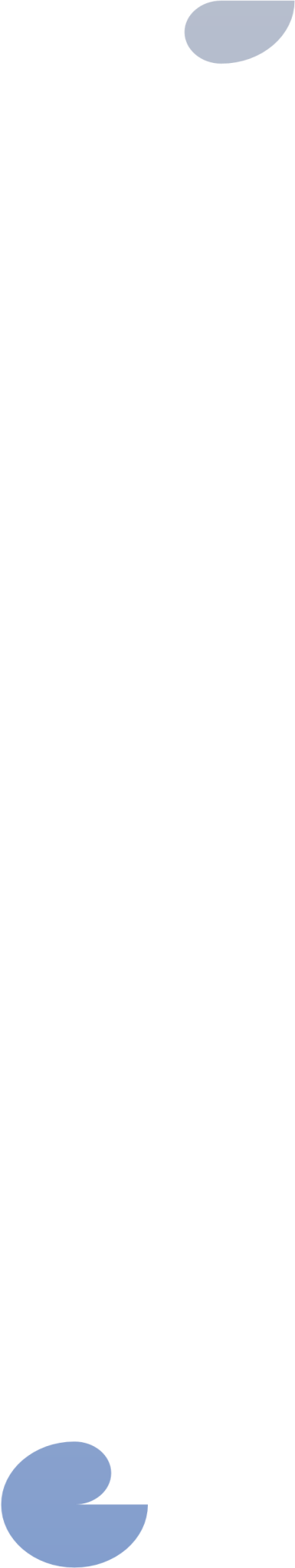
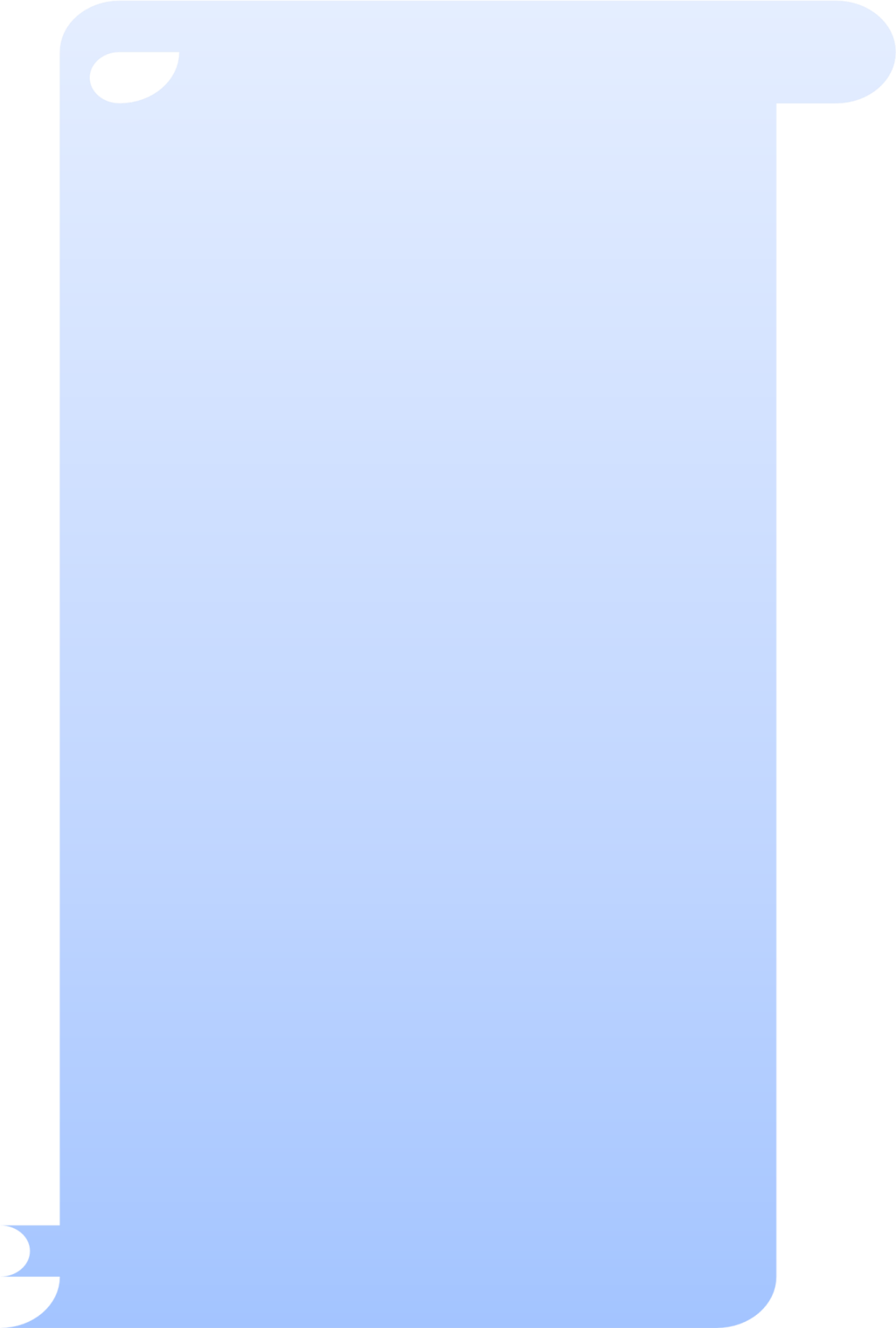
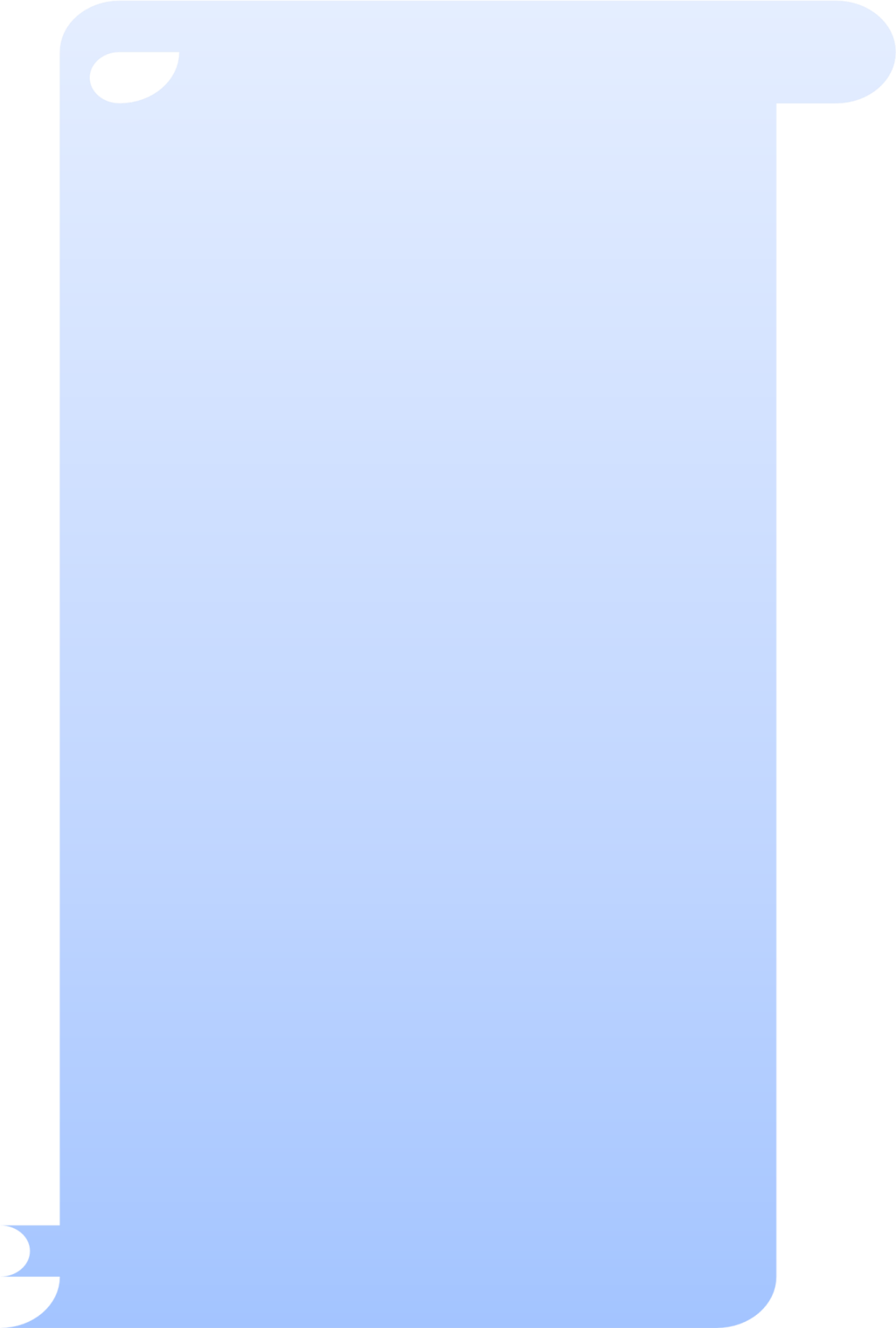
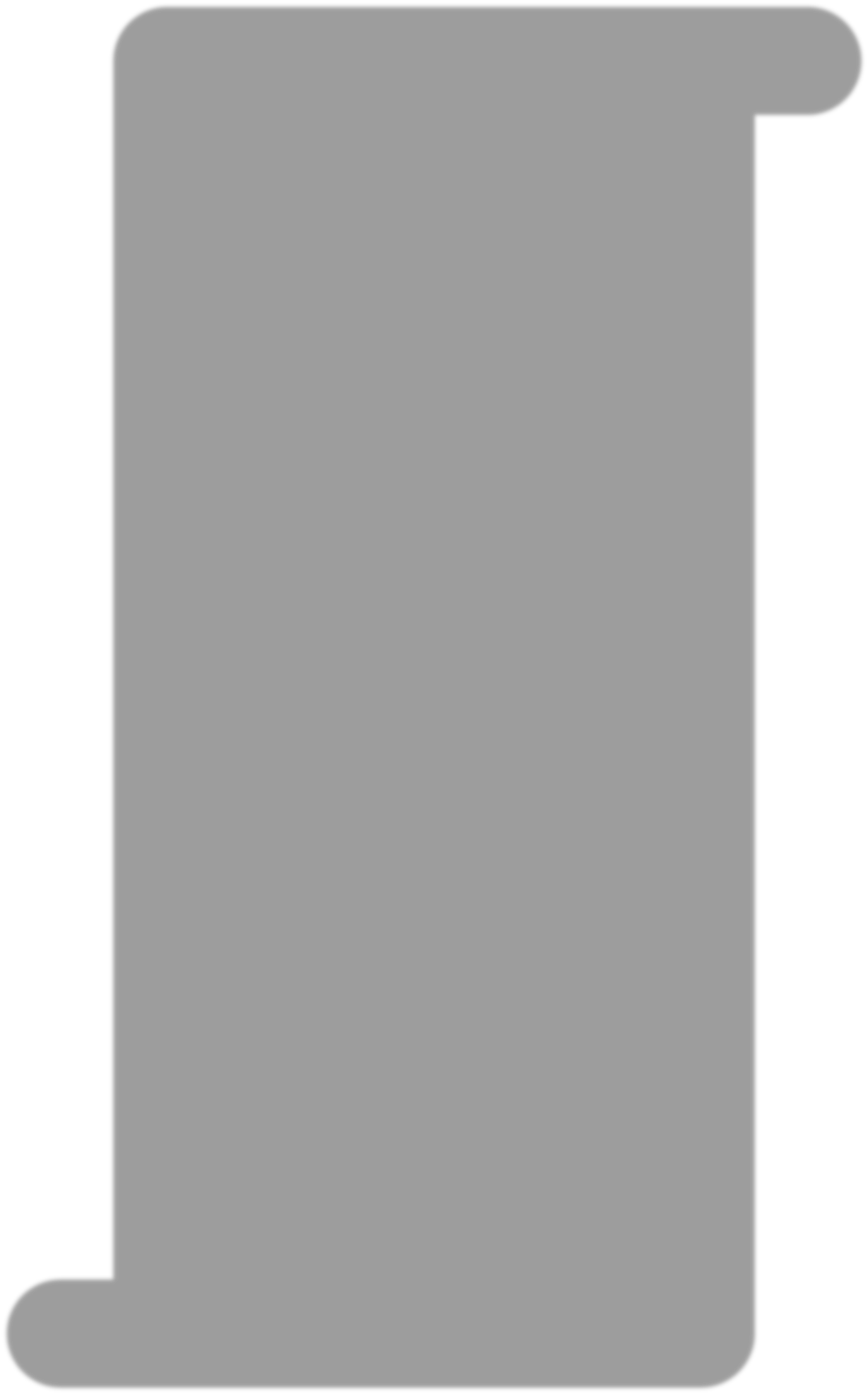
**1.7.8. Comparison Study:**

**1.7.8.A. Theoretical Definition:**

  is the act of comparing two or more things with a view to discovering something about one or all of the things being compared. Comparative study helps to define the organization structure of the subjects as well as give the differential points between the subjects matter (Golob et al., 2018).

**1.7.8.B. Operational Definition:**

is the act of comparing two or more things with a view to discovering something about one or all of the things being compared.



**Chapter Two**

**Review**

**of**

**Literature**

**Chapter Two**

**Review of Literature**

**2.1. Historical background of irritable bowel syndrome**

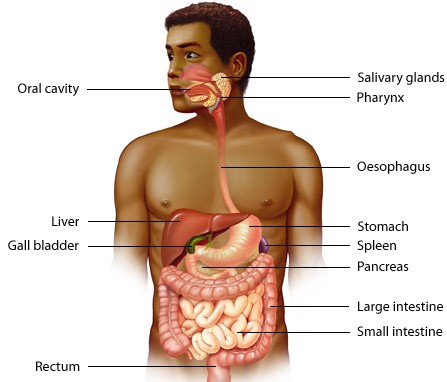
Zhuang et al., (2017) stated the term of irritable bowel syndrome was firstly used in (1944) by Peters and Bargen, over the decades, numerous other terms have been used to denote this condition, including passing “membranes” per rectum, pseudo-membranous enteritis, mucous colitis, myxoneurosis, chronic catarrhal colitis, unstable colon, and, in the (1930)s, “irritable colon”, the first case was reported by Powell in the UK in (1820), Chaudhary and Truelove in (1962) subdivided the irritable colon into “spastic colon” and “painless diarrhea,” providing the first systematic description of the condition. The Rome classification of the functional gastrointestinal disorders has refined the definition and provided internationally accepted diagnostic criteria. In the first part of the nineteenth century the syndrome includes abdominal pain and altered bowel habit in the absence of organic pathology was refered to the presence of irritable bowel syndrome.

Banwaite, (2007) stated the first description of the syndrome was by Osler in (1820) while the current term "irritable bowel syndrome" came into use in (1944). The concept of an "irritable bowel" appeared in the Rocky Mountain Medical Journal in (1950). The term was used to categorize people who developed symptoms of diarrhea, abdominal pain, and constipation, but where no well-recognized infective cause could be found. Early theories suggested the irritable bowel was caused by a psychosomatic or mental disorder.

Staff et al., (2017) & Spiller et al., (2007) explained recently the criteria for the diagnosis of irritable bowel syndrome includes, stress that considered as a strong indication for the syndrome, bowel function (how many bowel movements you have each day or each week, whether if constipation or diarrhea is present, noticed any blood or mucus in stool, and any recent changes in bowel habits or the shape of stools. bowel movement patterns have any relationship to abdominal pain (for example, if passing a stool relieves belly pain and cramping). Family history of similar symptoms also considered as one criteria for the diagnosis of irritable bowel syndrome. Another criteria includes a digital rectal exam, listening for bowel sounds (with a stethoscope), and a pelvic exam (in women).

**2.2. Anatomy and Physiology of the Gastrointestinal Tract**

The gastrointestinal tract (GIT) consists of a hollow muscular tube starting from the oral cavity, where food enters the mouth, continuing through the pharynx, esophagus, stomach and intestines to the rectum and anus, where food is expelled. There are various accessory organs that assist the tract by secreting enzymes to help break down food into its component nutrients. Thus the salivary glands, liver, pancreas and gall bladder have important functions in the digestive system (Khaling et al., 2017).

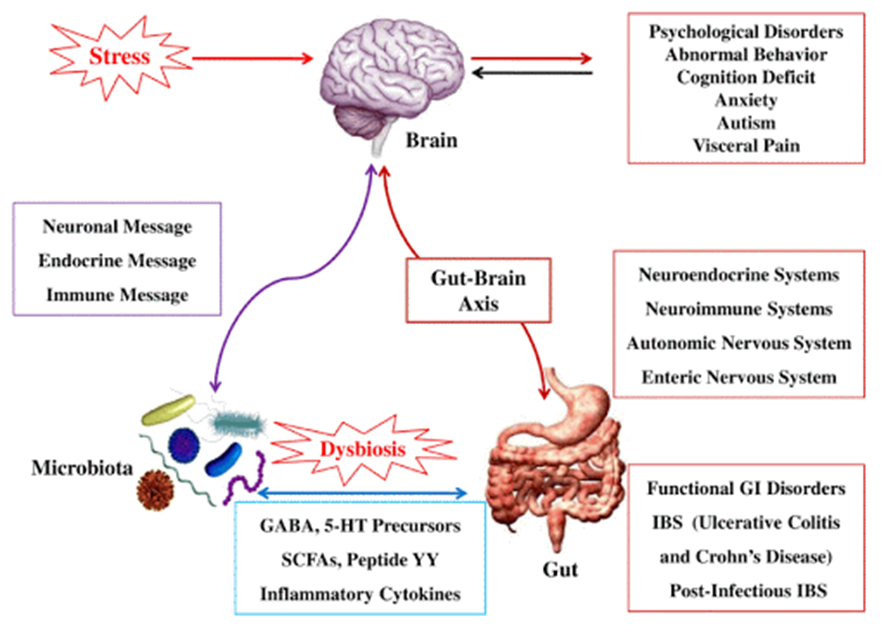


***Figure 2,1*. gastrointestinal tract** (**Martini et al., 2015).**

The food is propelled along the length of the GIT by peristaltic movements of the muscular walls. The primary purpose of the gastrointestinal tract is to break food down into nutrients, which can be absorbed into the body to provide energy. First food must be ingested into the mouth to be mechanically processed and moistened. Secondly, digestion occurs mainly in the stomach and small intestine where proteins, fats and carbohydrates are chemically broken down into their basic building blocks. Smaller molecules are then absorbed across the epithelium of the small intestine and subsequently enter the circulation. The large intestine plays a key role in reabsorbing excess water (Li et al., 2019; Pelaseyed et al., 2014).

The intestine serves two major functions, digestion and absorption of the nutrients the body requires, as well as acting as a barrier which excludes potentially harmful agents from the internal environment and a key role in immunity. The Gastrointestinal (GI) tract consists of multiple layers and multiple cell types. Intestinal epithelial cells (IECs) that line the luminal surface of the GI tract constitute a layer of defense (Casellas et al, 2018).

There are a number of different cell types contained within the IEC barrier, including: absorptive enterocytes micro fold cells which transport antigens through pinocytosis to the Peyers patches (secondary mucosal associated lymphoid tissue), enter endocrine cells that produce GI hormones and neuropeptides (such as serotonin and secretin), goblet cell that produce the mucus layer and paneth cells situated in the crypt of lieberkuhn producing antimicrobial factors. These cells cooperatively from a physical and immunological network for the creation and maintenance of proper homeostasis which refers to a dynamic balance in the GI tract between tolerance and inflammation (Santaolalla et al, 2012; Kraehenbuhl,&Neutra, 2012).



***Figure 2,2*. physiology irritable bowel syndrome (Enck et al., 2016).**

**2.3. Theoretical Framework**

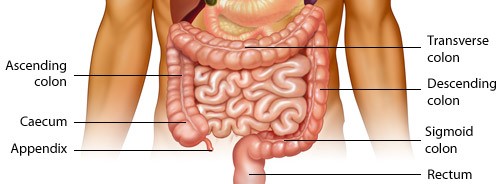
The model selected to guide current research is a Prevention Model, this model developed by Nancy Milio, it advocated by Leavell and Clark in 1975. The goal of prevention model is to maintain a healthy state and to prevent disease or injury, this model suggests that the natural history of any disease exists on a continuum, with health at one end and advanced disease at the other Nancy Milio developed a framework for prevention that includes concepts of community-oriented, population-focused care. Milio described sometimes neglected role of community health nursing to examine the determinants of community health and attempt to influence those determinants through public policy, and also stated behavioral patterns of the individuals is a result of habitual selection from limited choices and common notion that the main determinant for unhealthful behavioral choice is lack of knowledge, therefore the researcher based on this model to improve the individuals (nursing college students) knowledge through the application of the educational program.

This model delineates three levels of the application of preventive measures that use to promote health and arrest the disease process at different points includes:

* First level: primordial level: Prevention of the development of risk factors in a population in which they have not yet appeared. Efforts are directed towards discouraging individual from adopting harmful lifestyles
* Second level: Primary prevention: The actions are taken prior to the onset of disease, which removes the possibility that the disease will ever occur. It includes the concept of positive health, which encourages the achievement and maintenance of an “acceptable level of health that will enable every individual to lead a socially and economically productive life.
* Third level: Secondary prevention: Action That halts the progress of the disease at its incipient stage and prevents complication.

**2.4. Irritable bowel syndrome overview**

Irritable bowel syndrome (IBS), a functional disorder affecting the gastrointestinal (GI) tract, is defined as recurrent abdominal pain or discomfort for at least three days per month over the previous three months whose onset was associated with at least two of the following three criteria: improvement upon defecation; change in stool frequency; or change in stool appearance, where no particular organic pathology is found (Lonigan et al, 2017).



***Figure 2,3.* Large intestinal (** **Martini et al., 2015)**

Though the pathogenesis of IBS is, till now, not completely understood, new underlying factors have been recognized in past years. However, IBS is a heterogeneous disorder and no single abnormality accounts for symptoms in all patients. Altered gut immune activation and intestinal permeability, may be important factors in its pathophysiology (Dolan & Eswaran, 2018).

Pathophysiology of IBS is complex and is considered to be due to combination of several factors, such as:

* Motor abnormalities, such as increased frequency and irregularity of luminal contractions, prolonged transit time with constipation predominance, and an exaggerated motor response to cholecystokinin and meal ingestion with prominent diarrhea symptoms.
* Increased sensation in various receptors in the gut wall in response to stimuli leading to distention and bloating.
* Activation of the mucosal immune system characterized by alterations in particular immune cells and markers leading to increased release of nitric oxide, histamine, and proteases. These, in turn, stimulate the enteric nervous system and lead to abnormal motor and visceral responses within the intestine.
* Increased risk associated with viral, bacterial, protozoan, and infections.
* Malabsorption, for example, due to bile acid malabsorption, as a result of enteric infections.
* Increase in serotonin-containing enter endocrine cells and T lymphocytes following acute Campylobacter enteritis. This leads to increased gastrointestinal motility and visceral hypersensitivity.
* antibiotic use.
* changes in gut microﬂora.
* small intestinal bacterial overgrowth (SIBO).
* sensitivity to certain foods such as fructose intolerance and gluten sensitivity.
* polymorphisms in the serotonin transporter gene that may result in changed serotonin reuptake efﬁcacy which, in turn, inﬂuences intestinal peristalsis.
* stress, increased anxiety, depression, and phobias (Wald & Talley, 2019 ; Camilleri & Ford, 2016).

Irritable bowel syndrome (IBS) account for )2.4( and)3.5( million annually. It is ranging widely among all societies and socio-economic classes. The prevalence of IBS ranges from )9% to 23%( worldwide. However, it varies from one country to another according to the diagnostic tool used. Based on Rome III criteria, IBS affects about )10% to 15%( and )10% to 20%( in North America, and western countries, respectively. On the other hand, two different studies were conducted in Saudi Arabia; Makkah and Aljouf. In Makkah, )26.7%( of the subjects were diagnosed with IBS by using Rome III criteria. In Aljouf, the prevalence of IBS was )8.9%( by using Manning criteria, and )9.2%( by using Rome II criteria. There are other factors that may impact the prevalence of IBS including age and gender. IBS affects females more than males, and is more common among those who are under )45( years of age (Ng et al., 2018).

Approximately )10-20%( of adults in Western countries have IBS symptoms ,and a similar prevalence has been reported in Asia. Recently, Lovell and Ford conducted a meta-analysis of studies on the epidemiology of IBS and estimated a global prevalence of )11.2%( (95% confidence interval, 9.8-12.8%), a rate that has not changed in the last 30 years. Moreover, they found that the odds ratio of IBS in women has only modestly increased compared with men and that socioeconomic status did not show any effect on prevalence, though there are some conflicting results. Globally, Southeast Asia has lowest prevalence of IBS (7.0%) and South America the highest (21.0%). The prevalence in Africa is not clear as there have been few population-based studies. IBS prevalence differs among Western countries even when the same diagnostic criteria are used. For example, France has a lower IBS prevalence than in America. From this meta-analysis by Lovell and Ford, irritable bowel syndrome – diarrhea (IBS-D) was the most prevalent (40.0%), followed by irritable bowel syndrome – constipation (IBS-C ) (35.0%) and (IBS-M) irritable bowel syndrome- mixed (23.0%). IBS is frequently seen in adolescents. According to Lovell and Ford’s meta-analysis, its prevalence appears to decline modestly with increasing age. While individuals aged )50( years or older do have a lower odds ratio for IBS than those younger than )50(, the prevalence of IBS was reported to be almost the same in adolescents as in adults. The prevalence in students aged )15( years was )14.6%( in 2004 and )19%( in 2009, with girls showing higher prevalence than boys in both years. Students with IBS exhibited lower health-related quality of life and lower self-efficacy, and reported more sleep disturbance, traumatic episodes, and perceived stress than students without abdominal symptoms (Zheng, 2019).

**2.5. Risk factors of irritable bowel syndrome**

* **Gender:** About twice as many women as men have the condition. It’s not clear why, but some researchers think the changing hormones in the menstrual cycle may have something to do with it.
* **Age:** Irritable bowel syndrome (IBS) can affect people of all ages, but it's more likely for people in their teens through their 40s.
* **Family history:** The condition seems to run in families. Some studies have shown that genes may play a role.
* **Emotional trouble:** Some people with IBS seem to have trouble with [stress](https://www.webmd.com/balance/stress-management/default.htm), have a mental disorder, or have been through a traumatic event in their lives, such as sexual abuse or domestic violence.
* **Food sensitivities:** Some people may have digestive systems that rumble angrily when they eat dairy, wheat, a sugar in fruits called fructose, or the sugar substitute sorbitol. Fatty foods, carbonated drinks, and alcohol can also upset digestion. There's no proof any of these foods cause IBS, but they may trigger symptoms.
* **Large meals, or eating while something stressful, like driving or working:** Again, these activities don’t [cause irritable bowel syndrome](https://www.webmd.com/ibs/guide/digestive-diseases-irritable-bowel-syndrome), but for those with a very sensitive colon, they can spell trouble.
* **Medications:** Studies have shown a link between [IBS symptoms](https://www.webmd.com/ibs/symptoms-irritable-bowel-syndrome-ibs) and antibiotics, antidepressants, and drugs made with [sorbitol](https://www.webmd.com/drugs/2/drug-10305/sorbitol/details) (Yamamoto et al., 2019; Klem et al., 2017).

**2.6. Causes of Irritable Bowel Syndrome**

Despite its high prevalence, the pathophysiology of IBS is not yet completely understood and seems to be multifactorial (Aziz et al., 2017).

Many pathogenic factors, in various combinations, and not all necessarily present in each patient, can play an important role. It is unclear which among these factors is the trigger or how these conditions converge to IBS )Coutts, 2019).

**1. Genetic predisposition**

The influence of genetic predisposition in the development of IBS has been well researched. positive family history for IBS is present in 33% of patients. Having a parent with IBS is a greater predictive factor for IBS than having a twin with IBS, which indicates that environmental factors may play a greater role than genetic ones (Häuser et al., 2019).

A number of studies have investigated the possible role of gene polymorphisms coding for anti-inflammatory and pro-inflammatory interleukins, alpha 2 adrenergic receptors, serotonin (SERT) and cholecystokinin (CCK) receptors (Barbara‏ et al., 2016).

There is a significant correlation between SERT polymorphisms and IBS symptom severity, although their possible direct causal role remains to be proven. In addition, the present findings do not support an association of SERT with IBS or its clinical presentation in terms of bowel habit predominance (Radovanovic-Dinic et al., 2018).

Traditionally, IBS has been conceptualized as a condition of altered intestinal motility (leading to diarrhea or constipation), intestinal hypersensitivity (leading to abdominal discomfort or pain), and psychopathology (Weaver, 2017).

**2. Altered intestinal motility**

In patients with IBS, environmental stress or strong emotion via the brain–gut axis can lead to dysmotility throughout the small and large intestine. Patients with IBS have an even greater motility response to stressors when compared with normal subjects (Drossman, 2016).

Small bowel dysmotility manifests as accelerated meal transit in patients prone to diarrhea and in delayed meal transit in patients prone to constipation. In addition, patients exhibit shorter intervals between migratory motor complexes (predominantly inner digestive small bowel motor patterns). Colonic dysmotility in IBS manifests as variations in slow-wave frequency and a blunted, late-peaking, postprandial response of spike potentials. Patients who are prone to diarrhea demonstrate these alterations to a greater degree than patients who are prone to constipation **(**Mooney, 2019).

Serotonin, acting particularly through receptors, plays a significant role in the control of gastrointestinal motility. It has been observed that plasma serotonin concentrations are reduced in IBS patients with constipation, but raised in those with diarrhoea. There has been considerable interest in these receptors as possible therapeutic targets for IBS, with agonists or antagonists at the serotonin receptor (Cao et al., 2017).

**3.**  **Intestinal hypersensitivity**

Intestinal hypersensitivity is a multifactorial process that may occur within the peripheral or central nervous systems and plays a principal role in the etiology of IBS. This selective hyper-sensitization occurs as a result of stimulation of various receptors of visceral afferent nerve fibers in the gut wall, triggered by bowel distention or bloating, and is a possible explanation for IBS symptoms. The increased sensitivity of the colon could be influenced by a psychological tendency to report pain and urgency, rather than increased neurosensory sensitivity (Radovanovic-Dinic et al., 2018).

**4. Psychopathology**

There is a clear increased prevalence of current psychological distress among patients who seek medical care for IBS. Symptoms of anxiety, depression, paranoia and global psychological symptoms are commonly encountered in these patients (Gulewitsch et al., 2013).

Koloski et al conducted a 12-year longitudinal, prospective, population-based study on the brain-gut axis and concluded that the central nervous system and gut interact bidirectionally in functional gastrointestinal disorders (Koloski et al., 2016).

Stress in IBS patients increases the levels of pro-inflammatory interleukins, activating both the hypothalamic-autonomic nervous system and the hypothalamic-pituitary-adrenal (HPA) axes and consequently increases the serological adreno-cortico-tropic-hormone and cortisol levels (Lackner et al., 2010).

**5. Enteric infection/inflammation**

Enteric inflammation has been noted in some patients with IBS after prolonged infectious enteritis (post infectious IBS). In patients with Giardia lamblia infection the prevalence of IBS was (46.1)% as long as (3) years after exposure, compared with )14%( in control (Mohammad, 2019).

The mechanisms that cause post infectious IBS are unknown but could include residual inflammation or persistent changes in mucosal immunocytes, enterochromaffin and mast cells, enteric nerves, and the gastrointestinal macrobiotic. Vomiting during initial enteric infection may decrease the risk of post infectious IBS, possibly by decreasing the pathogen load in the distal gastrointestinal tract (Hanevik, 2012).

**6.** **Altered gut macrobiota**

Differences in the bacterial composition of the gut and also reduced fecal microbial diversity in IBS patients, relative to healthy individuals, have implied a causative role in the onset and maintenance of IBS (Tojo et al., 2014).

The microbiota is altered in IBS and such alterations may contribute to the pathogenesis of the disorder through, for example, increased permeability, an altered immune profile, effects on the gut-brain axis and modulation of gut neuromuscular function (Fujimura et al., 2010).

Lactobacilli and bifid bacteria were found to be decreased in IBS patients, and their activities were found to be heavily compromised, Furthermore, there is evidence that probiotics can affect intestinal fermentation and stabilize microbiotia, normalizing the relationship between pro- and anti-inflammatory cytokines. This results has a beneficial effect on intestinal inflammation, permeability, and visceral sensitivity (Bellini et al., 2014 ; Öhman et al., 2013).

**7. Food intolerance**

The patients with IBS tend to report that their symptoms are often exacerbated by certain foods. The classical immunoglobulin type-E( IgE) mediated food allergy does not seem to play an important role in IBS ( Jardí Pujol, 2014).

In recent years, it has been observed that the ingestion of gluten causes abdominal discomfort and IBS-like symptoms in subjects without a diagnosis of celiac disease (the so-called gluten sensitivity). Most likely, the gluten, like other well-known factors, alters the intestinal permeability, activating the enteric and autonomous nervous systems and producing the typical symptoms of IBS (Catassi et al., 2017).

**2.7. Symptoms of irritable bowel syndrome:**

**1.** **Pain and Cramping:**

Abdominal pain is the most common symptom of IBS is lower abdominal pain that is less severe after a bowel movement. And a key factor in diagnosis. Normally, gut and brain work together to control digestion. This happens via hormones, nerves and signals released by the good bacteria that live in gut In IBS, these cooperative signals become distorted, leading to uncoordinated, and painful tension in the muscles of the digestive tract (Elsenbruch, 2011).‏

This pain usually occurs in the lower abdomen or the entire abdomen but is less likely to be in the upper abdomen alone. Pain typically decreases following a bowel movement (Camilleri & Boeckxstaens, 2017).

**2.** **Diarrhea:**

Diarrhea-predominant IBS is one of the three main types of the disorder. It affects roughly one-third of patients with IBS (Barmeyer et al., 2017)

A study of )200( adults found that those with diarrhea-predominant IBS had, on average, 12 bowel movements weekly more than twice the amount of adults without IBS. Accelerated bowel transit in IBS can also result in a sudden, immediate urge to have a bowel movement. Some patients describe this as a significant source of stress, even avoiding some social situations for fear of a sudden onset of diarrhea. Additionally, stool in the diarrhea-predominant type tends to be loose and watery and may contain mucus (Wright-McNaughton, 2018).

**3.** **Constipation:**

Although it seems counterintuitive, IBS can cause [constipation](https://www.healthline.com/nutrition/best-foods-for-constipation) as well as diarrhea. Constipation-predominant IBS is the most common type, affecting nearly 50% of people with IBS. Altered communication between the brain and bowel may speed up or slow down the normal transit time of stool. When transit time slows, the bowel absorbs more water from stool, and it becomes more difficult to pass (Badenhorst, 2019 ; Bharucha & Wald, 2019).

Constipation is defined as having fewer than three bowel movements per week “Functional” constipation describes chronic constipation not explained by another disease. It is not related to IBS and is very common. Functional constipation differs from IBS in that it is generally not painful. In contrast, constipation in IBS includes abdominal pain that eases with bowel movements (Mearin et al., 2016).

Constipation in IBS also often causes a sensation of an incomplete bowel movement. This leads to unnecessary straining . Along with the usual treatments for IBS, exercise, drinking more water, eating soluble fiber, taking probiotics and the limited use of laxatives may help (Cabre, 2011).

**4 .Alternating Constipation and Diarrhea:**

Diarrhea and constipation in IBS involve chronic, recurring abdominal pain. Pain is the most important clue that changes in bowel movements are not related to diet or common, mild infections (Anbardan et al., 2012).

**5 .Changes in Bowel Movements:**

Slow-moving stool in the intestine often becomes dehydrated as the intestine absorbs water. In turn, this creates hard stool, which can exacerbate symptoms of constipation (Halkjær et al., 2017).

Prompt movement of stool through the intestine leaves little time for absorption of water and results in the loose stools characteristic of diarrhea irritable bowel syndrome can also cause mucus to accumulate in stool, which is not usually associated with other causes of constipation. Blood in the stool may be a sign of another, potentially serious medical condition, and deserves a visit to the doctor. Blood in the stool may appear red but often appears very dark or black with a tarry consistency (Dube et al., 2011).

**6 .Gas and Bloating**

Altered digestion in IBS leads to more gas production in the gut. This can cause bloating, which is uncomfortable. Many with IBS identify bloating as in a study of (337) IBS patients, (83%) reported bloating and cramping. Both symptoms were more common in women and in constipation-predominant IBS or mixed types of IBS. Avoiding lactose and other FODMAPs can help [reduce bloating](https://www.healthline.com/nutrition/11-proven-ways-to-reduce-bloating) (Zhu et al., 2013).

**7. Food Intolerance:**

Up to (70%) of individuals with IBS report that particular foods trigger symptoms, two-thirds of people with IBS actively avoid certain foods. Sometimes these individuals exclude multiple foods from the diet (De Giorgio et al., 2016 ).

**8. Fatigue and Difficulty Sleeping**

Over half of people with IBS report fatigue. In one study, study of (85) adults found that the intensity of their symptoms predicted the severity of fatigue. IBS is also related to insomnia, which includes difficulty falling asleep, waking frequently and feeling unrested in the morning (Buchanan et al., 2014).

**9. Anxiety and Depression**

Irritable bowel syndrome is linked to anxiety and depression, as well. It’s unclear whether IBS symptoms are an expression of mental stress or whether the stress of living with IBS makes people more prone to psychological difficulties, Whichever comes first, anxiety and digestive IBS symptoms reinforce one another in a vicious cycle. In a large study of (94,000) men and women, people with IBS were over (50%) more likely to have an anxiety disorder and over (70%) more likely to have a mood disorder, such as depression (Eriksson et al., 2015).

Another study compared levels of the stress hormone [cortisol](https://www.healthline.com/nutrition/ways-to-lower-cortisol) in patients with and without IBS. Given a public speaking task, those with IBS experienced greater changes in cortisol, suggesting greater stress levels. Additionally, another study found that anxiety reduction therapy [reduced stress](https://www.healthline.com/nutrition/16-ways-relieve-stress-anxiety) and IBS symptoms (Kennedy et al., 2014).

In the presence of alarm features or atypical symptoms which are not compatible with IBS, it’s important to exclude other causes. The alarm symptoms (e.g. anemia and weight loss) have a high specificity for the presence of inflammatory or malignant diseases. Rectal bleeding, nocturnal or progressive abdominal pain, weight loss, anemia and another laboratory abnormalities such as elevated inflammatory markers, or electrolyte disturbances, a family history of colorectal cancer, inflammatory bowel disease (IBD) or celiac disease are often associated with IBS-like symptoms (Schiller et al., 2017).

**2.8. Diagnosis of irritable bowel syndrome:**

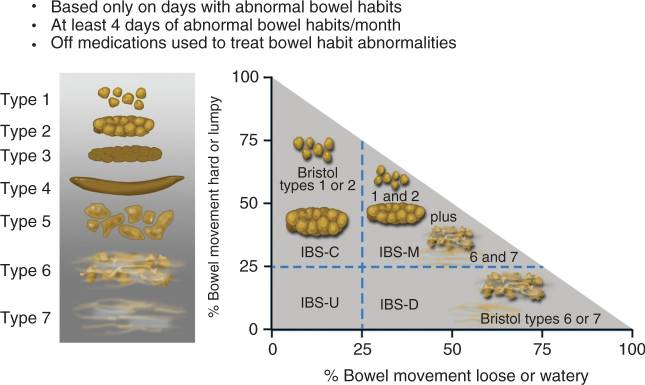
There's no test to definitively diagnose IBS. It is likely to start with a complete medical history, physical exam and tests to rule out other conditions. If diagnosis IBS with diarrhea, likely will be tested for celiac disease ( Luthy et al., 2017).

After other conditions have been ruled out, it is likely to use one of these sets of diagnostic criteria for IBS:

* **Rome criteria**. These criteria include abdominal pain and discomfort lasting on average at least one day a week in the last three months, associated with at least two of these factors: Pain and discomfort are related to defecation, the frequency of defecation is altered, or stool consistency is altered (Ford et al., 2013).
* **Manning criteria**. These criteria focus on pain relieved by passing stool and on having incomplete bowel movements, mucus in the stool and changes in stool consistency. The more symptoms have, the greater the likelihood of IBS ( Lacy & Patel, 2017).

Other abdominal symptoms that are consistent with a diagnosis of IBS (but not present in all patients) include bloating, distention and flatulence. Non-GI symptoms that are supportive of an IBS diagnosis also include migraine headaches, interstitial cystitis, and dyspareunia (Drossman, 2016).

* Types of IBS considered as a diagnostic criteria for IBS can be divided into three subtypes, based on symptoms: constipation-predominant, diarrhea-predominant or mixed.
* IBS with predominant constipation (IBS-C): Patient reports that abnormal bowel movements are usually constipation (BSFS type 1 or 2).
* IBS with predominant diarrhoea (IBS-D): Patient reports that abnormal bowel movements are usually diarrhoea (BSFS type 6 or 7).
* IBS with mixed bowel habits (IBS-M): Patient reports that abnormal bowel movements are usually both constipation and diarrhea ( Moayyedi et al., 2017).



***Figure 2,6*.Irritable bowel syndrome subtype. (Moayyedi et al., 2017).**

Will also likely assess whether they have other signs or symptoms that might suggest another, more serious, condition. These signs and symptoms include:

* The onset of signs and symptoms after age 50.
* Weight loss.
* Rectal bleeding.
* Fever.
* Nausea or recurrent vomiting.
* Abdominal pain, especially if it's not completely relieved by a bowel movement, or occurs at night.
* Diarrhea that is persistent or it wakes up from sleep.
* Anemia related to low iron.

these signs or symptoms, or if an initial treatment for IBS doesn't work, will likely need additional tests ( Mosli et al., 2017).

**2.8.1. Additional tests**

Several tests, including stool studies to check for infection or problems with intestine's ability to take in the nutrients from food (malabsorption). may also have a number of other tests to rule out other causes for symptoms.

**Imaging tests can include:**

* **Flexible sigmoidoscopy**: examines the lower part of the colon (sigmoid) with a flexible, lighted tube (Qudayr et al., 2018).
* **Colonoscopy:** uses a small, flexible tube to examine the entire length of the colon (Lacy, 2013).
* **X-ray or CT scan**: These tests produce images of abdomen and pelvis that might allow us to rule out other causes of symptoms, especially if abdominal pain. might fill large intestine with a liquid (barium) to make any problems more visible on X-ray. This barium test is sometimes called a lower GI series (Arazi, et al., 2019).

**2.8.2. Laboratory tests include:**

**A-Lactose intolerance tests:** Lactase is an enzyme needed to digest the sugar found in dairy products. don't produce lactase, may problems similar to those caused by IBS, including abdominal pain, gas, and diarrhea. may order a breath test or asked to remove milk and milk products from diet for several weeks (Robles& Priefer, 2020).

**B-Breath test for bacterial overgrowth:** A breath test also can determine if bacterial overgrowth in the small intestine. Bacterial overgrowth is more common among people who have had bowel surgery or who have diabetes or some other disease that slows down digestion (Yao et al., 2018).

**2.8.3 Upper endoscopy:** A long, flexible tube is inserted down the throat and into the tube connecting in the mouth and stomach (esophagus). A camera on the end of the tube allows the doctor to inspect upper digestive tract and obtain a tissue sample (biopsy) from the small intestine and fluid to look for overgrowth of bacteria. might recommend endoscopy if celiac disease is suspected (Qadrie et al., 2018).

**2.8.4. Stool tests:** The stool might be examined for bacteria or parasites, or a digestive liquid produced in the liver (bile acid) if chronic diarrhea (Smalley et al., 2019 ; Yang et al., 2014).

**2.9. Complication of irritable bowel syndrome:**

Irritable bowel syndrome (IBS) affects up to 45 million Americans. But doctors don't know a lot about what causes this gut disorder. Finding a treatment that works can take time, and other health problems can crop up in the meantime. None of the complications are life-threatening, though. Irritable bowel syndrome (IBS) doesn't lead to cancer or other more serious bowel-related conditions. Here are some of the health issues it can cause (Chang &Rezaie, 2017 ; Kastanias et al., 2017).

**1. Anal fissures:**

The pushing from trying to have a bowel movement can cause anal fissures or small tears in the anus. These may be difficult to heal when having continual constipation. Symptoms can include itching, pain, and bleeding (Ratto et al., 2017).

**2. Fecal impaction:**

When stool starts to pack tightly in the rectum, it may not be able to push it out. This is known as fecal impaction. Because impaction affects the stool’s ability to move forward, it may have to seek medical attention to have the stool manually removed. It can hurt and cause things like headaches, nausea, and vomiting. It happens most often with older adults (Schiller, 2019).

**3. Food intolerance:**

Certain foods can make IBS symptoms worse. What they are can be different for everyone. But some people feel better when they cut out wheat, dairy, coffee, eggs, yeast, potatoes, and citrus fruits. Fats and sugars can make diarrhea worse. fermentable oligosaccharides, disaccharides, monosaccharide's, and polyols (FODMAPs) is a diet to cut out some carbohydrates that are hard to digest (Crowe, 2019).

**4. Malnourishment:**

Cutting back on some types of foods can ease IBS symptoms. But the body may not get all the nutrients it needs. As a result, could be missing out on key nutrients. This malnourishment can cause unwanted weight loss and a number of other problems (Deng et al., 2016).

**5. Hemorrhoids:**

Swollen blood vessels around anus, the opening where stool comes out, can hurt and bleed. Very hard or very loose stools can make the situation worse. If the swollen vessels are inside anus, they may fall far enough to stick out. They’re usually the result of excessive pushing and straining. can often treat hemorrhoids at home with an over-the-counter cream. also might try sitting on a cold ice pack and be sure to keep the area clean (Helvaci et al., 2019).

**6. Rectal prolapse:**

This condition occurs when rectum exits anus. This can cause mucus to leak out of the anus. The condition is most common in people with a history of chronic constipation and is particularly common in postmenopausal women (Kawanishi et al., 2019).

**7. Pregnancy complications:**

Hormone changes and the physical pressure a baby puts on the bowel wall can cause digestive issues. Many women also choose to stop any IBS drugs they're taking. This can be better for the baby. But it can make moms-to-be more likely to have things like heartburn and indigestion (Awad et al., 2019).

**8. Quality of life:**

Flare-ups can happen without warning. Also, they may have diarrhea for a time and then be constipated. Not being able to predict how feel can make it hard to go about daily life. also probably need to see the doctor often and are likely to miss more work than other people. It may be harder to focus on when a job. Managing stress, for example through exercise or meditation (Buono, 2017).

**9. Depression and anxiety:**

It's common for people who have IBS to feel like they're losing control over their lives. The pain during IBS can cause stress for patients )Jones, 2018).

**2.10. Nursing role and management**

Chlipalski, (2016) stated the nurse's role is to supply client and family education, teaching, and reinforcement of good dietary habits (e.g. avoidance of food triggers) are emphasized. A good method of identifying problem food involves keeping a symptom and food diary for (1to2) weeks. Clients are encouraged to eat regular times and to chew food slowly and thoroughly, they should understand that although adequate fluid intake is necessary, the fluid should not be taken with meals because this results in abdominal distention. Alcohol drinks and cigarette smoking are discouraged. Stress management through relaxation techniques, yoga, or exercise can be recommended, management of irritable bowel syndrome consists primarily of providing psychological support and recommending dietary measures. Pharmacological treatment is adjunctive and should be directed at symptoms.

The nurse assists the client and family to accept and cope with this chronic situation. A thorough nursing assessment obtains a health history, including information around previous surgical procedures, chronic illness, dietary patterns, bowel habits, and problems, and current medication regimen. The bowel training program involves setting a schedule to establish bowel regularity. The goal is to assist the achieve fecal continence. If this not possible, the goal should be to manage the problem so the person can have predictable, planned elimination (Swearingen &Wright, 2019).

Lindavanni et al., (2017) show that sometimes, it is necessary to made use of suppositories to motivate the anal reflex. After the client has achieved a regular schedule, the suppository can be discontinued. Biofeedback can be used in conjunction with these therapies to help the client improve sphincter contractility and rectal sensitivity. Maintaining skin integrity is a priority, especially in debilitated or elderly clients. The nurse encourages and teaches meticulous skin hygiene.

**2.10.1. Nursing care for irritable bowel syndrome**

1-Provide patient and family teaching and reinforcement of good dietary habits.

2-Encourage the patient avoidance of food triggers (such as wheat, fatty food , apple and carbonated drinks ).

3 -Encourage to eat high fiber diet such as breads, cereals high in bran and whole grain such as brown rice (in patient with constipation).

4- People with diarrhea should avoid an artificial sweetener found in sugar- sweets (including chewing gum) and drinks.

5- Encourage the patient to eat at regular time and to chew food slowly and thoroughly.

6- Avoid fluid intake with meal because this result in abdominal distention.

7-Psychological treatment include: Stress management via relaxation techniques (such as deep breathing, massage, meditation, yoga, music therapy) or exercise can be recommended (exercise reducing anxiety and increase intestinal motility in patient with constipation).

8-Cognitive–behavioral treatment it is an effective treatment for depression (Björkman & Wolf, 2020).

**2.11. Preventive measures of IBS**

Irritable bowel syndrome (IBS) is such a complex disease, there is no one set route to take when designing the ideal diet plan. Most clinicians recommend a two-stage approach:

**A** -Standard first-line recommendations include adhering to a regular meal pattern while reducing the consumption of insoluble fiber, alcohol, caffeine, spicy foods, and fat. Regular exercise and the avoidance of dehydration are also needed (Hou et al., 2017 ; Wilson et al., 2017 ).

**B** -If these interventions fail to provide relief, then secondary measured namely the implementation of a low-FODMAP or gluten-free diet should be explored under the guidance of a qualified healthcare professional (Cozma-Petruţ et al., 2017).

**2.11.A. Lifestyle and home remedies:**

Simple changes in diet and lifestyle often provide relief from IBS. the body will need time to respond to these changes. Try to:

* Experiment with fiber. Fiber helps reduce constipation but also can worsen gas and cramping. Try slowly increasing the amount of fiber in diet over a period of weeks with foods such as whole grains, fruits, vegetables, and beans. A fiber supplement might cause less gas and bloating than fiber-rich foods.
* Avoid problem foods. Eliminate foods that trigger symptoms such as.( Greasy Food, Dairy Products, Wheat, High-FODMAP Fruits, High-FODMAP Vegetables, Beans and Legumes, Spicy Foods,Artificial Sweeteners, Soda, Alcohol,Coffee and Other Drinks with Caffeine, and Big Meals)
* Eat at regular times. Don't skip meals, and try to eat at about the same time each day to help regulate bowel function. if have diarrhea, may find that eating small, frequent meals makes feel better. But if constipated, eating larger amounts of high-fiber foods may help move food through intestines.
* Exercise regularly. Exercise helps relieve depression and stress, stimulates normal contractions of intestines (Dreher, 2018).

**2.11.B. Low-FODMAP Diet:**

fermentable oligosaccharides, disaccharides, monosaccharide's, and polyols ([FODMAP](https://www.verywellhealth.com/fodmaps-information-4013665)s). These are the short-chain carbohydrates found in many foods that tend to ferment and increase to the volume of liquid and gas in the small and large intestine (Mezzomo et al., 2019).

The excessive consumption of FODMAPs can lead to the development of [flatulence](https://www.verywellhealth.com/when-should-i-worry-about-passing-too-much-gas-796838), bloating, and abdominal pain. Given that these are hallmarks of IBS, it makes sense that eliminating high-FODMAP foods would help prevent and/or ease these symptoms. The diet can be challenging, as many common foods are high in FODMAPs (De Roest et al., 2013).

**There are five types of FODMAPs:**

* **Fructans** (found in wheat, onions, garlic, barley, cabbage, and broccoli).
* **Fructose** (found in fruit, honey, and high-fructose corn syrup).
* **Galacto oligosaccharides** (found in legumes and beans).
* **Lactose** (found in milk and other dairy foods).
* **Polyols** (found in stone fruits, sweet potatoes, apples, and celery).

A low FODMAP diet cuts out many common products that contain certain foods. The principle behind the diet is to give the gut a chance to heal, especially if it has GI problems like IBS. People with GI disorders may use this diet as part of their treatment. This diet may be difficult to follow, and it is advisable to contact health care professional or a dietitian to make sure that are on the right track and getting enough dietary nutrients that can consume (Nanayakkara et al., 2016).

**A low-FODMAP diet is designed in two phases as part of an elimination diet:**

* **Phase 1:** Foods high in FODMAPs are restricted for a short period of time, generally between three to six weeks.
* **Phase 2:** The foods are reintroduced into the diet, one FODMAP type at a time, to assess tolerance to each ( Magge et al., 2012).

**2.12. Treatment of irritable bowel syndrome**

Management of patients with IBS should start with establishing a relationship with the patient with time dedicated to explaining the nature of the condition, treatment options, and impact of anxiety and stress on symptoms. A positive interaction with patients with discussion of precipitating factors, diagnosis, and treatment has been shown to reduce the number of return visits. Treatment options involve pharmacological (high placebo response ∼47%) and non-pharmacological approaches, the latter of which particularly in terms of dietary and psychotherapy treatments appear to have the best long term results ( Zernicke et al., 2013).

**2.12.1. Non-pharmacological management**

Non-pharmacological treatment is the initial therapy that is oﬀered especially in patients who do not have symptoms that are not severe enough to impair quality of life. A good doctor-patient relationship combined with the reassurance that though IBS is a chronic disease, it does not increase the risk of malignancy plays an important role in treatment (Knowles & Monshat, 2017).

**A. Dietary modiﬁcations:**

Patients with symptoms of IBS should be counseled to avoid gas

producing foods like beans, onions, carrots, bananas, celery, prunes, apricots, Brussel sprouts, wheat germ, pretzels, bagels and likewise as the visceral hypersensitivity would result in exaggerated discomfort (Zhu et al., 2013).

Patients with known lactose intolerance should be placed on a lactose-free diet. Similarly, those patients who have persistent bloating despite avoiding gas-producing foods should be placed on an empirical trial of a lactose-free diet ( Staudacher & Whelan, 2017).

Irritable bowel syndrome (IBS) patients should also be put on a diet low in fermentable oligo-, di-, and monosaccharides and polyols (FODMAPs) which includes avoidance of honey, high-fructose corn syrup, apples, pears, cherries, mangoes or wheat. The patient is initially asked to eliminate all FODMAPs for six to eight weeks till symptom resolution and then reintroduce foods high in fermentable carbohydrates in order to determine the tolerance to individual fermentable carbohydrates (Eswaran et al., 2016).

A randomized, single-blind cross-over trial with)30( IBS patients and )8( controls demonstrated a signiﬁcant overall reduction in gastrointestinal symptoms when assigned to a )21(day trial of a diet low in FODMAP when compared to moderate FODMAP ( El-Salhy et al., 2019).

Though dietary modiﬁcations have shown tremendous improvements in symptoms of IBS, the role of routine food allergy testing in IBS has not been well studied and hence remains unclear. A meta-analysis of )6( RCTs that yoga might be a feasible and safe adjunctive treatment for people with IBS. Beneﬁcial eﬀects of yoga were seen on GI symptoms like decreased bowel movements, quality of life, and anxiety when compared with no treatment (Nawawi et al., 2019).

**B. Physical activity**

Exercise is proven to be beneﬁcial to health as it reduces the risk of cardiovascular diseases, endocrine disorders, improves bone and muscle conditioning, and decreases the levels of anxiety and depression. The results of an RCT with )75( IBS patients demonstrated that a moderately increased physical activity over a period of )12( week reduced the symptoms related to IBS (Sharif et al., 2018).

**c. Psychological therapy:**

Since several psychological and central processing mechanisms like visceral hypersensitivity, visceral anxiety (hypervigilance to bowel symptoms leading to avoidance of situations where IBS symptoms occur) and central processing deﬁcits have been attributed in the pathophysiology of IBS, psychological treatments targeting such cognitive processes are believed to help improve symptoms in IBS patients (Wong et al., 2019).

Thus, the psychological intervention also is a rational mode of therapy for IBS patients, and several modalities of Psychotherapy like cognitive-behavioral therapy (CBT), gut-directed hypnotherapy, psychodynamic psychotherapy, and mindfulness have been tested in various clinical trials (Lombardini & Collebrusco, 2016).

**2.12.2. Pharmacological management of IBS-C**

Irritable bowel syndrome-constipation (IBS-C) is characterized by the predominance of constipation associated with abdominal pain, which is relieved by defecation. Lumpy stools occur in )≥ 25%( and loose or watery stools in)<25%( of bowel movements . Bloating and abdominal pain are more common in (IBS-C) than (IBS-D) patients ( Longstreth et al., 2013).

**A. Laxatives**

Laxatives help reduce constipation but have no effect on abdominal pain. Some of the common laxatives used include lactulose, milk of magnesia and polyethylene glycol (PEG). PEG is more commonly preferred as it has fewer side effects as compared with the others (Moretz, 2012).

However, PEG is advised only if the use of ﬁbers like psyllium or ispaghula does not help. Fibers are used as ﬁrst line because of the absence of serious adverse effects though the evidence is controversial ( Saha, 2014).

**B. Lubiprostone:**

Lubiprostone is a chloride channel activator that enhances chloride rich intestinal ﬂuid secretion which has been approved for use in chronic idiopathic constipation and IBS-C and is available as gelatin capsules. For IBS-C, it is prescribed in a dose of 8μg twice daily taken orally with food and water and is contraindicated for use in patients with suspected or known mechanical gastrointestinal obstruction (Rawla et al., 2018).

The most common adverse effect is nausea which can be avoided if taken with food, diarrhea, and abdominal pain. Patients may also experience dyspnea within an hour of the ﬁrst dose which subsides spontaneously within 3h .It is a category C drug in Pregnancy (Drossman, 2019).

**C. Linaclotide**

Linaclotide is a granulate cycles-C agonist with similar indications and contraindications as Lubiprostone and is available as capsules. Additionally, it is also contraindicated in pediatric patients<6years of age and is prescribed in a dose of 290μg orally once daily for IBS-C. The most common adverse reactions encountered are diarrhea, abdominal pain, abdominal distension & ﬂatulence. It is a category C drug in pregnancy (FDA, 2018).

**D. Plecanatide**

The mechanism of action, indication and contraindications are the same as linaclotide. It is available as tablets and is given at a dose of 3mg once daily orally for IBS-C (FDA, 2018).

The most common adverse effect is diarrhea which may be severe, and other rare effects include sinusitis, upper respiratory tract infection, ﬂatulence, abdominal pain, and distension ( Hersh et al., 2013).

**2.12.3. Pharmacological management of IBS-D**

Irritable bowel syndrome-diarrhea (IBS-D), the diarrhea-predominant subtype of IBS, is characterized by loose (mushy) or watery stools occurring in ) ≥ 25%( and by hard or lumpy stools in )<25%( of bowel movements. Irritable bowel syndrome-diarrhea (IBS-D) patients do not report on upper GI symptoms as often as people with IBS-C (Anbardan et al., 2012).

**A. Loperamide**

Loperamide is a common anti-diarrheal agent that has been tested via controlled trials in patients with IBS-D. It is advised at a dose of 2mg, 45min before a meal on a regularly scheduled dose. It binds to the opiate receptor in the gut wall and inhibits the release of prostaglandins and acetylcholine thereby reducing propulsive peristalsis and prolonging intestinal transit time. It is contraindicated in children<2years of age for fear of respiratory depression, diarrhea of infective pathology and acute dysentery. However, it is to be noted that both trials had methodological limitations besides a small sample size. Loperamide belongs to pregnancy category C (Marsault et al., 2015).

**B. Eluxadoline**

It is a mu-opioid receptor agonist and a recently introduced antidiarrheal that is indicated for use in adults with IBS-D at a dose of 75–100mg orally twice daily taken with food. It is available is tablets and is contraindicated in patients with alcohol abuse/addiction taking>3 alcoholic beverages/day, history of pancreatitis, severe liver impairment with Child-Pugh Class C and known/suspected biliary duct obstruction or sphincter of Oddi disease. The most common adverse reactions are constipation, nausea, and abdominal pain. Pancreatitis was encountered rarely. It has not yet been assigned a pregnancy category yet (FDA, 2015).

**C. Rifaximin.**

It is a derivative of rifamycin, anditactsby inhibiting bacterial RNA synthesis by binding to the bacterial DNA-dependent RNA polymerase. While at higher doses as those used in hepatic encephalopathy, patients experienced peripheral edema, dizziness, fatigue, and ascites. It is a category C drug in pregnancy (US FDA et al., 2015).

**D. Alosetron**

Alosetron is a 5HT3 receptor antagonist on enteric neurons as well as other peripheral and central neurons that aﬀect the regulation of visceral pain, gastrointestinal secretions, and colonic transit all of which relate to the pathophysiology of IBS. It is currently indicated only in women with severe IBS-D at a dose of 1mg orally twice daily and is contraindicated in patients with constipation, inﬂammatory bowel disease, diverticulitis, intestinal obstruction, gastrointestinal perforations/adhesions, and ischemic colitis ( US FDA et al., 2015).

**E. Colloidal** **bismuth**

Bismuth has anti-inﬂammatory, antacid and mild antibiotic eﬀect. As an anti-diarrheal, though its exact mechanism is unknown, it is thought to act by stimulating the absorption of ﬂuid and electrolytes across the intestinal wall and by inhibiting the synthesis of prostaglandins responsible for intestinal inﬂammation and hypermotility ( Daghaghzadeh et al., 2018).

**2.12.4. Management of IBS Pain**

Visceral hypersensitivity is felt to be a major contributing factor in abdominal pain experienced by IBS patients. for the therapy of pain in IBS, neurokinin receptor antagonists, selective serotonin reuptake inhibitors (SSRIs) and glutamatergic excitation inhibitors have been used (Larauche et al., 2011).

In case of unresponsiveness to these agents, benzodiazepines provide certain benefit (especially in IBS-D). They are believed to affect the inflammatory, neural, and psychological pathways. The use of benzodiazepines in IBS, however, is still a controversial issue (Farmer et al., 2013).

Fluoxetine and citalopram are serotonin reuptake inhibitors (SSRIs) widely used in IBS treatment. Fluoxetine reduces abdominal pain and discomfort in IBS-C and decreases the sense of bloating , while the benefit of citalopram on relieving IBS symptoms has been described as modest at the most (Ladabaum et al., 2012).

**2.12.5 Pharmacological agents - miscellaneous**

**A. Antispasmodics**

These drugs are those that either affects smooth muscle relaxation (e.g. Mebeverine and Pinaverine) or those that act through their anticholinergic or anti-muscarinic properties. These drugs provide short-term relief in symptoms of abdominal pain in patients with IBS (Annaházi et al., 2014).

**B. Anti-depressants**

There is a large psychological component to IBS, including symptoms of depression, anxiety, phobia, and somatization. Antidepressants have many actions that are effective in the treatment of IBS. As well as treating underlying depression, they modify gut motility, alter visceral nerve responses, and have analgesic properties that may beneﬁt certain patients )Annaházi et al., 2014).

**C. Menthacarin**

This is a proprietary combination of essential oils namely peppermint oil and caraway oil where the menthol in peppermint oil has calcium channel blocking action thereby exerting a spasmolytic effect while Caraway oil is thought to have effects on bile ﬂow, improves bloating and has spasmolytic effects on the intestinal smooth muscle cells (Lacy et al., 2016).

A recent systematic review has concluded that Menthacarin decreases the pain intensity value by an average of )50–75%( over a period of )28(days in patients with functional dyspepsia associated with IBS symptoms thereby suggesting that Menthacarin could indeed be a treatment option for patients with IBS (Madisch et al., 2019).

**D. Probiotics**

Probiotics are live microorganisms intended to provide benefits for the consumer. They are used as non-digestible food ingredients that positively affect the host by enhancing the growth of certain strains of bacteria in the colon (McKenzie et al., 2012).

Probiotics are thought to interfere with inflammatory responses in the gut, enhance the barrier function or reduce visceral hypersensitivity, and favor a balanced composition of bacteria in the intestines. This may lead to an improvement of symptoms and increased psychological well-being (Quigley, 2010 ; Girardin & Seidman, 2011).

**C. Fecal microbiota transplantation (FMT)**

Fecal microbiota transplantation (FMT) is a recently evolved technique that involves administration of a donor fecal matter solution into the intestines of the patient using colonoscopy thereby altering the intestinal microbiome. FMT is an effective treatment for Clostridioides difficile infection (CDI). It may be more effective than vancomycin (Borody et al., 2015).

**D. Hypnotherapy**

Hypnotherapy is the use of hypnosis, or a trance-like state during which the patient has a heightened focus and concentration. In such a state, verbal suggestions and imagery can have a greater impact on a person’s physical and mental functioning than otherwise possible. Hypnosis is usually done with a licensed therapist in order to help the patient gain control over certain behaviors or cope more effectively with anxiety or pain. Hypnotherapy has been proven to be effective in reducing and managing the symptoms of IBS through clinical trials (Kohen & Olness, 2012 ; Van Oudenhove et al., 2016).

While the [standard](https://irritablebowelsyndrome.net/treatment/) medical methods are of some help to the majority of patients with irritable bowel syndrome (IBS), up to half of IBS sufferers are [dissatisfied](https://irritablebowelsyndrome.net/coping-and-diet/) with the results of standard treatment and explore complementary and alternative treatments such as hypnotherapy. Mental stress, although not a direct cause of IBS, definitely acts as a trigger for gastrointestinal symptoms. One of the goals of hypnotherapy is to use the mind to have a positive or calming influence on the intestines (Brown-Lieberson, 2019).

**E. Acupuncture**

Acupuncture is the use of thin needles inserted through the skin at strategic points on the body. It is a key component of traditional Chinese medicine and is most often used to treat pain. Many patients with irritable bowel syndrome (IBS) seek relief from their symptoms with acupuncture. Acupuncture has been studied as a treatment for IBS in clinical trials, and some trials have demonstrated that patients may benefit from acupuncture and get relief from their symptoms (Chaitow, 2017).

IBS can be challenging to treat – not all patients have the same symptoms or triggers, and the medications that are available may not provide relief for every patient. Acupuncture is a non-drug therapy, and as such does not have the risk of side effects seen with pharmacological treatments. It is considered a safe treatment and several studies have demonstrated its effectiveness in treating symptoms such as abdominal pain and intestinal motility (Cozma-Petrut et al., 2017).

**F. Biofeedback**

Biofeedback is a technique that can be learned to exert more control over bodily functions, such as bowel control. Biofeedback is a painless process that uses electrical sensors that monitor the body’s functions and provide information (feedback) on a computer or video display. Studies have shown biofeedback to be useful in reducing [symptoms](https://irritablebowelsyndrome.net/symptoms/) and symptom severity from [IBS](https://irritablebowelsyndrome.net/what-is-ibs/). In addition, it can be a cost-effective treatment (Goldenberg et al., 2019)

With biofeedback, the physiological responses of the body, which are usually not noticed by the patient, are sensed with the electrical sensors and computer. The visual or auditory feedback the patient experiences from the technology provide awareness of these bodily functions. Patients soon learn to influence the responses and manipulate these physiological events, thereby modifying the function of the intestines and the gastrointestinal symptoms of IBS (Schwartz et al., 2017).

**G.** **Cognitive behavioral therapy**

Cognitive behavioral therapy (CBT) is a type of psychotherapy originally developed and used to treat mental health issues, such as depression and anxiety. Cognitive-behavioral therapy may be used in the management of patients with IBS. Recent systematic reviews have found that psychological interventions are efficacious, including long-term benefits, and that the gains are not dependent on the number of sessions (Kinsinger, 2017).

**2.13. Previous Studies related to knowledge regarding to preventive measures of irritable bowel syndrome**

There are many studies around the world that have focused on prevention measures of irritable bowel syndrome

**First study**: Rios et al., (2019). Conducted a study, the study design of this present study was A cross-sectional survey, the study carried out in 2015 among students in their fourth, fifth, sixth and seven years of a medical school in Peru. Surveys including the Rome III criteria and the Self-reported Stress questionnaire. Regression models were performed to establish variables independently associated with irritable bowel syndrome. The result of the study reveals that Out of 452 students, 346 responded the survey (response rate: 76.5%; female rate: 47%; median age: 22 years). The irritable bowel syndrome prevalence in respondents was 9.5% (95% confidence interval: 6.7%–13.1%). On univariate analysis, being a senior medical student (odds ratio: 2.8; 95% confidence interval: 1.3–5.9; P < 0.01), mental illness (odds ratio: 3.3; 95% confidence interval: 1.6–6.8; P = 0.002), psychiatric medication use (odds ratio: 2.8; 95% confidence interval: 1.4–5.9; P = 0.005), sedentary lifestyle (odds ratio: 4.4; 95% confidence interval: 1.8–11; P = 0.001) and stress (odds ratio: 4.4; 95% confidence interval: 2.1–9.3; P < 0.001) were associated to irritable bowel syndrome. On a multivariate analysis, a sedentary lifestyle (odds ratio: 3.2; 95% confidence interval: 1.25–8.20; P = 0.01) and stress (odds ratio: 3.0; 95% confidence interval: 1.35–6.67; P < 0.01) were independently associated with irritable bowel syndrome. The study concluded the prevalence of irritable bowel syndrome in medical students from Peru is slightly lower compared to the global prevalence of irritable bowel syndrome. Stress and a sedentary lifestyle were independent risk factors associated with irritable bowel syndrome. The current study suggest that lifestyle modifications and stress coping techniques could have an impact to reduce the rates of irritable bowel syndrome in medical students.

**Second study**: Elhossiny, et al., (2019). Carried out a study , the design of the study was cross-sectional study . The aims of this study are To measure the frequency of IBS and its subtypes in a sample of medical students based on Rome III criteria, to identify associated factors related to IBS (socio-demographic, some life-style habits, dietary habits) and to investigate the relation between IBS and emotional disturbance as regards morbid anxiety and depression among the study group to estimate the frequency of IBS in a selected sample of students of Faculty of Medicine in Ain Shams University and to find out the determinants associated with this disorder. The present study conducted at the Faculty of Medicine, Ain Shams University, located in El-Abassyia, Cairo, Egypt. The participant and study sample was medical students studying at the Faculty of Medicine in the academic year (2017–2018) from the first to the sixth educational years with their age ranges from 18 to 25 years were included in the study. Participants with known organic gastrointestinal disorders or individuals with alarming symptoms like marked weight loss and bloody stools were excluded. The instrument of the current study was confidential self-administered questionnaire. All eligible questionnaires were coded. Data analysis was performed using the SPSS 20.0). Distributions of sex and lifestyle factors were analyzed by Pearson’s χ2. BMI = kg/m2 where kg is a person’s weight in kilograms and m2 is their height in meters squared. Student t test was used to compare the anxiety and depression levels between groups. Quantitative data were presented as mean ± SD. All calculated p values were two-tailed and p < 0.05 was considered statistically significant. Multivariate logistic regression was utilized to find out factors associated with IBS. The result of the study showed Three hundred eighty-two students completed the questionnaire. The frequency of IBS was 31.7% with higher proportion among females and among students with positive family history of IBS. However, IBS was significantly less prevalent among students practicing regular exercise. Lastly, based on (HADS), there was a statistical significant relationship between IBS and anxiety (p < 0.05), but not depression. In concluded the study revealed that around 31% of the studied group was suffering from IBS. Female gender, suffering from anxiety, and positive family history of IBS were the main associated factors for IBS. Screening of all medical students in the faculty for IBS is suggested. The researcher recommended that the more studies are probably needed to evaluate the exact impact of IBS on the students’ quality of life. Raising awareness among students regarding IBS-related symptoms and factors leading to its development would probably play an important role in mitigating the impact of the disease on their quality of life. Meanwhile, reducing risk factors and implementing preventive strategies are important in controlling the disease and decreasing its undesirable effect. Providing psychological and emotional support along with stress management is highly recommended.

**Third study**: AL.qarni et al., (2019). Carried out a study, the design of the study was a cross-sectional descriptive study was conducted among 193 undergraduate nursing students (second, third and fourth years) at King Abdul-Aziz university. The result of the study showed that 17.6% of nursing students at King Abdul-Aziz having IBS, and the prevalence of IBS is 17.6%. the researcher Recommended We recommend Screening for IBS and psychological problems and Stress management course. Also, we recommend to ministry of education to provide relaxation room for students at colleges.

**Fourth study**: Lami and Hazaa, (2018). Carried out a study, the study design was cross-sectional design , the aim of the study was to estimate the prevalence and identify potential determinants of irritable bowel syndrome . The study was conducted at high school students in Bagdad City. The study sample involved all students in the sixth grade selected by using multi-staging cluster probability sampling technique. The study instrument was questionnaire designed by the researcher. The data was analyzed by using spss version 23, the prevalence of irritable bowel syndrome IBS among high school students was calculated. Chi square and fisher exact probability test were applied to test the association of qualitative and categorical variables with IBS. Logistic regression analysis was used to identify the significant ,independent and un-confounded risk factor. The result of the study was revealed among 657 eligible high school students, 592 (90.1%) were enrolled. The prevalence of IBS was 29.7% (95% C.I: 29.4- 30.1%). The most common type of IBS was M-IBS (42.6%) followed by D-IBS (33.5%). Binary and logistic regression analyses revealed the following significant factors: exposure to stressful life event (OR: 3.93; 95% CI: 2.64 – 4.85), food hypersensitivity (OR: 2.89; 95% CI: 1.59 – 3.27), chronic diseases (OR: 2.22; 95% CI: 1.24 – 3.95), family history of IBS (OR: 2.04; 95% CI: 1.30 – 3.01) and female sex (OR: 1.84; 95% CI: 1.25 – 2.73). C-IBS was significantly more common among females (P=0.02).

**Fifth study**: Chandler, (2018). Carried out a study , the design of the study was three randomized controlled trials, the current research was aimed to determine whether or not physical activity is effective in reducing the gastrointestinal symptoms associated with irritable bowel syndrome in adults 18 years of age and older. The Three randomized controlled trials were found using PubMed and Cochrane and All three studies measured irritable bowel syndrome (IBS) gastrointestinal symptom severity using self-reported questionnaires including the irritable bowel syndrome severity scoring system (IBS-SSS) and the Birmingham IBS Symptom Questionnaire. The study result showed that a remedial yoga module significantly improved the gastrointestinal symptoms in adult patients with IBS when compared to the wait-list control group. Although Johannesson et al. reported improvements in IBS symptoms in the physical activity group when compared to the control group, the results were not significant. significant improvement in the constipation symptoms of IBS in the physical activity group when compared to control, but no other significant differences in symptoms scores were noted. Based on the results of these three trials, it seems that there is a benefit to increasing physical activity in IBS patients. It is likely that physical activity can help alleviate IBS symptom severities, the current study recommended further studies should be conducted to better explore these improvements.

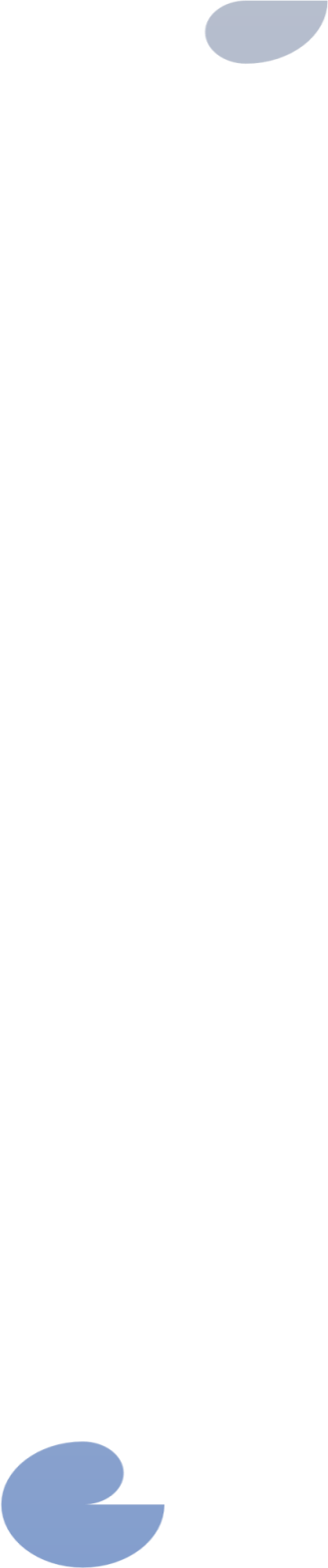
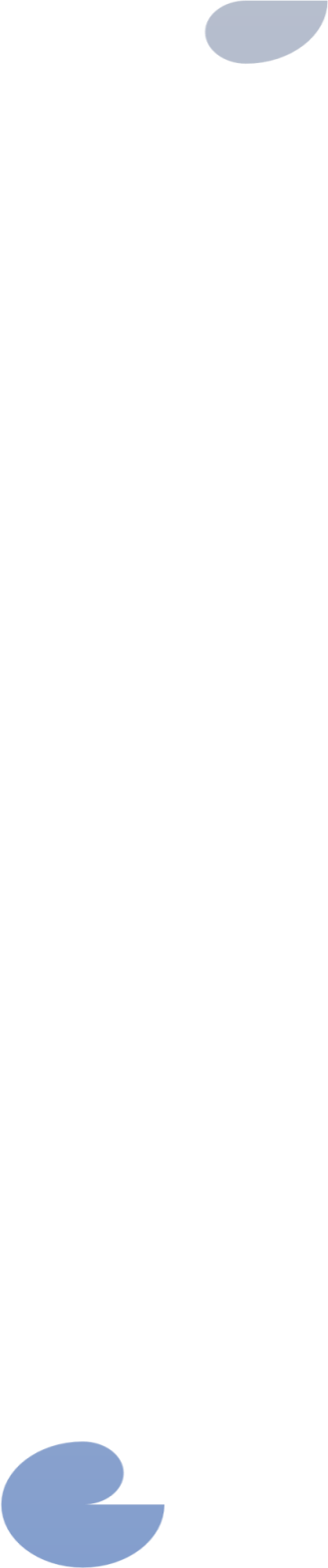
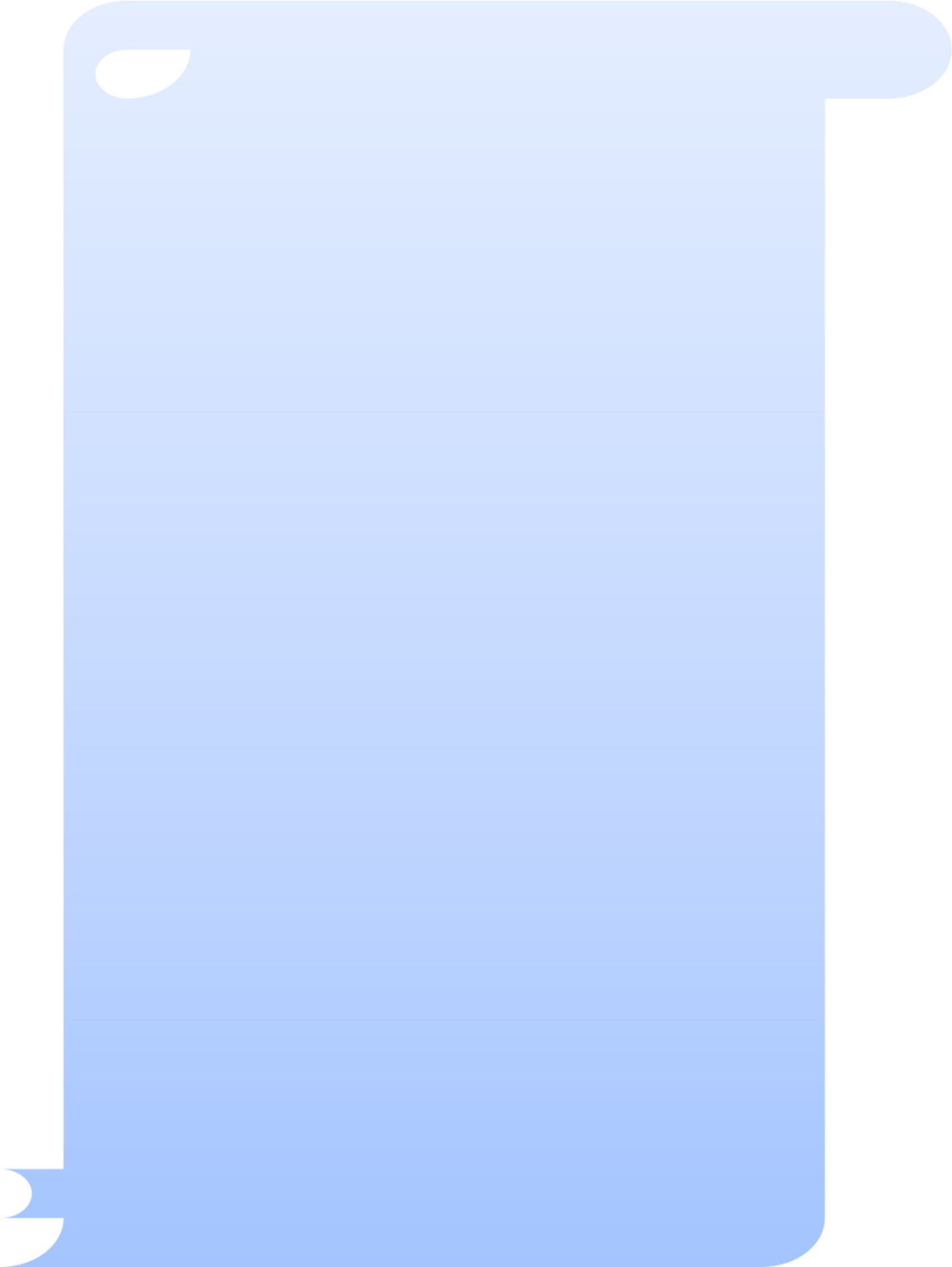
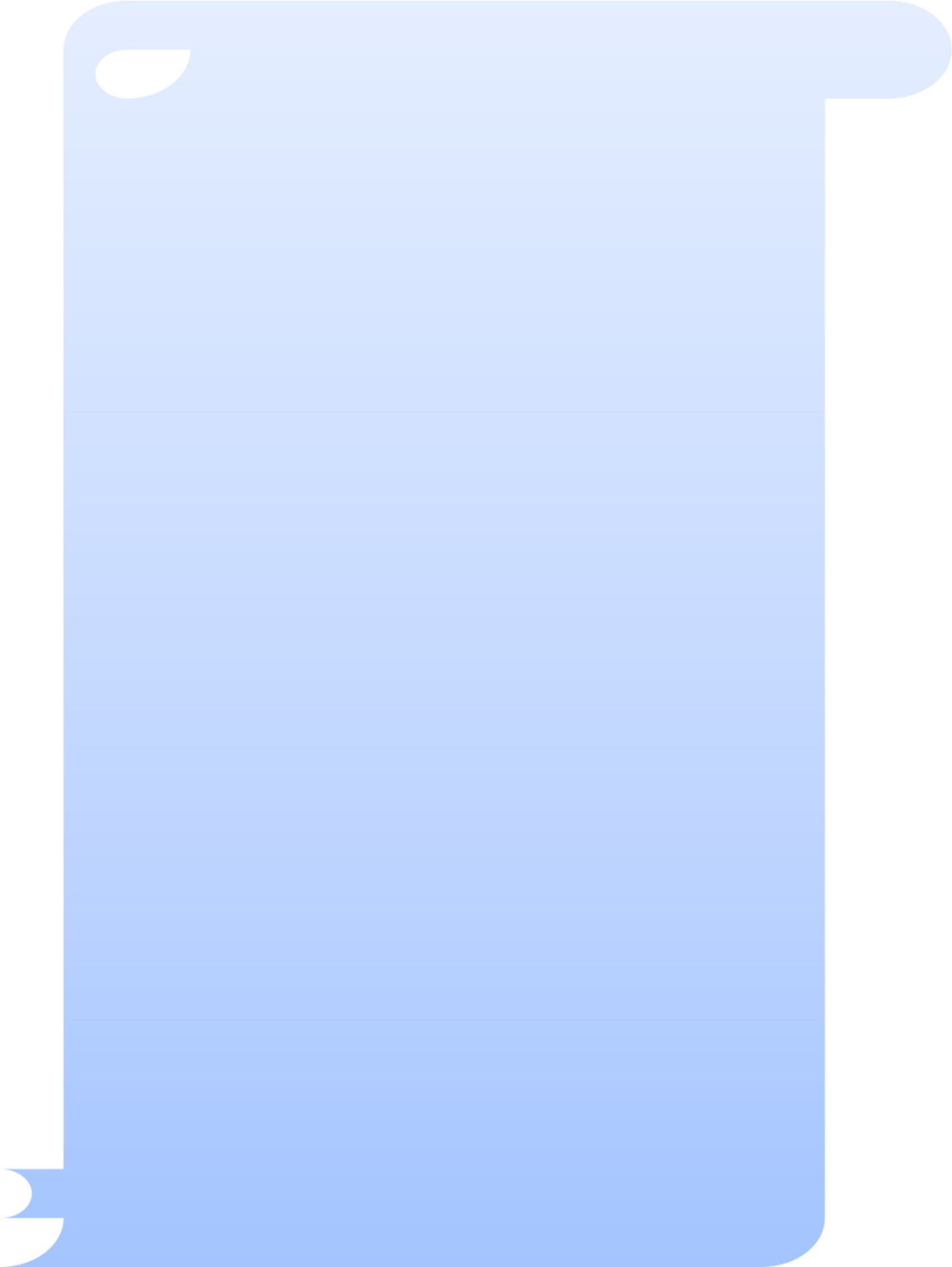
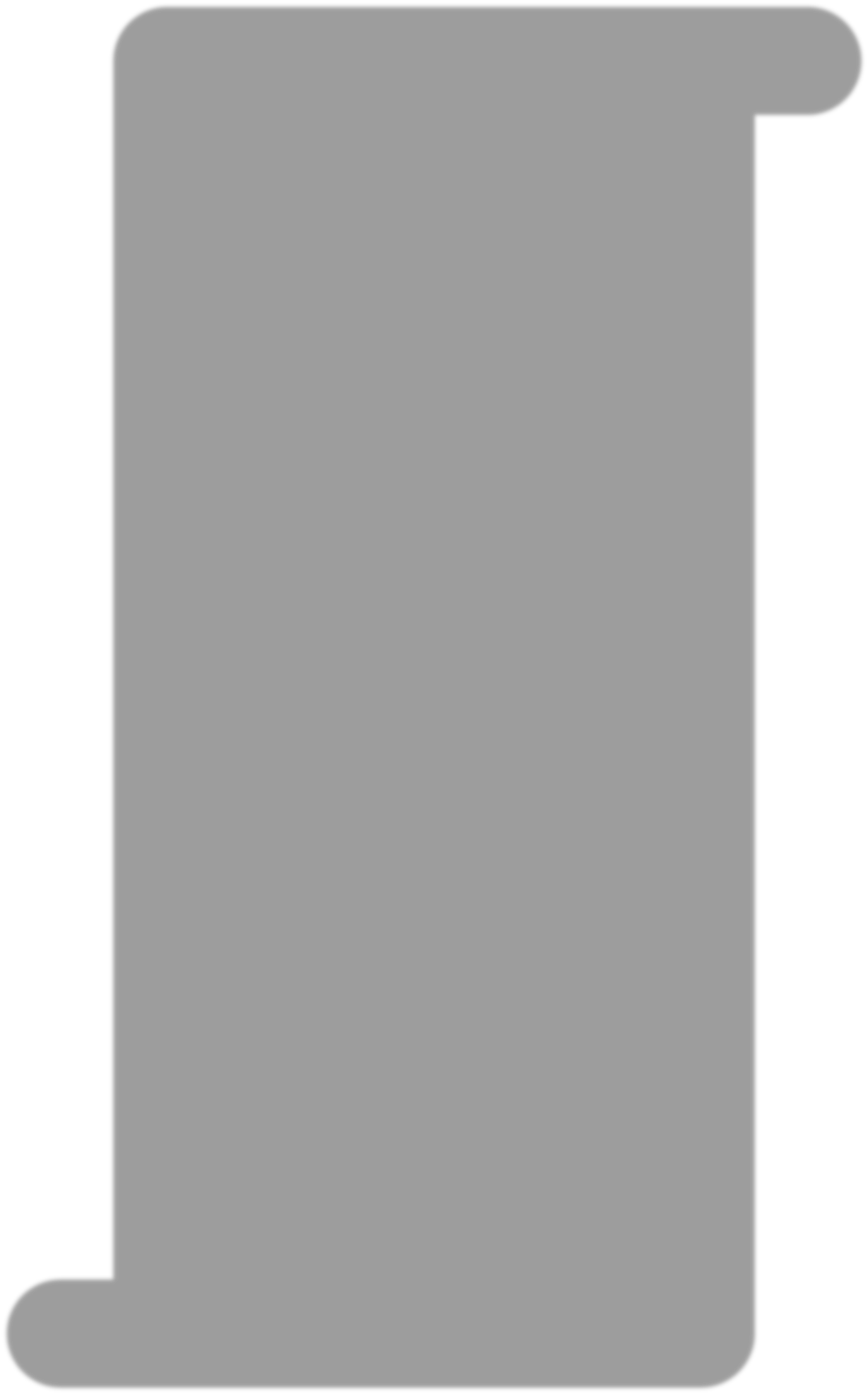
**Sixth study**: Hasosah et al., (2017). Carried out a study , the design of the study was a cross-sectional descriptive study , the current study conducted among the medical students and interns of king Saud bin Abdul-Aziz university , Jeddah, Saudi Arabia. the aims of this study was are to determine the prevalence of IBS and its associated risk factors. The instrument of the study was self- designed questionnaire. The result of the study showed the IBS prevalence was 15.64 percent with male having more diagnosed cases 13 percent than that of female. However there was no statistically significant differences on the prevalence of IBS between female and male population. The study concluded the IBS is a significant health problem among medical students, the study recommended a large –scale study among all medical schools in saudi arabia may be done to assess the mangnitude and impact of being a medical student to the development of IBS.

**Seventh study**: Raiesifar et al., (2016). carried out a study , the study design was a descriptive cross-sectional study. The purpose of this descriptive cross-sectional study was determination Prevalence of Irritable Bowel Syndrome Symptoms in High School female Students in Abadan City , the current study was conducted on a female high school student in Abadan City. The method used to selected the participants was randomly. The number of participants was consisted of 1044 students, the instrument of this study was self structured questionnaire, the first part of which was demographic information, and have two questions include age and educational grade. The second part of the questionnaire consisted of questions designed to examine the symptoms of irritable bowel disease. Data were analyzed by SPSS software version 19 and descriptive statistics tests. P value less than 0.05 was considered significant. Findings: The age range of participants was between the ages of 14 and 18 and their mean age was 16 ± 2. The findings of this study showed that the most common symptoms of IBS include abdominal pain (66.4%), diarrhea (46.7%), constipation (42.5%). The result of the study was reveals: According to the results of the study, it can be said that the symptoms of IBS are high among high school female students, thus clarifying the need for more attention to this issue.

**Eighth study**: Wang et al., (2016). Conducted a study , the design of this present study was a cross-sectional design. This study carried out at Inner Mongolia Medical University in china , the study sample was Inner Mongolia Medical University students ,the instrument of the study was a self-structured questionnaire. There is little epidemiological research on Irritable bowel syndrome (IBS) in Inner Mongolia, China. Here we investigated the prevalence of IBS and factors associated with IBS in both males and females in Inner Mongolia Medical University by a cross-sectional study. The study result showed the overall prevalence of IBS was 29.5%. The prevalence of IBS in female students was significantly higher than that in male students (31.3% vs. 24.8%, p < .001). Logistic regression results showed that attempting to lose weight and anxiety were both associated with increasing odds of IBS, while exercise was not associated with IBS in either male or female students. The predominant IBS subtype was the diarrhea-predominant type in both male and female students. Considering the high prevalence of IBS in students and the fact that the factors associated with IBS can be improved by individuals, students should be given adequate education and counseling to improve their mental health and lifestyle, especially female students in higher grades.

**Ninth study**: Hassan& Najm, (2016), carried out a study, the design of the a study quasi- experimental design study conducted in liver and digestive disease hospital at Baghdad city. a non probability(purposive) sample of (60) clients are selected to participate in the study, the sample is divided into two groups; study and control groups. They are considered the control group. The results of the study indicate that the (56%) of case group are females at age (33-37) years old,(56%) are married, institute& collage graduated (66.6%) of the case group have government employment, (40%) of them have irritable bowel syndrome(IBS) from (1-3) years,(50%) of the case group have diarrhea prodromal, high percent of them are not smokers, and the results reveal that the structural instructional program was effective on the knowledge of patients with irritable bowel syndrome. based on the results of this study, researcher recommends that establishment of programed lectures to instruct the client who attend weekly to the center to learn to control stress and diet modification, and motivate them to adhere to treatment, and improve the quality of life, satisfaction with care, publication and distribution guide booklet for the clients to learn how to deal with the syndrome.

**Tenth study**: Jadoow& Hassan, (2010). Carried out a study, the design of the study was Descriptive analytical design, the present study was conducted in Gastroenterology and Liver Disease Hospital in Baghdad City. The study sample was sample of 100 adults females with irritable bowel syndrome selected by non-probability approach. The study instrument was designed by the researcher. The data was collected by self-report by the client and structured interview through using a questionnaire, the data was analyzed by use appropriate statistical methods include : descriptive data analysis , Inferential data analysis. The result of the study reveals was significantly associated with type of IBS, diarrhea having a greater impact on their lives. Based on the finding of present study the researcher recommended to establish special department called psychotherapy and nutritional management to instruct and to prepare programmed lecture for client.



**Chapter Three**

**Methodology**

**Chapter Three**

**Methodology**

This chapter presents the research design used in present study ,administrative arrangement, ethical considerations, setting of the study, sample of the study, steps of the study, pilot study, validity and reliability of the questionnaire and educational program, rating and scoring of the study, implementation of the study, data collection, data analysis and limitations of the study.

**3.1. Design of the Study:**

A quasi-experimental design was used to carried out this study, it was conducted by the use of pre and post-test approach for two groups of samples (study and control) to determine the effectiveness of an educational program on nursing students knowledge toward the irritable bowel syndrome (IBS) in the nursing college -Al-Basra university through the period from December 8th, 2019 to July 8th 2020

**3.2. Administrative Arrangements:**

After getting approval from the nursing college-university of Bagdad upon the study. Written official permission is obtained from the Ministry of Planning-health research Section. Other consent also obtained from nursing college-Al-Basra university including the researcher submitted a detailed description including the objectives and project of the study to nursing college in order to obtain official permission to facilitate the data collection and ensure their cooperation during the conduct of the study (Appendix A1,A2).

**3.3. Ethical Considerations**

In addition to the official approvals that were taken from the college of nursing in Bagdad University, all students who have participated in the study have signed informed consent for their agreements to participate in this study. All participants are introduced to the study objectives and they are presented with the opportunity of being aware of the study affairs (Appendix B1, B2, B3).

**3.4. Setting of the Study:**

To get a comprehensive data the study was done at nursing college- Al-Basra university. The researcher chosen this setting for the following reasons:-

**3.4.1.** Obtaining a large number of nursing students within a limited time period which can helpfully represent the target population.

**3.4.2.**This setting is equipped with educational facilities that may ease the implementation of the educational program.

**3.5. Sample of the Study**

The total population of nursing students presented at selected setting during the time of study period was (112) nursing students involves second and fourth stage. Ten students in pilot study were excluded from the study, (13) of nursing students refuse to participate in the study, nine of nursing students not complete the study, the remain number were (80) nursing students, the fourth stage represents (40) students from the remain number that was divided into two groups (study and control group) twenty students for each group, and the second stage represents (40) students from the remain number that was divided into two groups (study and control group) twenty (20) students for each group. The study group form each stage expose to the educational program, while the control group was not exposed to the educational program, therefore the total number participate in the study was (80) nursing student.

|  |  |  |  |
| --- | --- | --- | --- |
| Table (3.1) Sample’s groups | | | |
| Sample | Study | Control | Total |
| Second stage | 20 nursing student | 20 nursing student | 40 nursing student |
| Fourth stage | 20 nursing student | 20 nursing student | 40 nursing student |
| Total | 40 nursing student | 40 nursing student | 80 nursing student |

**3.5.1. Inclusion Criteria:**

The study sample has been chosen depending on the following criteria:

\* All nursing students at Al-Basra university-nursing college for two stages second and fourth stages

**\*** Male and female students.

**\*** Students who willing to participate in the study.

**\*** Age (20 year - 24≥ year).

**3.5.2. Exclusion criteria:**

**\*** First and third stage students.

**\*** The pilot study sample.

**\*** Students refuse to participate in the study.

**\*** Students can not complete the study.

**3.6. Steps of the study**

The educational program was carried out by the following steps:

**3.6.1. Assessing the nursing students needs to perform an educational program regarding preventive measures of IBS.**

To accomplish this phase of the study, a structured questionnaire designed by the researcher based on the review of related literature. The aim of this assessment is to evaluate nursing student's knowledge toward preventative measures for irritable bowel syndrome. The test applied to a sample consisted of (10) students presented in nursing college-Al-Basra university during the period one day, the preliminary conducted at 13th of January, 2020. The assessment needs questionnaire consisted of (10) close-ended questions about nursing student's knowledge. The result of the assessment shows the majority (73) of nursing students have poor knowledge of preventative measures for irritable bowel syndrome. This result has clarified the need to construct an educational program to these nursing students in order to improve their knowledge regarding preventative measures for irritable bowel syndrome, (see Appendix C1,C2).

**3.6.2. Construction of educational program**

The program designed according to the need assessment of nurses knowledge toward preventative measure for irritable bowel syndrome, and information gained from literature review and previous study. The content of the program is evaluated by a group of expert (Appendix F).

The experts makes a complete revision of the content of the program and marked their note and recommendation to make it better and to meet the needs of nursing students and the objectives of the research.

**3.6.3. Construction of the instrument**

The study instrument was constructed by the investigator depending on literature reviews and preliminary assessment regards to the IBS. The researcher has constructed a questionnaire format in order to achieve the objectives of the study. The questionnaire format was consisted of fourth parts:

**- Self-administered sheet related to demographic characteristics:**

This part is concerned with the collection of demographic data obtained through questionnaire interview. This part consists of (6) items which include: (age, gender, marital status, monthly income, level of education and meals eaten).

**-Self-administered questionnaire related to preventative measures of IBS that include**:

**First domain: self-administered sheet related to Nursing students' knowledge of general information about Irritable Bowel Syndrome (pre- post-test)**

This part is related to the assessment of the nursing student's knowledge of general information about Irritable Bowel Syndrome. It is consisted of (16) items.

**Second domain: Self-administered sheet related to Nursing students' Knowledge of the measures protecting from irritable bowel syndrome**

This part is related to the assessment of the nursing student's knowledge toward measures protection from Irritable Bowel Syndrome. This part consisted of (13) items

**Third domain:-** **Self-administered sheet related to Nursing students' knowledge about measures that reduce or prevent Irritable Bowel Syndrome**

This part is related to the assessment of nursing students' knowledge of measures that reduce or prevent Irritable Bowel Syndrome. This part consisted of (14) items (Appendix D)

**3.7. Validity of the Instrument and the educational program**

The validity was determined by panel of experts. the questionnaire items were changed according to the notes and recommendations of experts.

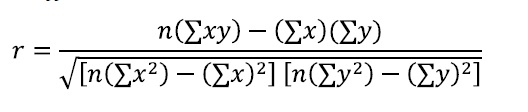
The validity of the instrument and educational program was determined by panel of experts who have more than (10) years of experience in their field in relation to explore the lucidity, relevance, and adequacy of the questionnaire in order to accomplish the goals of the present study (Appendix F).

A questionnaire and educational program is designed and distributed to the (13) experts. They are (7) faculty members from College of Nursing/ University of Baghdad, (1) faculty member from College of Nursing/ University of Al-Basra, (2) faculty member from College of Nursing/ University of Al-Muthana, (3) faculty members from Ministry of Health.

The experts' suggestions and recommendations were taken into consideration and the final copy of the constructed instrument has become acceptable as a tool for conducting the study and to achieving the purpose.

**3.8. Pilot Study:**

In order to determine the reliability of the study instruments, a pilot study is carried out on (10) students how were selected randomly, conducted at nursing college in Al-Basra university, (5) students of second stage and (5) students of fourth stage of nursing students. The pilot study was conducted during the period of 15th of January, 2020 to 28of January, 2020. The study sample had been exposed to test and finally exposed to re-test. The students who participate in the pilot study and they have the same criteria of the original study sample excluded from the original study sample. Pearson correlation coefficient used to measure the reliability by using following formula.

 (Yount, 2006)

The correlation procedures are utilized to detect the reliability. The normal range of reliability coefficient is from (-1.00) through (.00) to (+1.00). The reliability coefficient is viewed as satisfactory when it is above (0.70) (Yount, 2006).

**Table (3-2) Reliability of the Study Instruments**

|  |  |  |  |
| --- | --- | --- | --- |
| **Instruments** | **Items No.** | **Person correlation coefficient** | **Sig.** |
| **Knowledge** | **43** | **0.79** | **Significant** |

For the present study, there is a good level of person correlation coefficient reliability value for the questionnaire of nursing students' knowledge.

**3.8.1. The purpose of pilot study:**

* To determine the reliability of the questionnaire.
* To Check the time required for answering the questionnaire and information accumulation.
* To Check the wording of questionnaire form and level of nursing students understanding the questionnaire.
* To identifying the barriers that may be encountered during the data collection process.

**3.8.2. The result of pilot study**

* The questionnaire of the study were clear for participants.
* The time required to answer the questionnaire by the participant was (25-30) minutes.
* There were no barriers may affect the implementation of the study.

**3. 9. Implementation of the constructed program**

After completing the pre-test phase for both study and control groups. The study group are exposed to educational program (Appendix E).

The program (that consisted of four sessions) has taken a period total of (4) days from (3-6) of February to be complete. The program carried out for nursing students in the classroom and each lectures took about (45-60) minute as shown in the below:

**3.9.1. Sessions of the Program:**

**First session**

Type of subjects presented to the nurses include the following materials:

1. Anatomy and physiology of gastrointestinal tract.
2. Overview about irritable bowel syndrome(IBS).
3. Pathophysiology of irritable bowel syndrome.
4. Risk factors of irritable bowel syndrome.

**Second session**

Type of subjects represented to the nurses include the following materials

1. Signs and symptoms of irritable bowel syndrome.
2. Causes of irritable bowel syndrome.
3. Types of irritable bowel syndrome.
4. Diagnosis of irritable bowel syndrome.

**Third session**

Type of subjects represented to the nurses include the following materials

1. Complication of irritable bowel syndrome.
2. The role of nursing with preventive measures of Irritable Bowel Syndrome.
3. Preventive measures of irritable bowel including:
4. Lifestyle and home remedies.
5. Low FODMAP diet.

**Fourth session**

Type of subjects represented to the nurses include the following materials

1. Medical treatment of irritable bowel syndrome that involves:
2. Non pharmacological treatment:
   * Dietary modiﬁcations.

* Physical activity.
* Psychological therapy.

1. Pharmacological treatment:
   * Pharmacological management of (IBS-C).
   * Pharmacological management of (IBS-D).
   * Management of IBS Pain.
2. Pharmacological agents – miscellaneous
   * Antispasmodics.

* Anti-depressants.
  + Menthacarin.
  + Probiotics.

**3.11.2. Place of lectures**

College of Nursing-university of Basra.

**3.11.3.**  **Teaching method**

1. Presented by (Power-point).

2. Group Discussion.

3. Computer.

4. Poster*.*

**3.10. Data Collection**

The process of gathering information was conducted from 30 of January,2020 to 27 of February,2020. The study and the objectives were explained to the study sample by the investigator, the students´ verbal consent has been taken and data collected through the use of designed questionnaire as means of data collection process. Prior to the implementation of the constructed program, a pre-test introduced to evaluate the nursing students knowledge, The same statement used as a post-test, which is applied after three weeks from implementation of the program.

**3.11. Rating and scoring of the study instrument:**

The knowledge questionnaire form style was a multi choices and true and false answer style, the items had been scored and rated on two levels dichotomous scale correct answer and incorrect answer, as the following

1. Information part : correct answer (2.5) degrees, incorrect answer (0).
2. Protection part : correct answer (3) degrees, incorrect answer (0).
3. Prevention part : correct answer (1.5) degrees, incorrect answer (0).

**3.11.1. Questionnaire degree**

Study questionnaire includes three parts they are Information, Protection and Prevention where each part has score as the following:

|  |  |  |  |
| --- | --- | --- | --- |
| **Table (3. 3) degree of Questionnaire’s parts** | | | |
| **Questionnaire’s parts** | **Number of questions** | **Score per question** | **Sum** |
| **Information** | 16 | 2.5 | 40 |
| **Protection** | 13 | 3 | 39 |
| **Prevention** | 14 | 1.5 | 21 |
| **Total** | 43 | **Total degree = 100** | |

**3.11.2. Evaluation of questionnaire score**

|  |  |  |  |
| --- | --- | --- | --- |
| **Table (3. 4) Evaluation of Questionnaire’s degree** | | | |
| **Information** | | | |
| **Degree** | **Evaluation** | **Min** | **Max** |
| 0 – 9 | Weak | 0 | 40 |
| 10 – 19 | Acceptable |
| 20 – 29 | Medium |
| 30 – 40 | Good |
| **Protection** | | | |
| **Degree** | **Evaluation** | **Min** | **Max** |
| 0 – 12 | Weak | 0 | 39 |
| 13 – 25 | Acceptable |
| 26 – 39 | Good |
| **Prevention** | | | |
| **Degree** | **Evaluation** | **Min** | **Max** |
| 0 – 6 | Weak | 0 | 21 |
| 7 – 13 | Medium |
| 14 – 21 | God |
| **Questionnaire** | | | |
| **Total degree** | **Evaluation** | **Min** | **Max** |
| 0 – 19 | Very Weak | 0 | 100 |
| 20 – 39 | Weak |
| 40 – 59 | Medium |
| 60 – 79 | Good |
| 80 – 100 | Very Good |

**3.11.3. Evaluation of Questions**

Each question has degree according to its part as following: see (Appendix F)

**3.12. Statistical Data Analysis:**

The data were analyzed using the Statistical Package for Social Sciences (SPSS), version 16. The following statistical measures were used in order to analyze and assess the results of the study:.

**3.12.1. Descriptive Data Analysis:**

**1-Statistical tables (Frequencies and percentages).**

**Frequency (F):** In statistics the frequency of an event is the number of times the event occurred in an experiment or study (Kenny & Keeping, 2016).

**Percentage (%):**

percentages

**2- Arithmetic mean:** is the arithmetic average of the distribution. The

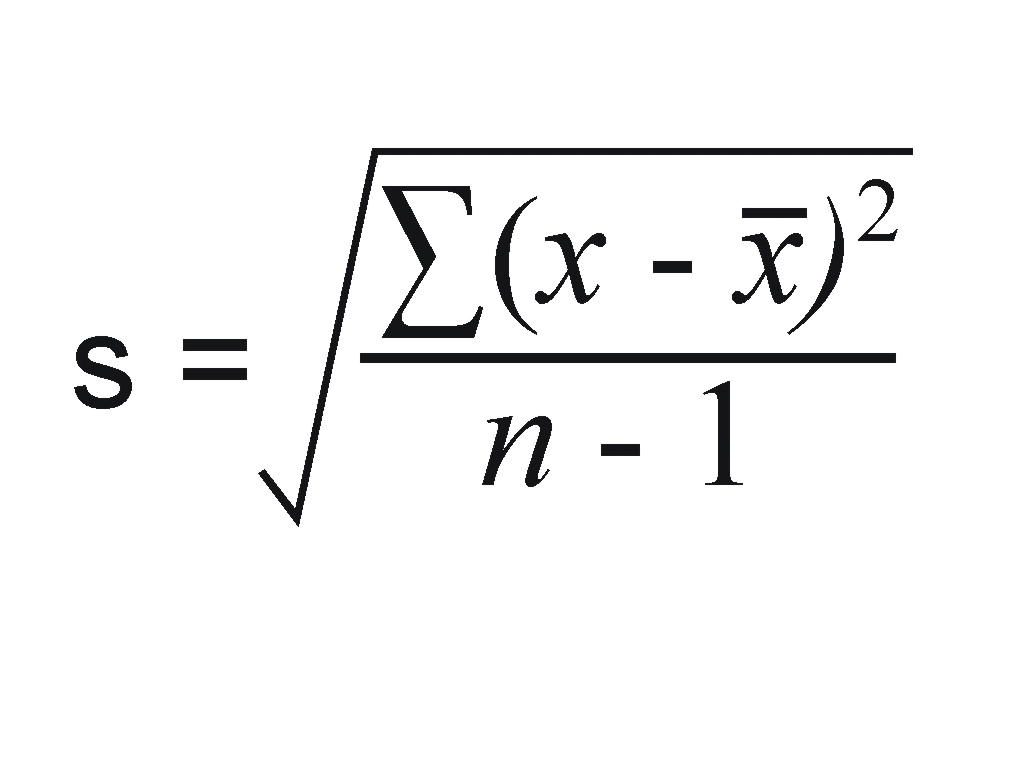
formula used to compute the Mean is:

∑Xi

Mean= x̅= (Plichta & Kelvin, 2013).

n

**3- Standard deviation (Sd):**

 (Rentala, 2019)

**4. Development** % = X 100 %, Where V is value.

**3.11.2. Inferential Data Analysis:**

**1. T-test for paired samples:(Dependent Sample)**

This model is widely used in scientific research to find out the development in the sample before and after effects.

**Formula** T= , the **degrees of freedom** used in this test is n – 1

(Randolph & Myers, 2014).

**2. One-way** [**analysis of variance**](https://en.wikipedia.org/wiki/Analysis_of_variance) (abbreviated one-way **ANOVA**)

F =

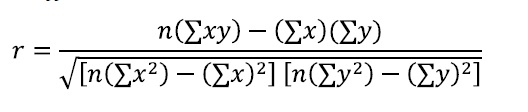
MS between =

MS within =

**MS** is Mean Squares, **SS** is sum of square, **df** is degree of freedom

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **One-Way ANOVA Table** | | | | |
| **Source** | **Degrees of Freedom DF** | **Sum of Squares SS** | **Mean Square MS** | **F-Stat** |
| **Between Groups** | k – 1 | SSB | MSB = SSB / (k − 1) | F = MSB / MSW |
| **Within Groups** | N – k | SSW | MSW = SSW / (N − k) |
| **Total** | N – 1 | SST = SSB+SSW |  |  |

**3-Pearson correlation ( R ):** used to describe reliability of instrument data. The equation used to compute Pearson’s Correlation Coefficient (r) is:

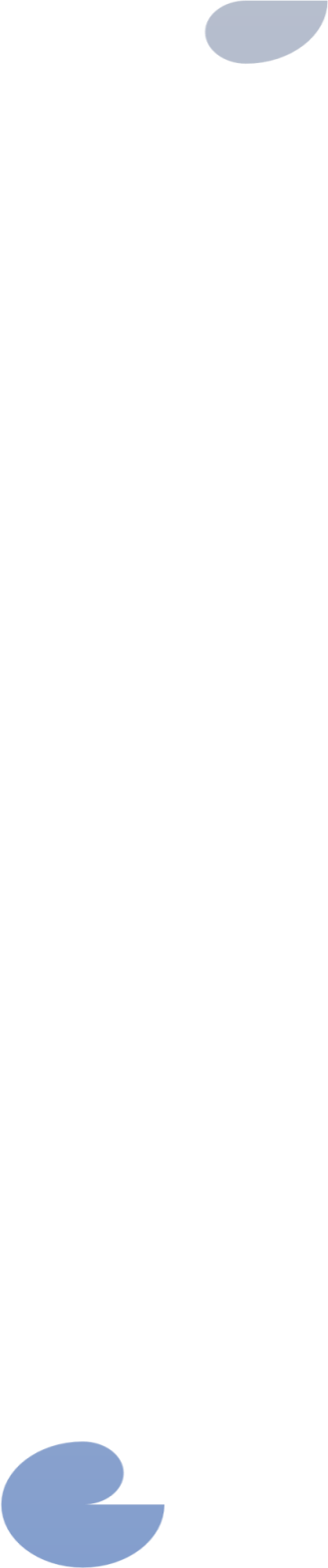
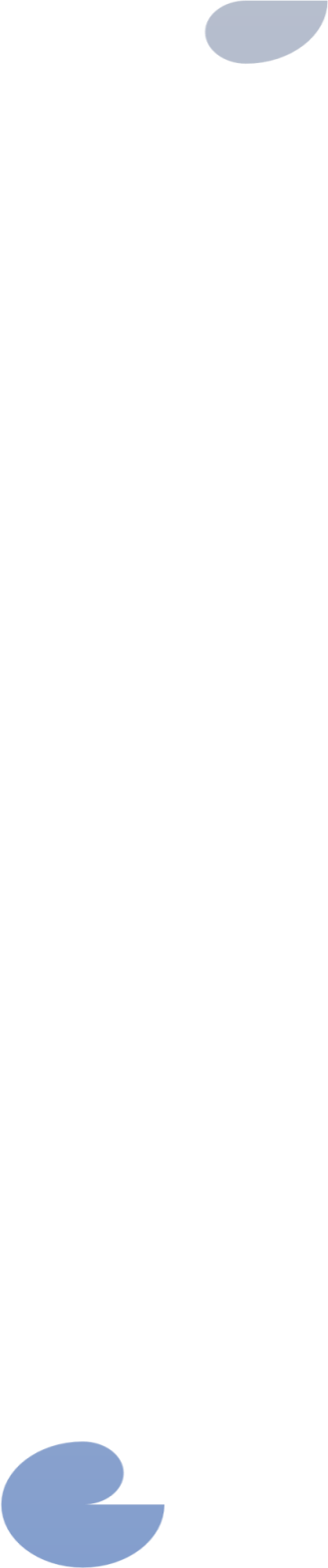
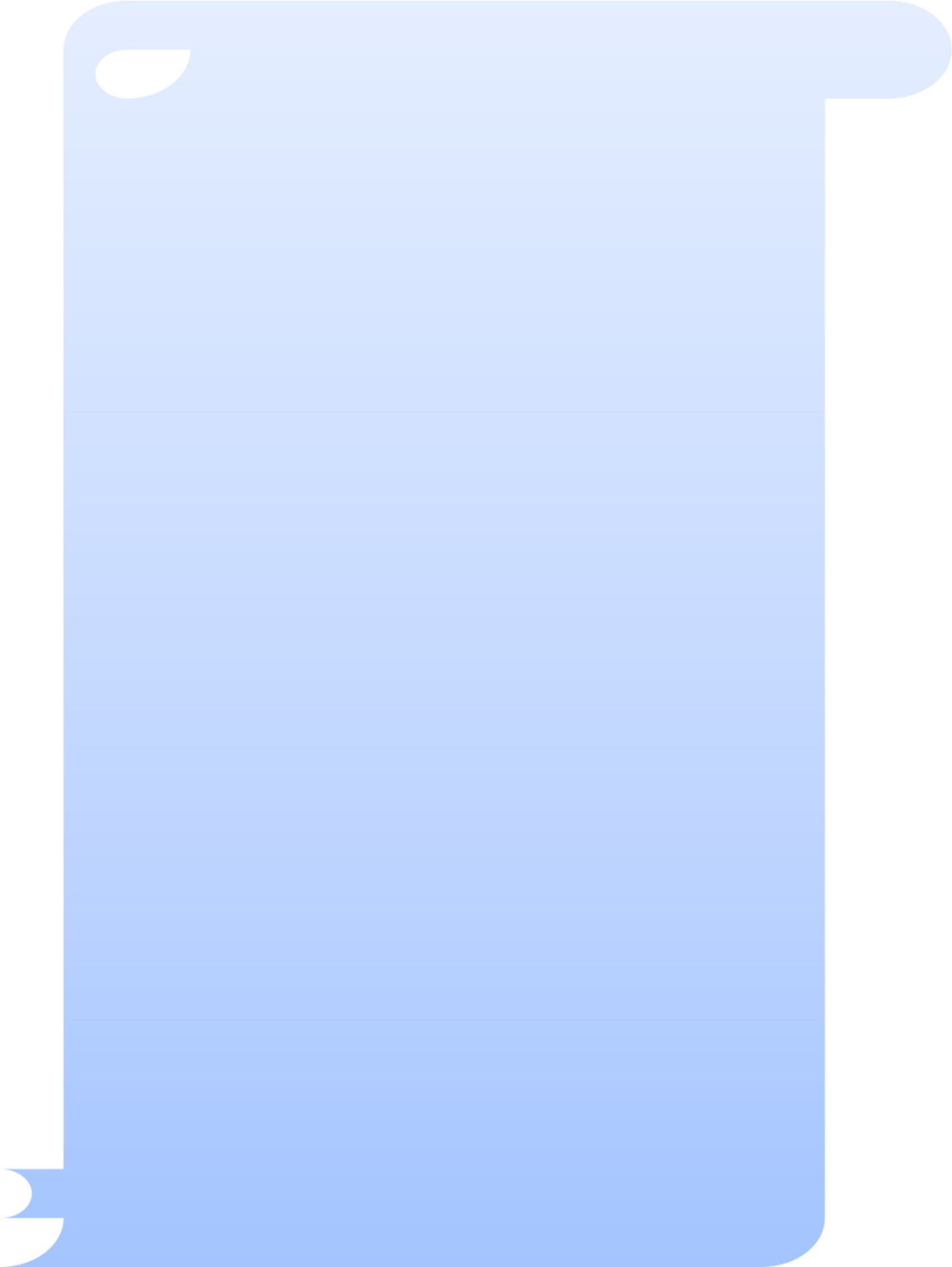
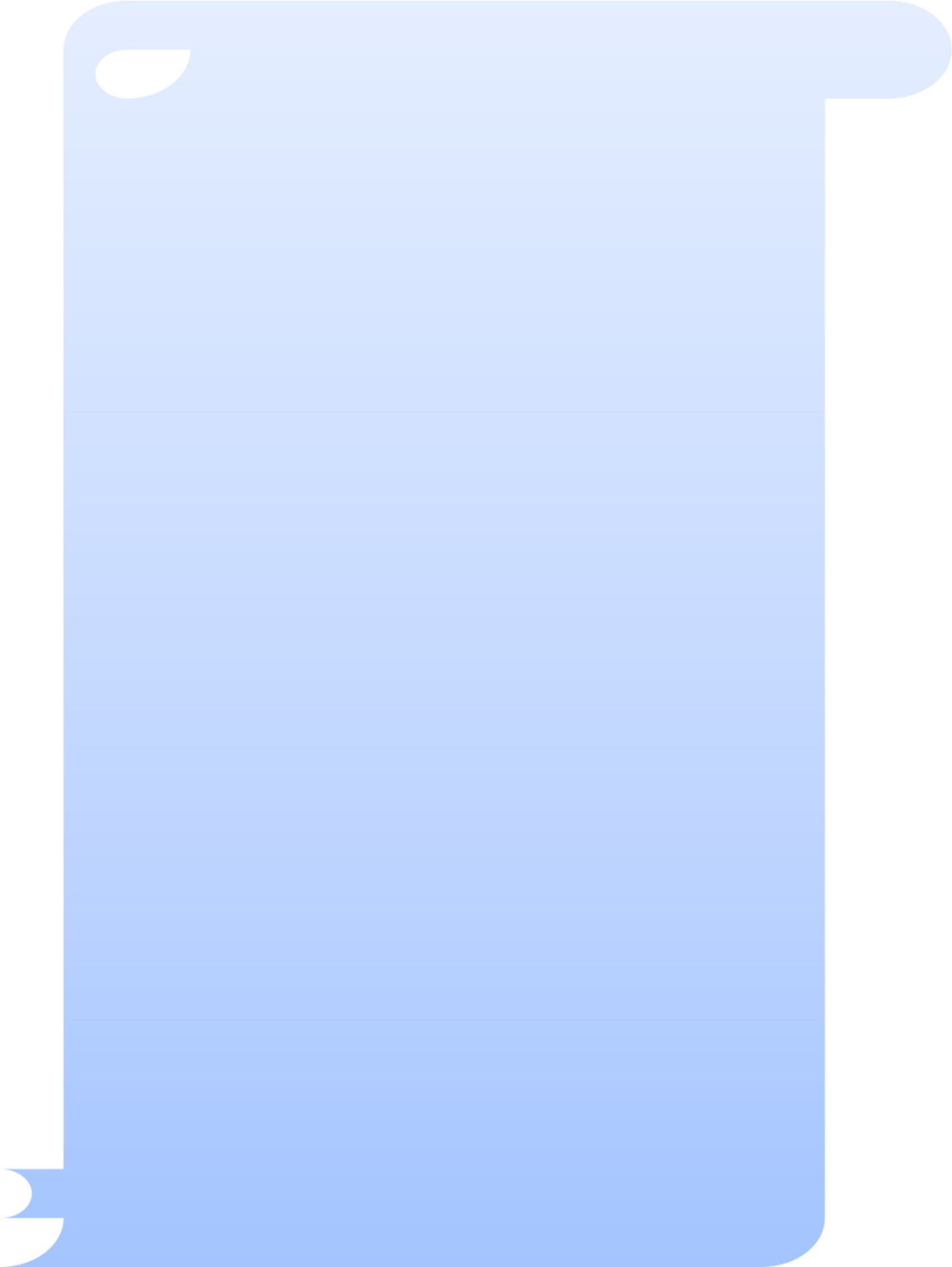
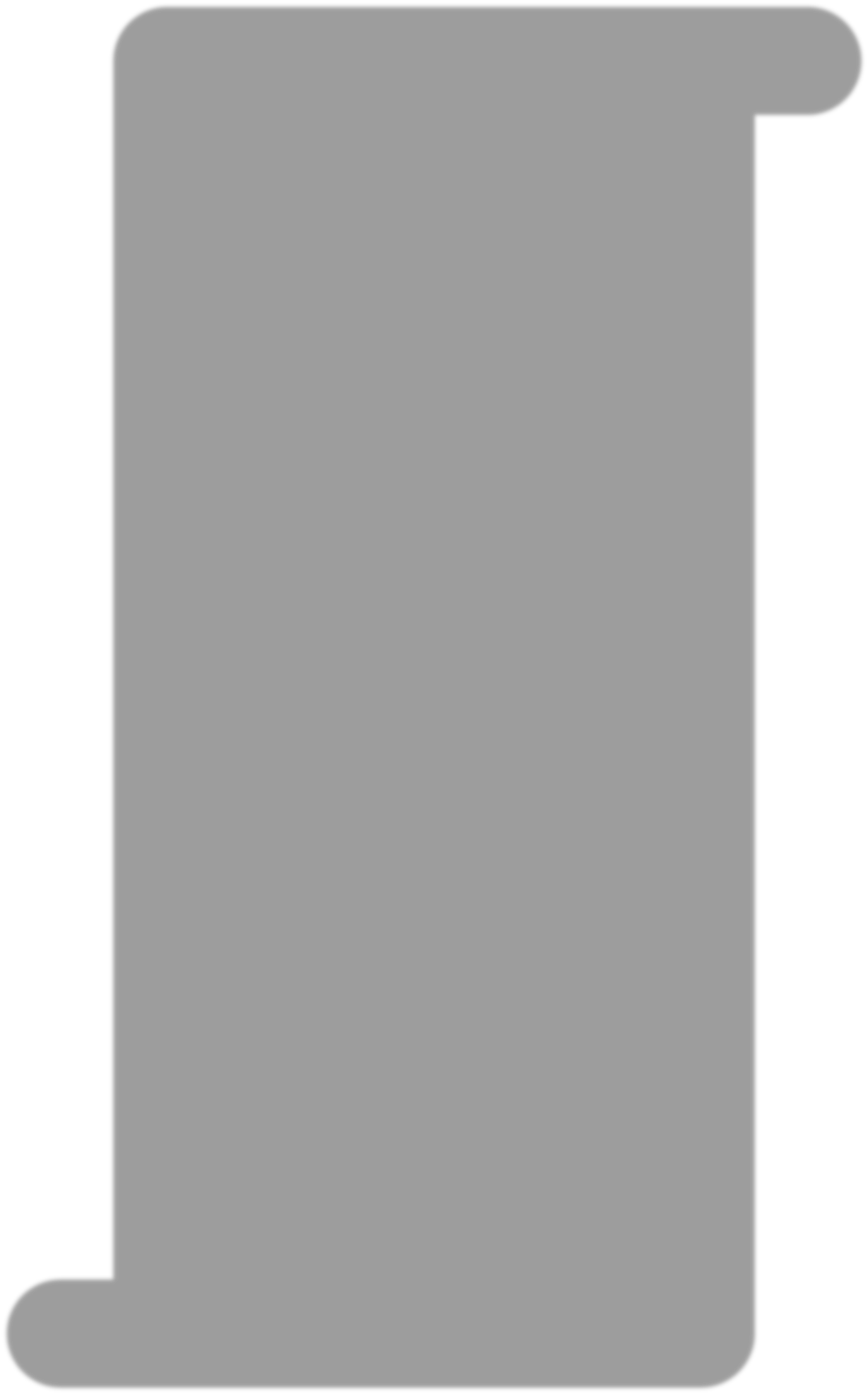


(Plichta & Kelvin, 2013).

**3.14. limitation of the study**

The present study has experienced the following limitation:

1. The lack of relevant published literature and research studies.
2. The reluctance of some students to learn during the period of the current study led to some challenges for the researcher in attracting more samples.



**Chapter Four**

**Results**

**Chapter Four**

**Results of the Study**

This chapter presents the findings of the data analysis systematically in tables and their correspondence with the objectives of the study as shown in the tables

**Table (4-1) Distribution of the Variables (Second and Fourth Stage- Study and Control Group) Related Demographic Characteristics N=80 nursing students:**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 4.1.1 descriptive statistics of Demographic Variables | | | | | | | | | | | |
| Demographic Variables | Variables  Classes | Second stage | | | | Fourth stage | | | | Total sample | |
| **Study group** | | **Control group** | | **Study group** | | **Control group** | |
| Age | **Statistics** | **F** | **%** | **F** | **%** | **F** | **%** | **F** | **%** | **F** | **%** |
| **19 – 22** | 19 | 95% | 18 | 90% | 1 | 5% | 1 | 5% | 39 | 48.8% |
| **23 – 26** | 1 | 5% | 2 | 10% | 19 | 95% | 19 | 95% | 41 | **51.2%** |
| **Total** | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% | 80 | 100% |
| **Mean** | 20.85 | | 21.05 | | 24.20 | | 24.20 | | 22.57 | |
| **Sd** | 0.988 | | 1.050 | | 0.951 | | 0894 | | 1.89 | |
|  | | | | | | | | | | |
| Gender | **Male** | 8 | 40% | 9 | 45% | 8 | 40% | 9 | 45% | 34 | 42.5% |
| **Female** | 12 | 60% | 11 | 55% | 12 | 60% | 11 | 55% | 46 | **57.5%** |
| **Total** | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% | 80 | 100% |
|  | | | | | | | | | | |
| Social statue | **Single** | 12 | 60% | 11 | 55% | 11 | 55% | 7 | 35% | 41 | **51.25%** |
| **Married** | 6 | 30% | 7 | 35% | 5 | 25% | 8 | 40% | 26 | 32.50% |
| **Divorced** | 2 | 10% | 2 | 10% | 4 | 20% | 5 | 25% | 13 | 16.25% |
| **Total** | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% | 80 | 100% |
|  | | | | | | | | | | |
| Income | **Enough** | 11 | 55% | 12 | 60% | 6 | 30% | 10 | 50% | 39 | 48.8% |
| **Not enough** | 9 | 45% | 8 | 40% | 14 | 70% | 10 | 50% | 41 | **51.2%** |
| **Total** | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% | 80 | 100% |
|  | | | | | | | | | | |
| Eating | **Fast** | 7 | 35% | 5 | 25% | 8 | 40% | 7 | 35% | 27 | 33.75% |
| **House** | 10 | 50% | 11 | 55% | 11 | 55% | 11 | 55% | 43 | **53.75%** |
| **Canned** | 3 | 15% | 4 | 20% | 1 | 5% | 2 | 10% | 10 | 12.50% |
| **Total** | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% | 80 | 100% |
|  | | | | | | | | | | |
| Education | **Second** | 20 | 100% | 20 | 100% | 0 | 0% | 0 | 0% | 40 | 50% |
| **Fourth** | 0 | 0% | 0 | 0% | 20 | 100% | 20 | 100% | 40 | 50% |
| **Total** | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% | 80 | 100% |

Table (4.1.1) shows the most (51.2 %) of participants (nursing students) related to the age group were (23-26) years old, concerning the gender the results show the most of participants (57.5%) were female, regarding the social status the majority (51.25%) of the sample were single, related to monthly income the results indicate the most of participants (51.2%) were have not enough monthly income, related to the source of eating the most (53.75%) of samples eating at home, concerning the level of education both group equal in number (50%; 50%) respectively for the second and fourth group.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 4.2.1Descriptive Statistics for pretest to second year study group & Control Group** | | | | | | | | | | | | |
| **Parts of IBS Questionnaire** | **Second Stage - Study Group** | | | | | | **Second Stage - Control Group** | | | | | |
| **N** | **Min D** | **Max D** | **M** | **S.d** | **Eva.** | **N** | **Min.D** | **Max.D** | **M** | **S.d** | **Eva.** |
| **Information Domain** | 20 | 7.50 | 15.00 | 9.75 | 1.97 | W | 20 | 7.50 | 17.5 | 13.50 | 3.38 | **A** |
| **Protection Domain** | 20 | 6.00 | 15.00 | 10.95 | 2.23 | W | 20 | 3.00 | 18.0 | 13.80 | 3.28 | **A** |
| **Prevention Domain** | 20 | 4.00 | 7.50 | 5.90 | 0.82 | M | 20 | 3.00 | 9.00 | 5.92 | 1.57 | **W** |
| **Total Score** | 20 | 22.0 | 30.50 | 26.60 | 2.50 | W | 20 | 24.0 | 38.5 | 33.22 | 4.17 | **W** |

**Table (4- 2) Results of Descriptive Statistics for second stage related to all irritable bowel syndrome domains (study & control) at pre- test N=40 nursing students**

**N=number, Min.D= Minimum degree, Max.D= Maximum degree, M = Mean , S.d = Standard deviation, Eva= Evaluation, W=weak, A=Acceptable, M=Medium.**

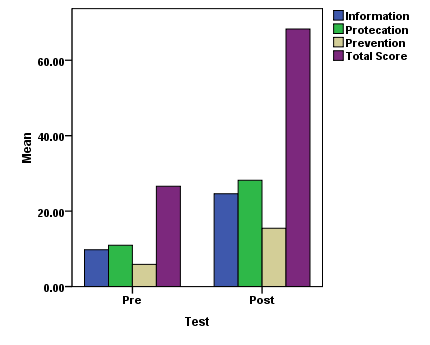
Table (4.2.1) shows the level of second stage of nursing students related to questionnaire domain based on total mean of score is a weak for both groups study and control.

**Table (4- 3) Results compare between pre & post program to second year study group.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 4.3.1 Comparison between pre and post application of program for the second stage related to all IBS domains (study groups)** | | | | | | | | |
| IBS Domains | M. | N | Sd | Eval. | T-test | p-value | Development  % | Sig. |
| **Pre**  **information score** | **9.75** | 20 | 1.97 | **W** | **11.78** | **0.00** | 152 % | **H.S** |
| **Post**  **information score** | **24.62** | 20 | 5.39 | **M** |
|  | | | | | | | | |
| **Pre**  **protection score** | **10.95** | 20 | 2.23 | **W** | **21.29** | **0.00** | **157 %** | **H.S** |
| **Post**  **protection score** | 28.20 | 20 | 2.82 | **G** |
|  | | | | | | | | |
| **Pre**  **prevention score** | **5.90** | 20 | 0.82 | **W** | **38.44** | **0.00** | **161 %** | **H.S** |
| **Post**  **prevention score** | **15.45** | 20 | 0.98 | **G** |
|  | | | | | | | | |
| **Pre**  **total score** | **26.60** | 20 | 2.50 | **W** | **25.80** | **0.00** | **156 %** | **H.S** |
| **Post**  **total score** | **68.27** | 20 | 6.04 | **G** |

**High Significant= H.S, Mean = M.S, stander deviation=Sd, evaluation= Eval, acceptable=A, median=M, good= G**

Table (4.3.1) shows that the significant differences between pre and post test of all irritable bowel syndrome domains for the study group when analyzed by t- test, the knowledge level of nursing students improved from weak to good level after the educational program , this results reflects the effectiveness of an educational program.



**Figure 4,1 pre & post education program of second year study group**

**Table (4-4) Results of Descriptive Statistics for fourth stage related to all irritable bowel syndrome domains (study & control) at pre- test N= 40 nursing students**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table(4.4.1)Descriptive Statistics for pretest to second year study group & Control Group** | | | | | | | | | | | | |
| **Parts of IBS Questionnaire** | **fourth Stage - Study Group** | | | | | | **fourth Stage - Control Group** | | | | | |
| **N** | **Min D** | **Max D** | **M** | **S.d** | **Eva.** | **N** | **Min.D** | **Max.D** | **M** | **S.d** | **Eva.** |
| **Information Domain** | 20 | 15 | 25 | **19.55** | 2.584 | **A** | 20 | 17.5 | 25 | **22** | 2.22 | **M** |
| **Protection Domain** | 20 | 15 | 25 | **19.60** | 2.60 | **A** | 20 | 21.0 | 30 | **25.50** | 2.28 | **A** |
| **Prevention Domain** | 20 | 12 | 15 | **13.02** | 1.09 | **M** | 20 | 13.5 | 16.5 | **15.07** | 1.02 | **G** |
| **Total Score** | 20 | 43.5 | 63.50 | **52.22** | 5.28 | **M** | 20 | 57.5 | 70.0 | **62.57** | 3.41 | **G** |

**N=number, Min. D= Minimum degree, Max. D= Maximum degree, M = Mean, S.d = Standard deviation, Eva= Evaluation M=medium, G=Good, A=Acceptable**

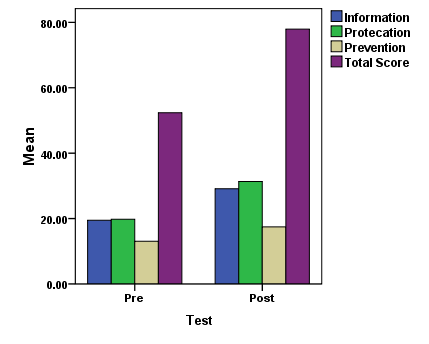
Table (4.4.1) shows the level of fourth stage of nursing students related to questionnaire domain based on total mean of score is a median for groups study and good for control group.

**Table (4-5) Results compare between pre & post program to fourth year study group**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table ( 4.5.1) Comparison between pre and post application of program for the fourth stage related to all IBS domains (study groups)** | | | | | | | | |
| **IBS Domains** | **M** | **N** | **Sd** | **Eval.** | **T-test** | **p-value** | **Development**  **%** | **Sig.** |
| **Pre**  **information score** | **19.55** | 20 | 3.06 | **A** | **14.08** | 0.00 | **49** | **H.S** |
| **Post**  **information score** | **29.12** | 20 | 3.10 | **M** |
|  | | | | | | | | |
| **Pre**  **protection score** | **19.60** | 20 | 2.60 | **A** | **18.02** | 0.00 | **60 %** | **H.S** |
| **Post**  **protection score** | **31.35** | 20 | 2.66 | **G** |
|  | | | | | | | | |
| **Pre**  **prevention score** | **13.02** | 20 | 1.09 | **M** | **10.60** | 0.00 | **34 %** | **H.S** |
| **Post**  **prevention score** | **17.47** | 20 | 1.31 | **G** |
|  | | | | | | | | |
| **Pre**  **total score** | **52.22** | 20 | 5.28 | **M** | 21.24 | 0.00 | **49 %** | **H.S** |
| **Post**  **total score** | **77.95** | 20 | 5.17 | **G** |

**High Significant= H.S, Mean = M., stander deviation=Sd, evaluation= Eval, acceptable=A, median=M, good= G**

Table (4.5.1) shows there is statistically significant differences between pre and post- test of all irritable bowel syndrome domains for the study group when analyzed by t- test, the knowledge level of nursing students improved from median to good level after the educational program , this results reflect the effectiveness of the educational program.



**Figure 4,2 pre & post education program of fourth year study**

**Table (4-6): Comparison between Study and Control Group of second Stage regarding all the following the information’s, protection and prevention domains questions for pre and post-test**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table (4.6.1)Compare Information’s questions of Second year by Paired Samples  T- test | | | | | | | | | | | | |
| Number of answers of Second year groups | | | | | | | | | | | | |
| Information questions | **Study group’s answers** | | | | | | **Control group’s answers** | | | | | |
| **Pre** | **Mean** | **Post** | **Mean** | **p- value** | **Sig.** | **pre** | **Mean** | **post** | **Mean** | **p- value** | **Sig.** |
| Q1 | 8 | 4.87 | 18 | **12.31** | 0.00 | **H.S** | 7 | 6.81 | 8 | 6.81 | 1.0 | N.S |
| Q2 | 8 | 14 | 8 | 8 |
| Q3 | 6 | 13 | 8 | 8 |
| Q4 | 7 | 12 | 8 | 11 |
| Q5 | 1 | 9 | 11 | 3 |
| Q6 | 4 | 12 | 3 | 5 |
| Q7 | 6 | 12 | 5 | 7 |
| Q8 | 4 | 10 | 6 | 6 |
| Q9 | 5 | 12 | 7 | 7 |
| Q10 | 6 | 13 | 7 | 7 |
| Q11 | 4 | 14 | 8 | 8 |
| Q12 | 2 | 9 | 6 | 6 |
| Q13 | 4 | 12 | 4 | 4 |
| Q14 | 5 | 14 | 8 | 8 |
| Q15 | 3 | 14 | 6 | 6 |
| Q16 | 5 | 9 | 7 | 7 |

**H.S=High significant, NS= Non significant**

Table (4.6.1) shows there are statistically significant differences between pre and post-test by the main score for pre-test was (4.87) and post-test was (12.31)of irritable bowel syndrome information domain for the study group, but there are no significant differences between pre and post-test through the main score for pre-test was (6.81) and post-test was (6.81)the control group when analyzed by paired sample t-test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table (4.6.2)Compare protection’s questions of Second year by Paired Samples T- test | | | | | | | | | | | | |
| Number of answers of Second year groups | | | | | | | | | | | | |
| protection question | **Study group’s answers** | | | | | | **Control group’s answers** | | | | | |
| **Pre** | **Mean** | **Post** | **Mean** | **p- value** | **Sig.** | **pre** | **Mean** | **post** | **Mean** | **p- value** | **Sig.** |
| Q1 | 3 | 5.46 | 16 | 14.46 | 0.00 | **H.S** | 4 | 7.07 | 5 | 7.30 | 0.19 | N.S |
| Q2 | 8 | 14 | 9 | 8 |
| Q3 | 10 | 15 | 12 | 12 |
| Q4 | 4 | 12 | 3 | 4 |
| Q5 | 3 | 13 | 6 | 6 |
| Q6 | 4 | 13 | 7 | 7 |
| Q7 | 8 | 15 | 9 | 9 |
| Q8 | 6 | 13 | 9 | 9 |
| Q9 | 4 | 13 | 5 | 6 |
| Q10 | 5 | 14 | 8 | 8 |
| Q11 | 4 | 14 | 6 | 6 |
| Q12 | 8 | 17 | 9 | 9 |
| Q13 | 4 | 19 | 5 | 6 |

**H.S=High significant, NS= Non significant**

Table (4.6.2) shows there are statistically significant differences between pre and post-test of irritable bowel syndrome protection domain for the study group, but there are no statistically significant differences between pre and post-test for the control group when analyzed by paired sample t- test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table (4.6.3)Compare prevention’s questions of Second year by Paired Samples T- test | | | | | | | | | | | | |
| Number of answers of Second year groups | | | | | | | | | | | | |
| prevention questions | **Study group’s answers** | | | | | | **Control group’s answers** | | | | | |
| **Pre** | **Mean** | **Post** | **Mean** | **p- value** | **Sig.** | **pre** | **Mean** | **Post** | **Mean** | **p- value** | **Sig,** |
| Q1 | 8 | 5.78 | 17 | 14.7 | 0.00 | **H.S** | 9 | 5.64 | 10 | 8.85 | 0.00 | **H.S** |
| Q2 | 11 | 19 | 5 | 13 |
| Q3 | 13 | 19 | 6 | 15 |
| Q4 | 3 | 11 | 4 | 6 |
| Q5 | 2 | 11 | 5 | 8 |
| Q6 | 6 | 12 | 3 | 6 |
| Q7 | 3 | 14 | 5 | 6 |
| Q8 | 3 | 11 | 2 | 6 |
| Q9 | 6 | 12 | 8 | 8 |
| Q10 | 4 | 12 | 5 | 7 |
| Q11 | 6 | 15 | 8 | 10 |
| Q12 | 7 | 17 | 8 | 12 |
| Q13 | 7 | 19 | 7 | 11 |
| Q14 | 2 | 17 | 4 | 6 |

**H.S=High significant, NS= Non significant**

Table (4.6.3) shows there are statistically significant differences between pre and post-test for both study and control group of irritable bowel syndrome prevention domain when analyzed by paired sample t-test.

**Table (4-7): Comparison Between Study and Control Group of Fourth Stage regarding all the following the information , protection and prevention domains questions for pre and post-test**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table (4.7.1)Compare Information’s questions of fourth year by Paired Samples T- test | | | | | | | | | | | | |
| Number of answers of fourth year groups | | | | | | | | | | | | |
| Information questions | **Study group’s answers** | | | | | | **Control group’s answers** | | | | | |
| **Pre** | **Mean** | **Post** | **Mean** | **p- valve** | **Sig.** | **pre** | **Mean** | **Post** | **Mean** | **p- value** | **Sig.** |
| Q1 | 13 | 9.75 | 15 | 14.56 | 0.00 | **H.S** | 15 | 11.0 | 15 | 11.37 | 0.18 | NS |
| Q2 | 9 | 14 | 10 | 12 |
| Q3 | 10 | 16 | 11 | 11 |
| Q4 | 12 | 16 | 10 | 11 |
| Q5 | 11 | 18 | 13 | 15 |
| Q6 | 8 | 9 | 8 | 8 |
| Q7 | 8 | 12 | 13 | 13 |
| Q8 | 8 | 15 | 10 | 11 |
| Q9 | 7 | 15 | 10 | 10 |
| Q10 | 13 | 15 | 10 | 10 |
| Q11 | 11 | 17 | 10 | 10 |
| Q12 | 6 | 15 | 11 | 11 |
| Q13 | 9 | 10 | 10 | 11 |
| Q14 | 11 | 16 | 12 | 10 |
| Q15 | 9 | 12 | 11 | 10 |
| Q16 | 11 | 18 | 12 | 14 |

**H.S=High significant, NS= Non significant**

Table (4.7.1) shows there are statistically significant differences between pre and post-test by the mean score was (pre 9.75) improve to (post 14.56)of irritable bowel syndrome information domain for the study group, but there are no significant differences between pre and post-test for the control group when analyzed by paired sample t-test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table (4.7.2)Compare protection’s questions of fourth year by Paired Samples T- test | | | | | | | | | | | | |
| Number of answers of fourth year groups | | | | | | | | | | | | |
| protection question | **Study group’s answers** | | | | | | **Control group’s answers** | | | | | |
| **Pre** | **Mean** | **post** | **Mean** | **p- value** | **Sig.** | **Pre** | **Mean** | **post** | **Mean** | **p- value** | **Sig** |
| Q1 | 13 | 10.1 | 17 | 16.07 | 0.00 | **H.S** | 13 | 13.07 | 15 | 14.07 | 0.12 | NS |
| Q2 | 6 | 14 | 11 | 14 |
| Q3 | 9 | 16 | 14 | 16 |
| Q4 | 13 | 18 | 14 | 11 |
| Q5 | 8 | 14 | 13 | 14 |
| Q6 | 10 | 15 | 13 | 15 |
| Q7 | 11 | 17 | 14 | 13 |
| Q8 | 10 | 14 | 11 | 15 |
| Q9 | 13 | 16 | 13 | 10 |
| Q10 | 8 | 16 | 13 | 13 |
| Q11 | 10 | 17 | 14 | 16 |
| Q12 | 10 | 17 | 12 | 14 |
| Q13 | 11 | 18 | 15 | 17 |

**H.S=High significant, NS= Non significant**

Table (4.7.2) shows there are statistically significant differences between pre and post-test where a change in the mean score from pre-test(10.1)to post-test (16.07) of irritable bowel syndrome protection domain for the study group, but there are no significant differences between pre and post-test for the control group when analyzed by paired sample t-test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table (4.7.3)Compare prevention’s questions of fourth year by Paired Samples T- test | | | | | | | | | | | | |
| Number of answers of fourth year groups | | | | | | | | | | | | |
| prevention questions | **Study group’s answers** | | | | | | **Control group’s answers** | | | | | |
| **Pre** | **Mean** | **post** | **Mean** | **p- value** | **Sig.** | **Pre** | **Mean** | **post** | **Mean** | **p- value** | **Sig** |
| Q1 | 8 | 12.5 | 17 | 16.6 | 0.00 | **H.S** | 12 | 12.28 | 14 | 12.78 | 0.205 | **NS** |
| Q2 | 17 | 19 | 15 | 16 |
| Q3 | 11 | 16 | 11 | 10 |
| Q4 | 11 | 17 | 12 | 15 |
| Q5 | 14 | 17 | 13 | 14 |
| Q6 | 15 | 18 | 12 | 12 |
| Q7 | 12 | 16 | 13 | 14 |
| Q8 | 13 | 18 | 13 | 14 |
| Q9 | 15 | 16 | 9 | 8 |
| Q10 | 12 | 15 | 11 | 12 |
| Q11 | 12 | 17 | 12 | 12 |
| Q12 | 15 | 18 | 15 | 17 |
| Q13 | 8 | 14 | 11 | 9 |
| Q14 | 12 | 15 | 13 | 12 |

**H.S=High significant, NS= Non significant**

Table (4.7.3) shows there are statistically significant differences between pre and post-test of irritable bowel syndrome prevention domain for the study group, but there are no significant differences between pre and post-test for the control group when analyzed by paired sample t-test.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table (4.8.1) Comparison Between the Two Period(pre and post- test) for Nursing Students Knowledge (second stage ) Toward IBS Information Domain**  **Tables (4-8): Pre and post program evaluation for second study group** | | | | | | | | | | |
| Question | | Second stage-study group | | | | | | | | |
| IBS Information Domain |  | **Pre- program N=20** | | | **Post- program N=20** | | | | **T- test** | |
| **Score** | **M.S** | **Sd** | **Eva.** | **Score** | **M.S** | **Sd** | **Eva.** | **P-value** | **Sig.** |
| Q1. Irritable bowel syndrome IBS is? | **20** | 1.0 | 1.25 | **M** | **45** | 2.25 | 0.76 | **V.G** | 0.000 | H.S |
| Q2. Irritable bowel syndrome (IBS) common? | **20** | 1.0 | 1.25 | **M** | **35** | 1.75 | 1.17 | **G** | 0.010 | H.S |
| Q3. Other names for irritable bowel syndrome? | **15** | 0.75 | 1.17 | **W** | **32** | 1.62 | 1.22 | **G** | 0.005 | H.S |
| Q4. Which is not considered a risk factor forIBS? | **17.5** | 0.87 | 1.22 | **W** | **30** | 1.50 | 1.25 | **G** | 0.021 | S |
| Q5. Whichever is not considered a type of IBS? | **2.5** | 0.12 | 0.55 | **V.W** | **22.5** | 1.125 | 1.12 | **M** | 0.002 | H.S |
| Q6. The physiological pathology of IBS due …? | **10** | 0.50 | 1.02 | **W** | **30** | 1.50 | 1.25 | **G** | 0.002 | H.S |
| Q7. The distinctive sign of IBS is? | **15** | 0.75 | 1.17 | **W** | **30** | 1.50 | 1.25 | **G** | 0.010 | S |
| Q8. The pain associated with IBS often? | **10** | 0.50 | 1.02 | **W** | **25** | 1.25 | 1.28 | **M** | 0.010 | S |
| Q9. Which of the reduces symptoms of IBS? | **12.5** | 0.62 | 1.11 | **W** | **30** | 1.50 | 1.26 | **G** | 0.002 | H.S |
| Q10. Either is not a complication of IBS? | **15** | 0.75 | 1.17 | **W** | **32.5** | 1.62 | 1.22 | **G** | 0.005 | H.S |
| Q11. Which of the statements about IBS ist? | **10** | 0.50 | 1.02 | **W** | **35** | 1.75 | 1.17 | **G** | 0.000 | H.S |
| Q12. Which of the infections is associated…? | **5** | 0.25 | 0.76 | **V.W** | **22,5** | 1.12 | 1.2 | **M** | 0.005 | H.S |
| Q13. Medicines that affect the of the digestive.? | **10** | 0.50 | 1.02 | **W** | **30** | 1.50 | 1.25 | **G** | 0.002 | H.S |
| Q14. IBS can be diagnosed with all of the except? | **12.5** | 0.62 | 1.11 | **W** | **35** | 1.75 | 1.17 | **G** | 0.001 | H.S |
| Q15. Bacterial responsible for most episodes….? | **7.5** | 0.37 | 0.91 | **V.W** | **35** | 1.75 | 1.17 | **G** | 0.000 | H.S |
| Q16. In the event of diarrhea treatment.? | **12.5** | 0.62 | 1.11 | **W** | **22.5** | 1.12 | 1.27 | **M** | 0.042 | S |

**P- Value < 0.05 is Significant, S= Significant,** **, H.S= High significant M.S = Mean Score. V.W= very weak, W= weak, M= medium, G= good, V.G= very good**

Table(4.8.1) shows that the knowledge of nursing student was presented at (very weak, weak, and moderate) at pre-test, but their knowledge improved after the application of the educational program to become their levels at (moderate, good, and very good) at post-test, the result in this table also shows it is statistically significant in nursing students knowledge between pre and post-test toward all items of IBS information domain, this result reveals the effect of an educational program in improving the nursing student knowledge regarding the preventative measure of irritable bowel syndrome.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table ( 4.8.2 ) Comparison Significant Between the Two Period(pre and post- test) for Nursing Students Knowledge (second stage) Toward IBS protection Domain** | | | | | | | | | | |
| Question | | Second stage - study group | | | | | | | | |
| **IBS protection Domain** |  | **Pre program,N=20** | | | **Post program,N=20** | | | | **T- test** | |
| **Score** | **M.S** | **Sd** | **Eva.** | **Score** | **M.S** | **Sd** | **Eva.** | **P- value** | **Sig.** |
| Q1. Which of the is not considered IBS? | **15** | 0.75 | 1.32 | **W** | **48** | 2.40 | 1.23 | **V.G** | 0.000 | H.S |
| Q2. Which of treatment measures…IBS? | **24** | 1.20 | 1.50 | **M** | **42** | 2.10 | 1.41 | **G** | 0.010 | S |
| Q3. Which of is a treatment for pain. IBS? | **30** | 1.50 | 1.53 | **M** | **45** | 2.25 | 1.32 | **G** | 0.021 | S |
| Q4. Which treatment constipation…IBS? | **12** | 0.60 | 1.23 | **W** | **36** | 1.80 | 1.50 | **G** | 0.002 | H.S |
| Q5. The purpose using antibiotics for IBS? | **9** | 0.45 | 1.09 | **V.W** | **39** | 1.95 | 1.46 | **G** | 0.000 | H.S |
| Q6 . Treatment used to treat diarrhea IBS? | **12** | 0.60 | 1.123 | **W** | **39** | 1.95 | 1.46 | **G** | 0.001 | H.S |
| Q7. Which of does not improve treat IBS? | **24** | 1.20 | 1.50 | **M** | **45** | 2.25 | 1.32 | **G** | 0.005 | H.S |
| Q8. Which one the following does not IBS? | **18** | 0.90 | 1.41 | **W** | **39** | 1.95 | 1.46 | **G** | 0.005 | H.S |
| Q9. Foods that contain …… cause diarrhea? | **12** | 0.60 | 1.23 | **W** | **39** | 1.95 | 1.46 | **G** | 0.001 | H.S |
| Q10. Foods that trigger IBS include? | **15** | 0.75 | 1.32 | **W** | **42** | 2.10 | 1.41 | **G** | 0.001 | H.S |
| Q11. Foods that may cause symptoms,…? | **12** | 0.60 | 1.23 | **W** | **42** | 2.10 | 1.41 | **G** | 0.000 | H.S |
| Q12. Which of the food a low-FODMAP? | **24** | 1.20 | 1.50 | **M** | **51** | 2.55 | 1.09 | **V.G** | 0.001 | H.S |
| Q13. Among the measures to control IBS is..? | **12** | 0.60 | 1.23 | **W** | **57** | 2.85 | 0.67 | **V.G** | 0.000 | H.S |

**P- Value < 0.05 is Significant, S= Significant, , H.S= High significant, M.S = Mean Score. V.W= very weak, W= weak, M= medium, G= good, V.G= very good**

Table(4.8.2) shows that the knowledge of nursing students was presented at (very weak, weak, and moderate) at pre-test, but their knowledge improved after the application of the educational program to become their level of knowledge at (good, and very good) at post-test, the result in this table also shows it is statistically significant in nursing students knowledge between pre and post-test toward all items of IBS protection domain these results reveal the effect of an educational program in improving the nursing student knowledge regarding the preventative measure of irritable bowel syndrome.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table ( 4.8.3 ) Comparison Significant Between the Two Period(pre and post- test) for Nursing Students (Second Stage) Knowledge Toward IBS Prevention Domain** | | | | | | | | | | |
| Question | | Second stage- study group | | | | | | | | |
| **IBS prevention Domain** |  | **Pre program N=20** | | | **Post program N=20** | | | | **T- test** | |
| **Score** | **M.S** | **Sd** | **Eva.** | **Score** | **M.S** | **Sd** | **Eva.** | **P- value** | **Sig.** |
| Q1. The ideal diet to avoid diarrhea ..in ? | **12** | 0.60 | 0.75 | **M** | **25.5** | 1.27 | 0.54 | **V.G** | 0.001 | H.S |
| Q2. Can stress .. make IBS worse? | **16.5** | 0.82 | 0.76 | **M** | **28.5** | 1.42 | 0.33 | **V.G** | 0.002 | H.S |
| Q3. To treat the stress IBS adequate sleep? | **19.5** | 0.97 | 0.73 | **G** | **28.5** | 1.42 | 0.33 | **V.G** | 0.010 | S |
| Q4. Symptoms that may IBS, dyspareunia? | **4.5** | 0.22 | 0.54 | **V.W** | **16.5** | 0.82 | 0.76 | **M** | 0.002 | H.S |
| Q5. Should people IBS, physical disease? | **3** | 0.15 | 0.46 | **V.W** | **16.5** | 0.82 | 0.76 | **M** | 0.001 | H.S |
| Q6. Should healthcare of aloe vera IBS? | **9** | 0.45 | 0.70 | **W** | **18** | 0.90 | 0.75 | **G** | 0.010 | S |
| Q7. IBS does not lead to cancer ….? | **4.5** | 0.22 | 0.54 | **V.W** | **21** | 1.05 | 0.70 | **G** | 0.000 | H.S |
| Q8. IBS is.. Age 45 years, weight loss? | **4.5** | 0.22 | 0.54 | **V.W** | **16.5** | 0.82 | 0.76 | **M** | 0.002 | H.S |
| Q9. Rifaximin is a medicine to treat IBS? | **9** | 0.45 | 0.70 | **W** | **18** | 0.90 | 0.75 | **G** | 0.010 | S |
| Q10. IBS can be treated with ..probiotics,? | **6** | 0.30 | 0.61 | **W** | **18** | 0.90 | 0.75 | **G** | 0.002 | H.S |
| Q11. Using soluble fiber reduce but not pain? | **9** | 0.45 | 0.70 | **W** | **22.5** | 1.12 | 0.66 | **G** | 0.001 | H.S |
| Q12.Adhering to the FODMA reduce .stool? | **10.5** | 0.52 | 0.73 | **W** | **25.5** | 1.27 | 0.54 | **V.G** | 0.000 | H.S |
| Q13 . It is that dietary fiber is use .IBS? | **10.5** | 0.52 | 0.73 | **W** | **28.5** | 1.42 | 0.33 | **V.G** | 0.000 | H.S |
| Q14.IBS symptoms can be controlled food? | **3** | 0.15 | 0.46 | **V.W** | **25.5** | 1.27 | 0.54 | **V.G** | 0.000 | H.S |

**P- Value < 0.05 is Significant, S= Significant, , H.S= High significant , M.S = Mean Score. V.W= very weak, W= weak, M= medium,**

**G= good, V.G= very good.**

Table(4.8.3) shows that the knowledge of nursing students was presented at (very weak, weak) except the item 1 and 2 their level presented at medium and the item 3 their level presented at a good level at pre-test, but their knowledge improved after the application of the educational program to become their level of knowledge at (medium, good, and very good) at post-test, the result in this table also shows it is statistically significant in nursing students knowledge between pre and post-test toward all items of IBS protection domain, this results reveal improving in the nursing student knowledge regarding the preventative measure of irritable bowel syndrome after the application of the educational program.

**Tables (4-9): Pre and post program evaluation for Fourth study group**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table (4.9.1) Comparison Between the Two Period(pre and post- test) for Nursing Students Knowledge (fourth stage ) Toward IBS Information Domain** | | | | | | | | | | |
| Question | | Fourth stage - study group | | | | | | | | |
| **IBS Information Domain** |  | **Pre program N=20** | | | **Post program N=20** | | | | **T- test** | |
| **Score** | **M.S** | **Sd** | **Eva.** | **Score** | **M.S** | **Sd** | **Eva.** | **P- value** | **Sig.** |
| Q1. Irritable bowel syndrome IBS is? | **32.50** | 1.62 | 1.22 | **G** | **37.50** | 1.87 | 1.11 | G | 0.163 | **NS** |
| Q2. Irritable bowel syndrome is more common? | **22.50** | 1.12 | 1.27 | **M** | **35** | 1.75 | 1.17 | G | 0.021 | **S** |
| Q3. Other names for irritable bowel syndrome? | **25** | 1.25 | 1.28 | **M** | **40** | 2.00 | 1.02 | V.G | 0.010 | **S** |
| Q4. Which is not considered a risk factor for IBS? | **30** | 1.50 | 1.25 | **G** | **40** | 2.00 | 1.02 | V.G | 0.042 | **S** |
| Q5. Whichever is not considered a type of IBS? | **27.5** | 1.37 | 1.27 | **M** | **45** | 2.25 | 0.76 | V.G | 0.005 | **H.S** |
| Q6. The physiological pathology of IBS is due to? | **20** | 1.00 | 1.25 | **M** | **22.5** | 1.12 | 1.27 | M | 0.330 | **NS** |
| Q7. The distinctive sign of IBS is? | **20** | 1.00 | 1.25 | **M** | **30** | 1.50 | 1.25 | G | 0.042 | **S** |
| Q8. The pain associated with IBS calms during? | **20** | 1.00 | 1.25 | **M** | **37.5** | 1.87 | 1.11 | G | 0.005 | **H.S** |
| Q9. Which of reduces symptoms of IBS? | **17.5** | 0.87 | 1.22 | **W** | **37.5** | 1.87 | 1.11 | G | 0.002 | **H.S** |
| Q10. Either is not a complication of IBS? | **32.50** | 1.62 | 1.22 | **G** | **37.5** | 1.87 | 1.11 | G | 0.163 | **NS** |
| Q11. Which of statements about IBS is t? | **27.5** | 1.37 | 1.27 | **M** | **42.5** | 2.12 | 0.91 | V.G | 0.010 | **S** |
| Q12. Which of the infections is associated …? | **15** | 0.75 | 1.17 | **W** | **37.5** | 1.87 | 1.11 | M | 0.001 | **H.S** |
| Q13. Medicines that affect of the digestive ….? | **22.50** | 1.12 | 1.27 | **M** | **25** | 1.25 | 1.28 | M | 0.330 | **NS** |
| Q14. IBS can be diagnosed with all of except? | **27.5** | 1.37 | 1.27 | **M** | **40** | 2.00 | 1.02 | V.G | 0.021 | **S** |
| Q15. Bacterial responsible for most episodes….? | **22.50** | 1.12 | 1.27 | **M** | **30** | 1.50 | 1.25 | G | 0.083 | **NS** |
| Q16. In the event of diarrhea during IBS…? | **27.5** | 1.37 | 1.27 | **M** | **45** | 2.25 | 0.76 | V.G | 0.005 | **H.S** |

**P- Value < 0.05 is Significant, S= Significant, , H.S= High significant, N.S=Non significant , M.S = Mean Score. V.W= very weak, W= weak, M= medium, G= good, V.G= very good.**

Table (4.9.1) shows there is a statistically significant in nursing students knowledge (fourth stage-study group) between pre and post- test related to all items of IBS protection domain except item (1, 6,10, 13, 15) shows there is no statistically significant between pre and post test

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table ( 4.9.2 ) Comparison Significant Between the Two Period (pre and post test) for Nursing Students Knowledge (fourth stage)Toward IBS protection Domain** | | | | | | | | | | |
| Question | | Fourth stage- study group | | | | | | | | |
| **IBS protection Domain** |  | **Pre program N=20** | | | **Post program N=20** | | | | **T- test** | |
| **Score** | **M.S** | **Sd** | **Eva.** | **Score** | **M.S** | **Sd** | **Eva.** | **P- value** | **Sig.** |
| Q1. Which of the is not a treatment IBS? | 39 | 1.95 | 1.46 | G | 51 | 2.55 | 1.09 | V.G | 0.042 | S |
| Q2. Which of the treatment measures IBS? | 18 | 0.90 | 1.41 | W | 42 | 2.10 | 1.41 | G | 0.002 | H.S |
| Q3. Which of the is a treatment for pain IBS? | 27 | 1.35 | 1.53 | M | 48 | 2.40 | 1.23 | V.G | 0.005 | H.S |
| Q4. Which of the is a treat constipation IBS? | 39 | 1.95 | 1.46 | G | 54 | 2.70 | 0.92 | V.G | 0.021 | S |
| Q5. The purpose of using antibiotics for IBS? | 24 | 1.20 | 1.50 | M | 42 | 2.10 | 1.41 | G | 0.010 | S |
| Q6 . Treatment used to treat diarrhea for IBS? | 30 | 1.50 | 1.53 | M | 45 | 2.25 | 1.33 | G | 0.021 | S |
| Q7. Which of does not treatment IBS? | 33 | 1.65 | 1.53 | M | 51 | 2.55 | 1.09 | V.G | 0.010 | S |
| Q8. Which one of does stress… IBS? | 30 | 1.50 | 1.53 | M | 42 | 2.10 | 1.41 | G | 0.042 | S |
| Q9. Foods that contain i that cause diarrhea? | 39 | 1.95 | 1.46 | G | 48 | 2.40 | 1.23 | V.G | 0.083 | N.S |
| Q10. Foods that trigger IBS include…? | 24 | 1.20 | 1.50 | M | 48 | 2.40 | 1.23 | V.G | 0.008 | H.S |
| Q11. Foods that may cause symptoms, …? | 30 | 1.50 | 1.53 | M | 51 | 2.55 | 1.09 | V.G | 0.005 | H.S |
| Q12. Which of the food a low-FODMAP ? | 30 | 1.50 | 1.53 | M | 51 | 2.55 | 1.09 | V.G | 0.005 | H.S |
| Q13. Among the measures to control IBS is..? | 33 | 1.65 | 1.53 | M | 54 | 2.70 | 0.92 | V.G | 0.005 | H.S |

**P- Value < 0.05 is Significant, S= Significant , H.S= High significant , N.S= Non significant, M.S = Mean Score. V.W= very weak, W= weak, M= medium, G= good, V.G= very good.**

Table (4.9.2) shows there is a statistically significant in nursing students knowledge (fourth stage-study group) between pre and post- test related to all items of IBS protection domain except item (10) shows there is no statistically significant between pre and post test.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table ( 4.9.3 ) Comparison Significant Between the Two Period(pre and post- test) for Nursing Students (Fourth Stage) Knowledge Toward IBS Prevention Domain** | | | | | | | | | | |
| Question | | Fourth stage- study group | | | | | | | | |
| **IBS prevention Domain** |  | **Pre program N=20** | | | **Post program N=20** | | | | **T- test** | |
| **Score** | **M.S** | **Sd** | **Eva.** | **Score** | **M.S** | **Sd** | **Eva.** | **P- value** | **Sig.** |
| Q1. The ideal diet to avoid or diarrhea ..? | **12** | 0.60 | 0.75 | **M** | **25.5** | 1.27 | 0.54 | **V.G** | 0.001 | H.S |
| Q2. Can stress make IBS worse? | **25.5** | 1.27 | 0.54 | **V.G** | **28.5** | 1.42 | 0.33 | **V.G** | 0.163 | NS |
| Q3. To treat the stress exercise and sleep? | **16.5** | 0.82 | 0.76 | **M** | **24** | 1.20 | 0.61 | **V.G** | 0.021 | S |
| Q4. Symptoms that may accompany IBS, ? | **16.5** | 0.82 | 0.76 | **M** | **25.5** | 1.27 | 0.54 | **V.G** | 0.010 | S |
| Q5. Should people with IBS physical disease? | **21** | 1.05 | 0.70 | **G** | **25.5** | 1.27 | 0.54 | **V.G** | 0.083 | NS |
| Q6. Should healthcare of aloe vera IBS? | **22.5** | 1.12 | 0.66 | **G** | **27.5** | 1.35 | 0.46 | **V.G** | 0.083 | NS |
| Q7. IBS does not lead to cancer? | **18** | 0.90 | 0.75 | **G** | **24** | 1.20 | 0.61 | **V.G** | 0.042 | S |
| Q8. IBS is Age over 45 years, weight loss? | **19.5** | 0.97 | 0.73 | **G** | **27** | 1.35 | 0.64 | **V.G** | 0.021 | S |
| Q9. Rifaximin is a used to treat in IBS? | **22.5** | 1.12 | 0.66 | **G** | **24** | 1.20 | 0.61 | **V.G** | 0.330 | NS |
| Q10. IBS can be treated.., probiotics,? | **18** | 0.90 | 0.75 | **G** | **22.5** | 1.12 | 0.66 | **V.G** | 0.083 | NS |
| Q11. Using soluble fiber but not with pain? | **18** | 0.90 | 0.75 | **G** | **25.5** | 1.27 | 0.54 | **V.G** | 0.021 | S |
| Q12.Adhering to the FODMAP? | **22.5** | 1.12 | 0.66 | **G** | **27** | 1.35 | 0.64 | **V.G** | 0.083 | NS |
| Q13 . It is noteworthy that dietary IBS? | **10.5** | 0.52 | 0.73 | **W** | **21** | 1.05 | 0.70 | **G** | 0.005 | H.S |
| Q14.IBS symptoms can be control food,…? | **18** | 0.90 | 0.75 | **G** | **22.5** | 1.12 | 0.66 | **G** | 0.083 | NS |

**P- Value < 0.05 is Significant, S= Significant, H.S= High significant , N.S= Non significant M.S = Mean Score. V.W= very weak, W= weak, M= medium, G= good, V.G= very good.**

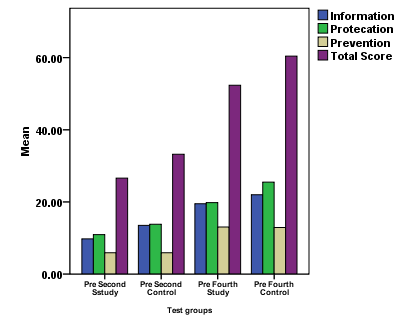
Table (4.9.3) shows there is a statistically significant difference in nursing students knowledge between pre and post- test related to all items of IBS prevention domain because the level of nursing students knowledge is improved from moderate and good to very good related to all IBS prevention domain.

**Table (4-10): Results of pre education program for second and fourth groups**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table (4.10.1) comparison between two groups (study and control) for the second and fourth stage at pre education program | | | | | | |
| ANOVA test for Camper of groups pre education program | | | | | | |
| Information score | | | | | | |
| Groups | **Mean** | **Sd** | **F-value** | **P-value** | **L.S.D .Sig** | **Result** |
| Second study group | 9.75 | 1.97 | **94.49** | **0.00** | **0.00** | **H.Significant** |
| Second control group | 13.50 | 3.38 |
| Fourth study group | **19.50** | 2.51 |
| Fourth control group | **22** | 2.23 |
| protection score | | | | | | |
| Second study group | 10.95 | 2.235 | **105.75** | **0.00** | **0.00** | **H.Significant** |
| Second control group | 13.80 | 3.286 |
| Fourth study group | **19.95** | 3.268 |
| Fourth control group | **25.40** | 2.257 |
| Prevention score | | | | | | |
| Second study group | 5.90 | 0.820 | **332.60** | **0.00** | **0.00** | **H.Significant** |
| Second control group | 5.92 | 1.575 |
| Fourth study group | **13.05** | 1.099 |
| Fourth control group | **12.90** | 2.198 |
| Total score | | | | | | |
| Second study group | 26.60 | 2.505 | **341.40** | **0.00** | **0.00** | **H.Significant** |
| Second control group | 33.22 | 4.175 |
| Fourth study group | **52.35** | 4.155 |
| Fourth control group | **60.40** | 4.238 |

**H. significant= high significant**

Table (4.10.1) shows there are statistically significant differences between study and control group for the fourth and second stage at pre-test before the application program were the fourth stage (study and control) the results appear fourth stage best than the second stage through knowledge.



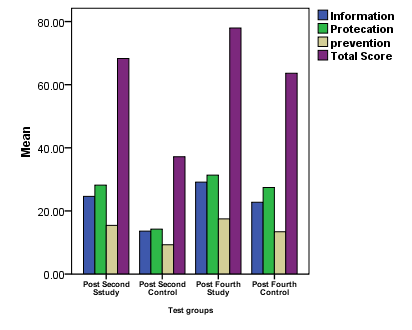
**Figure 4,3 pre education program for second and fourth groups.**

**Table (4- 11) Results of post education program for second and fourth groups**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table (4. 11.1) comparison between two groups (study and control) for the second and fourth stage | | | | | | |
| ANOVA test for Camper of groups post education program | | | | | | |
| Information score | | | | | | |
| Groups | **Mean** | **Sd** | **F- value** | **p- value** | **L.S.D - Sig** | **Result** |
| Second study group | **24.62** | 5.397 | **58.65** | **0.00** | **0.00** | **H.Significant** |
| Second control group | 13.62 | 3.486 |
| Fourth study group | **29.12** | 3.064 |
| Fourth control group | 22.75 | 2.677 |
| protection score | | | | | | |
| Second study group | **28.20** | 2.820 | **138.01** | **0.00** | **0.00** | **H.Significant** |
| Second control group | 14.25 | 2.899 |
| Fourth study group | **31.35** | 2.661 |
| Fourth control group | 27.45 | 3.119 |
| Prevention score | | | | | | |
| Second study group | **15.45** | 0.985 | **92.62** | **0.00** | **0.00** | **H.Significant** |
| Second control group | 9.30 | 1.922 |
| Fourth study group | **17.47** | 1.312 |
| Fourth control group | 13.42 | 2.034 |
| Total score | | | | | | |
| Second study group | **68.27** | 6.046 | **235.18** | **0.00** | **0.00** | **H.Significant** |
| Second control group | 37.17 | 4.359 |
| Fourth study group | **77.95** | 5.170 |
| Fourth control group | 63.62 | 4.599 |

**H. significant= high significant**

Table (4.11) shows there is statistically significant differences between study and control groups for the fourth and second stage at post- test (after the application of an educational program, this result reflects the effectiveness of an educational program on nursing students knowledge.



**Figure (4.4) post education program for second and fourth group**

**Tables (4-12): Results of the demography’s relationships with knowledge of IBS pre education program**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table (4.12.1)Correlation of sex with groups’ knowledge about IBS pre education program | | | | | |
| Sex | | | | | |
| Information score | **Mean** | | **T**  **Test** | **P-value** | **result** |
| **male** | **Female** |
| Second study group | 10 | 9.583 | **0.454** | **0.656** | N.S |
| Second control group | 14.72 | 12.50 | 1.510 | 0.148 | N.S |
| Fourth study group | 17.81 | 20.62 | **2.886\*\*** | **0.010** | **S** |
| Fourth control group | 21.66 | 22.27 | 0.583 | 0.561 | N.S |
| protection score | **Mean** | | **T**  **Test** | **P-value** | **result** |
| **male** | **Female** |
| Second study group | 10.5 | 11.25 | **0.726** | **0.477** | N.S |
| Second control group | 13.00 | 14.45 | 0.984 | 0.338 | N.S |
| Fourth study group | 19.87 | 19.75 | 0.089 | 0.930 | N.S |
| Fourth control group | 26.33 | 24.81 | 1.528 | 0.144 | N.S |
| Prevention score | **Mean** | | **T**  **Test** | **P-value** | **result** |
| **male** | **Female** |
| Second study group | 5.81 | 5.95 | **0.380** | **0.708** | N.S |
| Second control group | 5.50 | 6.27 | 1.097 | 0.287 | N.S |
| Fourth study group | 13.31 | 12.87 | 0.866 | 0.398 | N.S |
| Fourth control group | 13.66 | 12.27 | 1.451 | 0.164 | N.S |
| Total score | **Mean** | | **T**  **Test** | **P-value** | **result** |
| **Male** | **Female** |
| Second study group | 26.31 | 26.79 | **0.410** | **0.687** | N.S |
| Second control group | 33.22 | 33.27 | 0.003 | 0.998 | N.S |
| Fourth study group | 51.00 | 53.25 | 1.200 | 0.246 | N.S |
| Fourth control group | 61.66 | 59.36 | 1.225 | 0.236 | N.S |

**S= Significant ,N.S= Non-significant**

Table (4.12-1) shows there is no statistically significant differences between sex and nursing students knowledge regarding all domains of irritable bowel syndrome except the knowledge of study group of the fourth stage have statistically significant with sex in the information domain when analyzed by independent t-test.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table (4.12.2)Correlation of Social status with groups’ knowledge about IBS pre education program | | | | | | |
| Social status | | | | | | |
| Information score | **Mean** | | | **F**  **Test** | **P-value** | **Result** |
| **Single** | **Married** | **Devised** |
| Second study group | 9.58 | 8.75 | 13.75 | 9.20 | 0.002 | **H.S** |
| Second control group | 13.40 | 12.85 | 16.25 | 0.772 | 0.478 | N.S |
| Fourth study group | 19.31 | 20.50 | 18.75 | 0.756 | 0.573 | N.S |
| Fourth control group | 22.14 | 22.50 | 21.00 | 0.691 | 0.515 | N.S |
| protection score | **Mean** | | | **F**  **Test** | **P-value** | **Result** |
| **Single** | **Married** | **Devised** |
| Second study group | 11.50 | 10.50 | 9.00 | 1.283 | 0.303 | N.S |
| Second control group | 14.18 | 14.57 | 9.00 | 0.322 | 0.166 | N.S |
| Fourth study group | 20.45 | 18.00 | 20.25 | 1,252 | 0.311 | N.S |
| Fourth control group | 24.42 | 27.00 | 24.60 | **3.711** | **0.046** | **N.S** |
| Prevention score | **Mean** | | | **F**  **Test** | **P-value** | **Result** |
| **Single** | **Married** | **Devised** |
| Second study group | 5.75 | 6.00 | 6.50 | 0.760 | 0.483 | N.S |
| Second control group | 6.27 | 5.35 | 6.00 | 0.703 | 0.509 | N.S |
| Fourth study group | 13.22 | 12.90 | 12.75 | 0.314 | 0.735 | N.S |
| Fourth control group | 12.85 | 13.12 | 12.60 | 0.081 | 0.922 | N.S |
| Total score | **Mean** | | | **F**  **Test** | **P-value** | **Result** |
| **Single** | **Married** | **Devised** |
| Second study group | 26.83 | 25.25 | 29.25 | **2.232** | **0.126** | N.S |
| Second control group | 33.86 | 32.78 | 31.25 | 0.202 | 0.394 | N.S |
| Fourth study group | 53.00 | 51.40 | 52.35 | 0.284 | 0.756 | N.S |
| Fourth control group | 59.42 | 62.62 | 58.20 | 2.209 | 0.140 | N.S |

**S= Significant ,N.S= Non-significant**

Table (4.12-2) shows there is no statistically significant differences between social status and nursing students knowledge regarding all domains of irritable bowel syndrome except the knowledge of study group of the second stage have of the statistically significant with social status in the information domain when analyzed by ANOVA test.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table (4.12.3)Correlation of income with groups’ knowledge about IBS pre education program | | | | | |
| Income | | | | | |
| Information score | **Mean** | | **T**  **Test** | **P-value** | **Result** |
| **Enough** | **Not enough** |
| Second study group | 9.31 | 10.27 | 1.089 | 0.291 | N.S |
| Second control group | 13.54 | 13.43 | 0.066 | 0.948 | N.S |
| Fourth study group | 19.58 | 19.46 | 0.095 | 0.926 | N.S |
| Fourth control group | 22.50 | 21.50 | 1.000 | 0.331 | N.S |
| protection score | **Mean** | | **T**  **Test** | **P-value** | **Result** |
| **Enough** | **Not enough** |
| Second study group | 10.90 | 11.00 | 0.089 | 0.931 | N.S |
| Second control group | 13.25 | 14.62 | 0.913 | 0.374 | N.S |
| Fourth study group | 21.50 | 19.07 | 1.757 | 0.096 | N.S |
| Fourth control group | 24.60 | 26.40 | 1.877 | 0.077 | N.S |
| Prevention score | **Mean** | | **T**  **Test** | **P-value** | **Result** |
| **Enough** | **Not enough** |
| Second study group | 5.90 | 5.88 | 0.053 | 0.958 | N.S |
| Second control group | 5.75 | 6.18 | 0.140 | 0.557 | N.S |
| Fourth study group | 13.00 | 13.07 | 0.130 | 0.898 | N.S |
| Fourth control group | 12.45 | 13.35 | 0.911 | 0.374 | N.S |
| Total score | **Mean** | | **T**  **Test** | **P-value** | **Result** |
| **Enough** | **Not enough** |
| Second study group | 26.13 | 27.16 | 0.911 | 0.374 | N.S |
| Second control group | 32.54 | 34.25 | 0.892 | 0.384 | N.S |
| Fourth study group | 54.08 | 51.60 | 1.238 | 0.232 | N.S |
| Fourth control group | 59.55 | 61.25 | 0.206 | 0.384 | N.S |

**S= Significant ,N.S= Non-significant**

Table (4.12.3) shows there is no statistically significant differences between monthly income and nursing students knowledge regarding all domains of irritable bowel syndrome when analyzed by t- test.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Table (4.12.4)Correlation of eating with groups’ knowledge about IBS pre education program | | | | | | | |
| Eating | | | | | | | |
| Information score | **Mean** | | | | **F**  **Test** | **P-value** | **Result** |
| **Fast** | **House** | | **Canned** |
| Second study group | 9.28 | 10.00 | | 10.00 | 0.276 | 0.762 | N.S |
| Second control group | 13.00 | 13.49 | | 14.37 | 0.176 | 0.840 | N.S |
| Fourth study group | 18.75 | 19.77 | | 22.50 | 1.152 | 0.340 | N.S |
| Fourth control group | 21.07 | 22.50 | | 22.50 | 0.921 | 0.417 | N.S |
| protection score | **Mean** | | | | **F**  **Test** | **P-value** | **Result** |
| **Fast** | **House** | **Canned** | |
| Second study group | 10.71 | 11.10 | 11.00 | | 0.056 | 0.946 | N.S |
| Second control group | 12.00 | 14.72 | 13.50 | | 1.234 | 0.316 | N.S |
| Fourth study group | 19.87 | 19.90 | 18.00 | | 0.175 | 0.841 | N.S |
| Fourth control group | 25.71 | 25.36 | 25.50 | | 0.045 | 0.956 | N.S |
| Prevention score | **Mean** | | | | **F**  **Test** | **P-value** | **Result** |
| **Fast** | **House** | | **Canned** |
| Second study group | 5.35 | **6.35** | | 5.66 | **4.227** | **0.032** | **S** |
| Second control group | 6.00 | 5.72 | | 6.37 | 0.235 | 0.793 | N.S |
| Fourth study group | 12.75 | 13.36 | | 12.00 | 0.031 | 0.898 | N.S |
| Fourth control group | 12.64 | 12.54 | | 15.75 | 2.086 | 0.155 | N.S |
| Total score | **Mean** | | | | **F**  **Test** | **P-value** | **Result** |
| **Fast** | **House** | | **Canned** |
| Second study group | 25.35 | 27.45 | | 26.66 | 1.515 | 0.248 | N.S |
| Second control group | 31.00 | 33.86 | | 34.25 | 0.955 | 0.405 | N.S |
| Fourth study group | 51.37 | 53.04 | | 52.50 | 0.349 | 0.710 | N.S |
| Fourth control group | 59.42 | 60.40 | | 63.75 | 0.791 | 0.469 | N.S |

**S= Significant ,N.S= Non-significant**

Table (4.12-4) shows there is no statistically significant differences between monthly income and nursing students knowledge regarding all domains of irritable bowel syndrome except the knowledge of study group of the second stage have of the statistically significant with monthly income in the preventive domain when analyzed by ANOVA test.

**Table (4-13): Results the demography’s relationships with knowledge of IBS post education program**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table (4.13.1)Correlation of sex with groups’ knowledge about IBS post education program | | | | | |
| Sex | | | | | |
| Information score | **Mean** | | **T**  **Test** | **P-value** | **Result** |
| **Male** | **Female** |
| Second study group | 23.37 | 24.79 | 0.165 | 0.871 | N.S |
| Second control group | 14.06 | 13.33 | 0.448 | 0.659 | N.S |
| Fourth study group | 28.12 | 29.79 | **1.206** | **0.244** | **N.S** |
| Fourth control group | 22.22 | 23.18 | 0.789 | 0.440 | N.S |
| protection score | **Mean** | | **T**  **Test** | **P-value** | **Result** |
| **Male** | **Female** |
| Second study group | 28.50 | 28.00 | 0.379 | 0.709 | N.S |
| Second control group | 14.25 | 14.25 | 0.000 | 1.000 | N.S |
| Fourth study group | 30.37 | 32.00 | 1.368 | 0.188 | N.S |
| Fourth control group | 27.66 | 27.27 | 0.274 | 0.787 | N.S |
| Prevention score | **Mean** | | **T**  **Test** | **P-value** | **Result** |
| **Male** | **Female** |
| Second study group | 15.37 | 15.50 | 0.271 | 0.789 | N.S |
| Second control group | 9.25 | 9.37 | 0.139 | 0.891 | N.S |
| Fourth study group | 17.50 | 17.43 | 0.102 | 0.920 | N.S |
| Fourth control group | 13.83 | 13.09 | 0.804 | 0.432 | N.S |
| Total score | **Mean** | | **T**  **Test** | **P-value** | **Result** |
| **Male** | **Female** |
| Second study group | 68.25 | 68.29 | 0.015 | 0.988 | N.S |
| Second control group | 36.83 | 37.68 | 0.420 | 0.680 | N.S |
| Fourth study group | 79.29 | 75.93 | 1.463 | 0.161 | N.S |
| Fourth control group | 63.72 | 63.54 | 0.083 | 0.935 | N.S |

**S= Significant ,N.S= Non-significant**

Table (4.13.1) shows there is no statistically significant differences between sex and nursing students knowledge regarding all domains of irritable bowel syndrome when analyzed by dependent t-test

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table (4.13.2)Correlation of Social status with groups’ knowledge about IBS post education program | | | | | | |
| Social status | | | | | | |
| Information score | **Mean** | | | **F**  **Test** | **P-value** | **Result** |
| **Single** | **Married** | **Devised** |
| Second study group | 24.16 | 25.00 | 26.25 | 0.135 | 0.875 | N.S |
| Second control group | 13.54 | 12.91 | 16,25 | 0.670 | 0.525 | N.S |
| Fourth study group | 28.40 | 30.00 | 30.00 | 0.240 | 0.642 | N.S |
| Fourth control group | 22.50 | 23.43 | 22.00 | 0.463 | 0.637 | N.S |
| protection score | **Mean** | | | **F**  **Test** | **P-value** | **Result** |
| **Single** | **Married** | **devised** |
| Second study group | 27.50 | 29.50 | 28.50 | 1.020 | 0.382 | N.S |
| Second control group | 14.25 | 15.00 | 12.00 | 0.785 | 0.472 | N.S |
| Fourth study group | 32.18 | 31.20 | 29.25 | 1.975 | 0.169 | N.S |
| Fourth control group | 26.14 | 28.50 | 27.60 | 1.082 | 0.361 | N.S |
| Prevention score | **Mean** | | | **F**  **Test** | **P-value** | **Result** |
| **Single** | **Married** | **devised** |
| Second study group | 15.37 | 16.00 | 14.25 | 2.958 | 0.079 | N.S |
| Second control group | 8.75 | 10.25 | 9.75 | 1.322 | 0.293 | N.S |
| Fourth study group | 17.45 | 17.00 | 18.00 | 0.498 | 0.617 | N.S |
| Fourth control group | 13.28 | 14.06 | 12.60 | 0.803 | 0.464 | N.S |
| Total score | **Mean** | | | **F**  **Test** | **P-value** | **Result** |
| **Single** | **Married** | **devised** |
| Second study group | 67.04 | 70.50 | 69.00 | 0.645 | 0.537 | N.S |
| Second control group | 36.54 | 38.16 | 38.00 | 0.294 | 0.749 | N.S |
| Fourth study group | 78.04 | 78.30 | 77.25 | 0.045 | 0.956 | N.S |
| Fourth control group | 61.92 | 66.00 | 62.20 | 1.963 | 0.171 | N.S |

**S= Significant ,N.S= Non-significant**

Table (4.13.2) shows there is no statistically significant differences between social status and nursing students knowledge regarding all domains of irritable bowel syndrome when analyzed by ANOVA test.

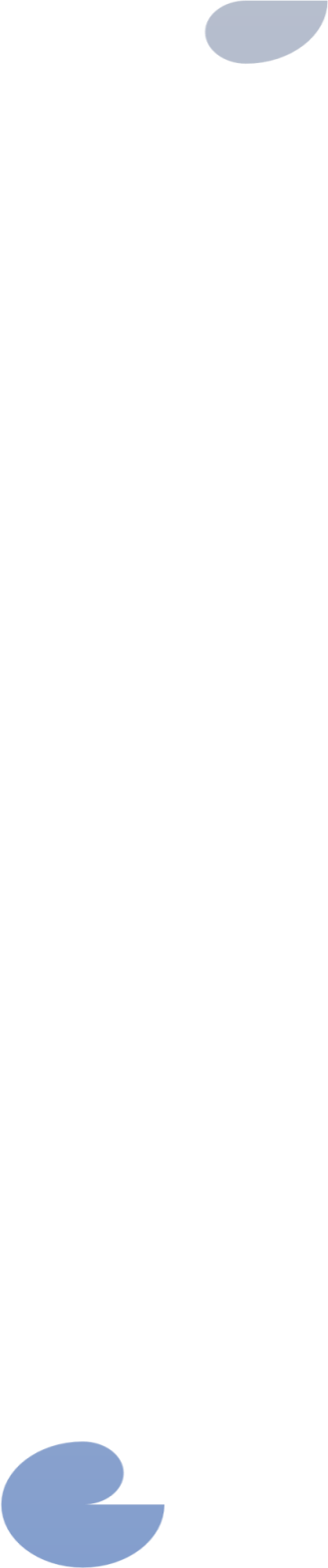
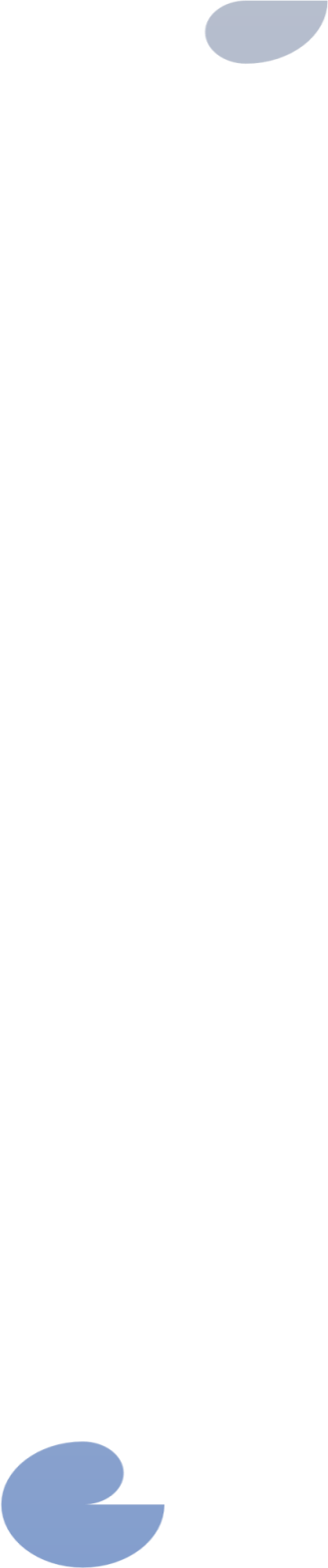
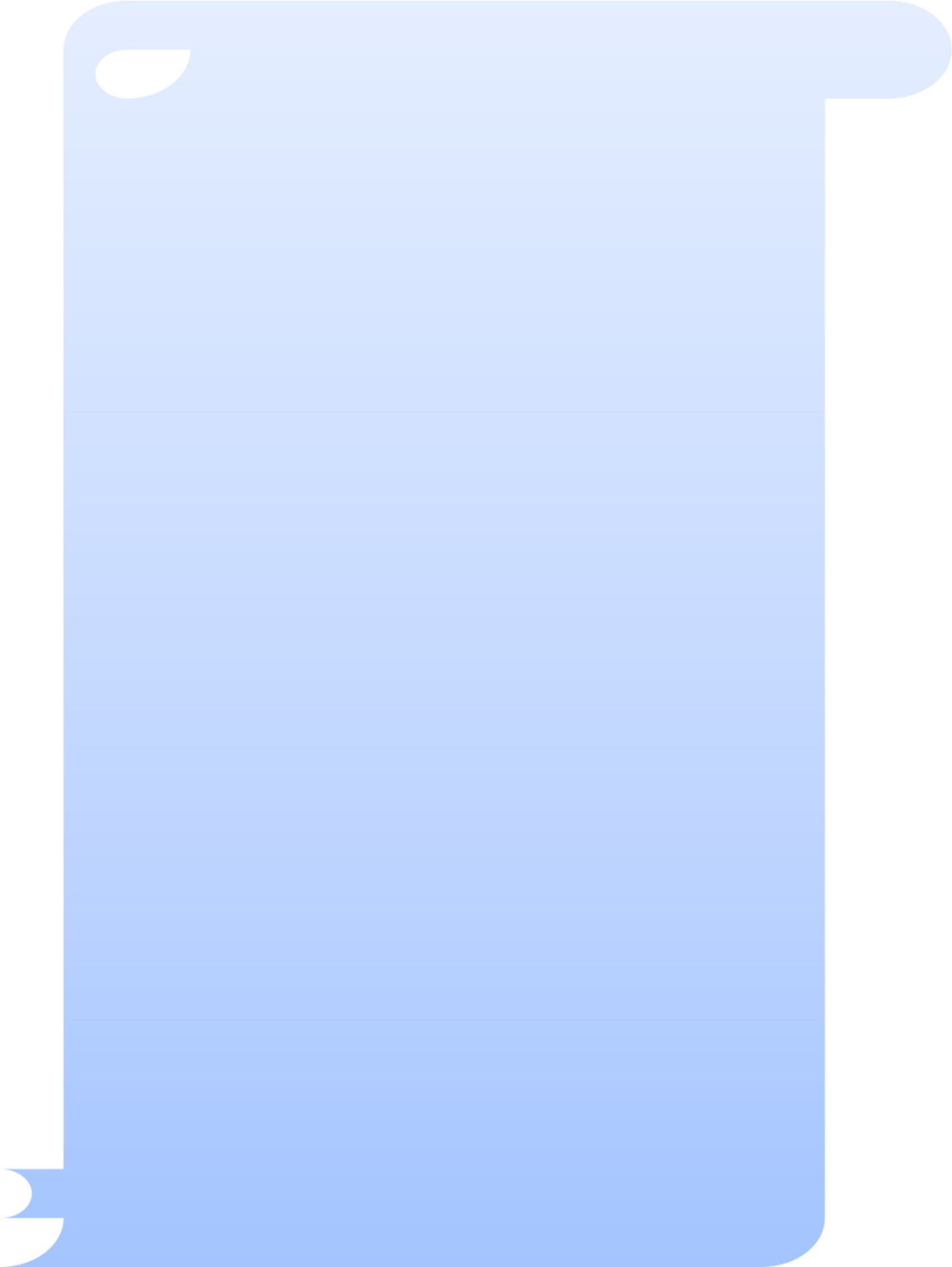
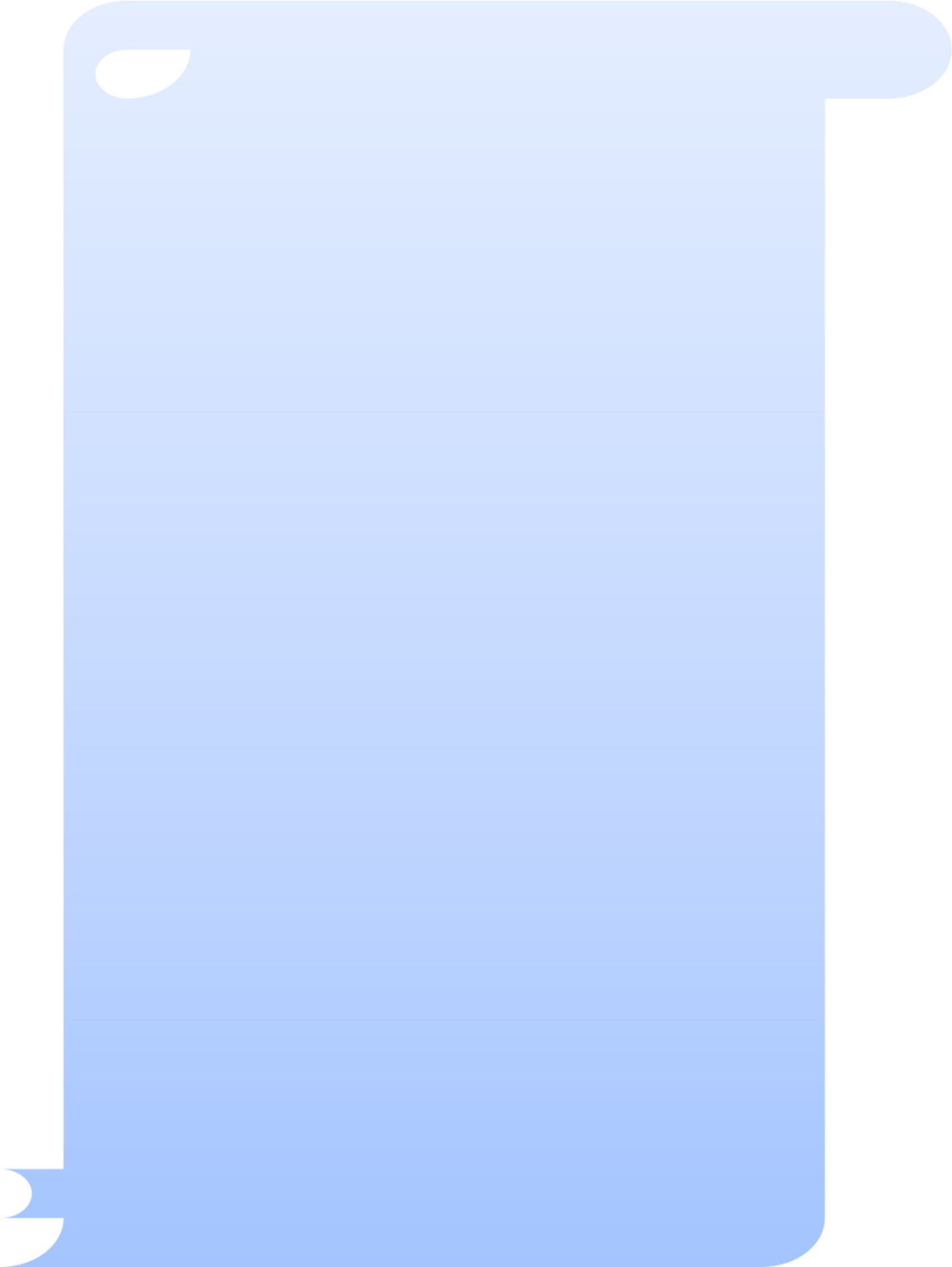
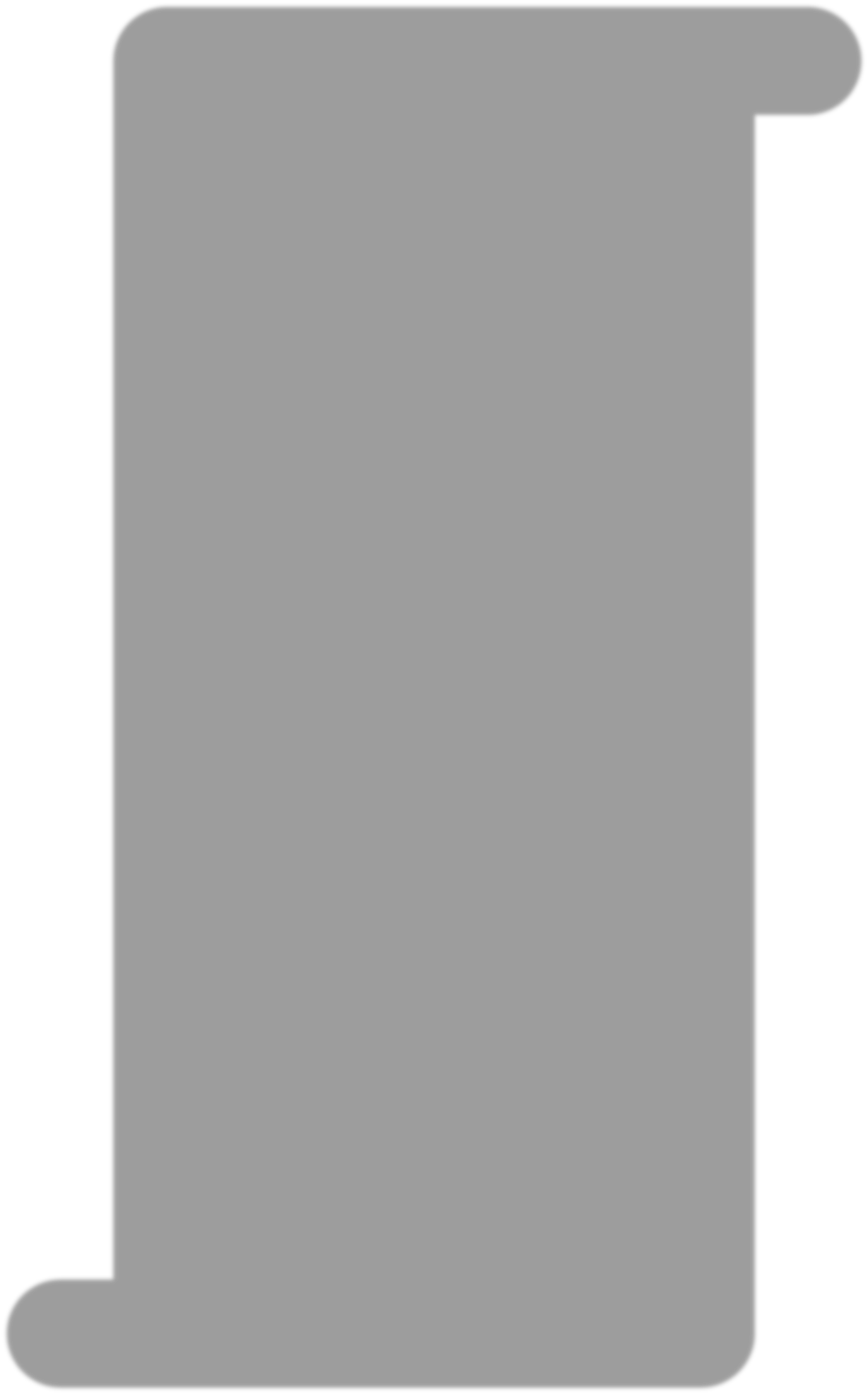
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table (4.13.3)Correlation of income with groups’ knowledge about IBS post education program | | | | | |
| Income | | | | | |
| Information score | **Mean** | | **T**  **Test** | **P-value** | **Result** |
| **Enough** | **Not enough** |
| Second study group | 24.31 | 25.00 | 0.274 | 0.787 | N.S |
| Second control group | 12.72 | 14.72 | 1.296 | 0.211 | N.S |
| Fourth study group | 28.75 | 29.28 | 0.350 | 0.730 | N.S |
| Fourth control group | 22.75 | 22.75 | 0.000 | 1.000 | N.S |
| protection score | **Mean** | | **T**  **Test** | **P-value** | **Result** |
| **Enough** | **Not enough** |
| Second study group | 28.63 | 27.66 | 0.756 | 0.459 | N.S |
| Second control group | 14.72 | 13.66 | 0.806 | 0.431 | N.S |
| Fourth study group | 30.00 | 31.92 | 1.538 | 0.142 | N.S |
| Fourth control group | 27.30 | 27.60 | 0.210 | 0.836 | N.S |
| Prevention score | **Mean** | | **T**  **Test** | **P-value** | **Result** |
| **Enough** | **Not enough** |
| Second study group | 15.68 | 15.66 | 1.175 | 0.255 | N.S |
| Second control group | 9.68 | 8.83 | 0.981 | 0.340 | N.S |
| Fourth study group | 17.00 | 17.63 | 1.063 | 0.302 | N.S |
| Fourth control group | 13.05 | 13.80 | 0.817 | 0.425 | N.S |
| Total score | **Mean** | | **T**  **Test** | **P-value** | **Result** |
| **Enough** | **Not enough** |
| Second study group | 68.63 | 67.83 | 0.288 | 0.776 | N.S |
| Second control group | 37.13 | 37.22 | 0.043 | 0.966 | N.S |
| Fourth study group | 75.75 | 78.98 | 1.265 | 0.222 | N.S |
| Fourth control group | 63.10 | 64.15 | 0.500 | 0.623 | N.S |

**S= Significant ,N.S= Non-significant**

Table (4.13.3) shows there is no statistically significant differences between monthly income and nursing students knowledge regarding all domains of irritable bowel syndrome when analyzed by t- test.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Table (4.13.4) Correlation of eating with groups’ knowledge about IBS post education program | | | | | | | |
| Eating | | | | | | | |
| Information score | **Mean** | | | | **F**  **Test** | **P-value** | **Result** |
| **Fast** | **House** | | **Canned** |
| Second study group | 26.42 | 24.50 | | 20.83 | 1.152 | 0.339 | N.S |
| Second control group | 13.57 | 13.00 | | 15.83 | 0.743 | 0.491 | N.S |
| Fourth study group | 28.75 | 29.09 | | 32.50 | 0.642 | 0.539 | N.S |
| Fourth control group | 21.42 | 23.86 | | 21.25 | 2.438 | 0.117 | N.S |
| protection score | **Mean** | | | | **F**  **Test** | **P-value** | **Result** |
| **Fast** | **House** | **Canned** | |
| Second study group | 27.85 | 28.50 | 28.00 | | 0.105 | 0.901 | N.S |
| Second control group | 13.28 | 14.40 | 16.00 | | 0.941 | 0.410 | N.S |
| Fourth study group | 31.50 | 31.36 | 30.00 | | 0.192 | 0.880 | N.S |
| Fourth control group | 25.71 | 28.36 | 28.50 | | 1.810 | 0.194 | N.S |
| Prevention score | **Mean** | | | | **F**  **Test** | **P-value** | **Result** |
| **Fast** | **House** | | **Canned** |
| Second study group | 15.42 | 15.75 | | 14.50 | 2.068 | 0.157 | N.S |
| Second control group | 8.57 | 9.60 | | 10.00 | 0.807 | 0.463 | N.S |
| Fourth study group | 18.18 | 16.90 | | 18.00 | 2.685 | 0.097 | N.S |
| Fourth control group | 13.07 | 13.09 | | 16.50 | 3.100 | 0.071 | N.S |
| Total score | **Mean** | | | | **F**  **Test** | **P-value** | **Result** |
| **Fast** | **House** | | **Canned** |
| Second study group | 69.71 | 68.75 | | 63.33 | 1.265 | 0.307 | N.S |
| Second control group | 35.42 | 37.00 | | 41.83 | 2.688 | 0.097 | N.S |
| Fourth study group | 78.43 | 77.36 | | 80.50 | 0.201 | 0.814 | N.S |
| Fourth control group | 60.21 | 65.31 | | 66.25 | **3.915\*** | **0.040** | **S** |

Table (4.13.4) shows there is no statistically significant differences between monthly income and nursing students knowledge regarding all domains of irritable bowel syndrome except the knowledge of control group of the fourth stage have statistically significant in the total score with monthly income when analyzed by ANOVA test



**Chapter Five**

**Discussion of the Results**

**Chapter Five**

**Discussion of the Results**

This chapter presents a systematically organized interpretation and reasonably derived discussion of the results with the support of the available literature and related studies.

**Part one: Discussion of Socio-Demographic Characteristic of nursing students at second and fourth stage for both study and control groups**

**1. Age Groups**

Regarding to nursing students age group, the study result reveals that the highest percentage (51.2%) of participants at (23-26) years old. Table )4-1)

This finding is consistent with the study of Vasquez-Rios, (2019) who reported that the majority (66.8%) of nurses aged at or more than 22-years.

On the other hand, this finding is inconsistent with that of Alshammari et al., (2018) who conducted a study regarding Prevalence of Irritable Bowel Syndrome among Medical Students in Hail University, Saudi Arabia, through which reported that the minority (36.8%) of nurses aged at 24-26 years old.

**2. Gender**

Concerning nurses gender, the findings of the current study reveals the majority (57.5 %) of participants were female for the study and control groups. Table (4-1)

This result in consistent with the study conducted at Baghdad city by Najm and Hassan, (2016) who reported the majority (56.6%) of participants were female for both study and control groups.

On other hand, these results supported with the findings of Brown-Lieberson, (2019), who found (56.1%) of the control and study group of his study sample was female, but the findings of the current study inconsistent with another study conducted by Almezani, (2018) who revealed the majority (48.1%) of participants were male.

**3. Social status**

Based on the study results, the most of participants in both study and control groups are single (51.25%). Table (4-1)

This result is consistent with the study of Almezani, (2018) who reported the majority (95.5 %) of participants in both study and control groups were single. Another unsupported evidence has been found by Khan et al., (2019), who observed that the majority (43.4 %) of the sample were single. these findings disagree with study performed by Hassan, (2016), who found that minority of participants in the study and control groups (21.4%) were single.

**4. Monthly Income:**

The findings of current study reveal the majority (51.2%) of participants in both groups (study and control) have not enough monthly income, Table (4-1)

This finding agreed with a study done by (Vasquez-Rios, et al. 2019) who indicated (51.5%) of patients (study and control groups) who had somewhat not enough monthly income. However, this result disagreed with a study established by Elhosseiny et al., (2019), who reported the majority (57.5%) of participants who had enough monthly income.

**5. Eating:**

The majority of participants present with not enough income this result may reveal the reason for the majority of participant's source of eating was a house and keep away from the fast food that presents with a high cost. Table (4-1)

**6. Level of education:**

Concerning nursing students level of education, the study findings displayed the majority of participant (nursing students) were equally distributed (the percentage of second stage was 50% and fourth stage was (50%). Table (4-1)

This result is consistent with a study carried out by Khan et al., (2019) who reported that the second stage percentage was (26.9%) and fourth stage percentage was( 25.7%). But this result is inconsistent with another study results that carried out by Alshammari et al., (2018) who showed that the percentage of second stage was 9.8% and fourth stage was (20.3%).

Regarding the result of this study reveal the level of the second stage of nursing students related to the questionnaire domain before education program based on the total mean of the score is weak for both groups study and control. Table (4-2)

Regarding the result of this study reveal the significant differences between pre and post-test of all irritable bowel syndrome domains for the study group when analyzed by t-test, the knowledge level of nursing students improved from weak to good level after the educational program, this result reflects the effectiveness of an educational program. Table (4-3)

Regarding the result of this study reveal the level of the fourth stage of nursing students related to questionnaire domain before education program based on the total mean of the score is a median for groups study and good for the control group. Table (4-4)

Regarding the result of this study reveals there are statistically significant differences between pre and post-test of all irritable bowel syndrome domains for the study group when analyzed by t-test, the knowledge level of nursing students improved from median to good level after the educational program, this result reflects the effectiveness of the educational program. Table (4-5)

**Part two: Discussion The Comparison Between Study and Control Groups For Pre and Post Test through paired sample t-test in Both Stages (Study and Control Stages)**

Regarding to the knowledge of nursing students (second stage) concerning preventative measure of irritable bowel, the findings reveal there are statistically significant differences between pre and post-test for the study group, but reveals there are no significant differences between pre and post-test in the control group related to all domains of preventative measure of irritable bowel syndrome except prevention domains when analyzed by paired sample t-test.

Regarding to the knowledge of nursing students (fourth stage) concerning preventative measure of irritable bowel, the findings reveal there are statistically significant differences between pre and post-test for the study group, but reveals there are no significant differences between pre and post-test in the control group related to all domains of preventative measure of irritable bowel syndrome analyzed by paired sample t-test. Tables (4-6; 4-7)

This result is consistent with study conducted by Najm and Hassan, (2016), to determine the effectiveness of an instructional program concerning knowledge on clients with irritable bowel syndrome in liver and digestive disease hospital in Baghdad city, who reported the effectiveness of an instructional program in improving the knowledge of client in the study group.

Also, the result of the current study consistent with the study conducted by Ghiyasvandian, (2015) to determine the effect of a self-care program on the severity symptom and quality of life of patients with IBS, who reported the implementation self-care program resulted in the improvement of the equality of life and reduction in the severity of symptom in the group that exposed to the program, whereas the finding reveals no significant change was observed in the group that not exposed to the program.

Another study conducted by Zheng et al., (2019), supported the current study, who perform a health education program to improve QOL in students with irritable bowel syndrome, who reported a significant difference was observed between the no education group and education group.

Also, the result of the current study consistent with the study conducted by Mahmoudi et al., (2019) to evaluate IBS knowledge, attitude and practice amongst community pharmacist’s in Iran, who reported the answer of the pharmacist’s after a training course related to all question was correct, also the IBS training courses are improving the pharmacist’s in assessing patients with IBS, as they are easily accessible healthcare professionals.

Another study conducted by Borji et al., (2012), supported the current study, who perform Association between Irritable Bowel Syndrome and Restless Legs Syndrome (RLS): A Comparative Study With Control Group, who reported a significantly higher prevalence of (RLS) in IBS patients.

In addition, study is consistent with the result of the current study was conducted by Khan et al., (2019) to estimate Assessment of knowledge and related risk factors of irritable bowel syndrome in Alahsa, Saudi Arabia, who reported there should be programs regarding IBS awareness to increase the knowledge and decrease functional disabilities and impact on life

Further, a study is inconsistent with the result of the current study was conducted by Bengtsson et al., (2010) to estimate a Holistic Approach for Planning Care of Patients with Irritable Bowel Syndrome, who reported there were no statistically significant differences between the two groups in the present study or compared to the subjects who had GI diseases but not IBS.

Regarding the result of this study, it reveals that the knowledge of nursing students (second stage-study group) regarding information domain was presented at (very weak, weak, and moderate) at pre-test, but their knowledge improved after the application of the educational program to become their levels at (moderate, good, and very good) at post-test, on the other hand, in the protection domain was presented at (very weak, weak, and moderate) at pre-test, but their knowledge improved after the application of the educational program to become their level of knowledge at (good, and very good) at post-test, and about prevention domain was presented at (very weak, weak) except the item 1 and 2 their level presented at medium and the item 3 their level presented at a good level at pre-test, but their knowledge improved after the application of the educational program to become their level of knowledge at (medium, good, and very good) at post-test, the result in this tables show it is statistically significant in nursing students knowledge between pre and post-test toward all items of IBS all domains, this results reveals improving in the nursing students knowledge regarding the preventative measure of irritable bowel syndrome after the application of the educational program. Table(4-8)

Regarding the result of this study, it reveals that there is a statistically significant in nursing students knowledge (fourth stage-study group) between pre and post-test related to all items of IBS protection domain except item (1, 6,10, 13, 15) shows there is no statistically significant between pre and post-test, on other hand a statistically significant in nursing students knowledge between pre and post-test related to all items of IBS protection domain except item (10) shows there is no statistically significant between pre and post tester, also there is a statistically significant difference in nursing students knowledge between pre and post-test related to all items of IBS prevention domain because the level of nursing students knowledge is improved from moderate and good to very good related to all IBS prevention domain. Table (4-9)

Regarding the result of this study, it reveals that there are statistically significant differences between study and control group for the fourth and second stage at pre-test before the application program were the fourth stage (study and control) the results appear fourth stage best than the second stage through knowledge. Table (4-10)

Regarding the result of this study, it reveals that there are differences between the study and control group for the fourth and second stage at post-test, after the application of an educational program, this result reflects the study groups in both (second and fourth stages) is the best due to effectiveness of an educational program on nursing students' knowledge. Table (4-11)

**Part three: Discussion the Association Between Demographic Variables of the Second and Fourth Stage for Both Study and Control Groups and Their Knowledge Regarding Preventative Measures of Irritable Bowel Syndrome at post-test**

The study findings reveal there are no statistically significant association between demographic characteristics include (age, sex, social status, monthly income, eating, and education) and their knowledge of nursing students (second and fourth stage) regarding all domains for preventative measures of IBS, except there is a significant association between monthly income of the fourth stage-control group and the information domain when analyzed by t- test and ANOVA test. Tables (4-12;4-13)

The result of current study is in consisted with the study conducted by Abo-Elfetoh, (2016) to determine the overall prevalence of each type and risk factors of IBS among Northern Border University Students of Saudi Arabia, who revealed there is no significant association with socio-demographic data and smoking.

On the other hand, a study conducted by Darweesh et al., (2015) consistent with the current study, carried out to The Prevalence of Irritable Bowel Syndrome among Medical and Non-Medical Suez Canal University Students, who reported there is no significant relation between the sex of students of both faculties and the type of IBS as in the most common type of IBS.

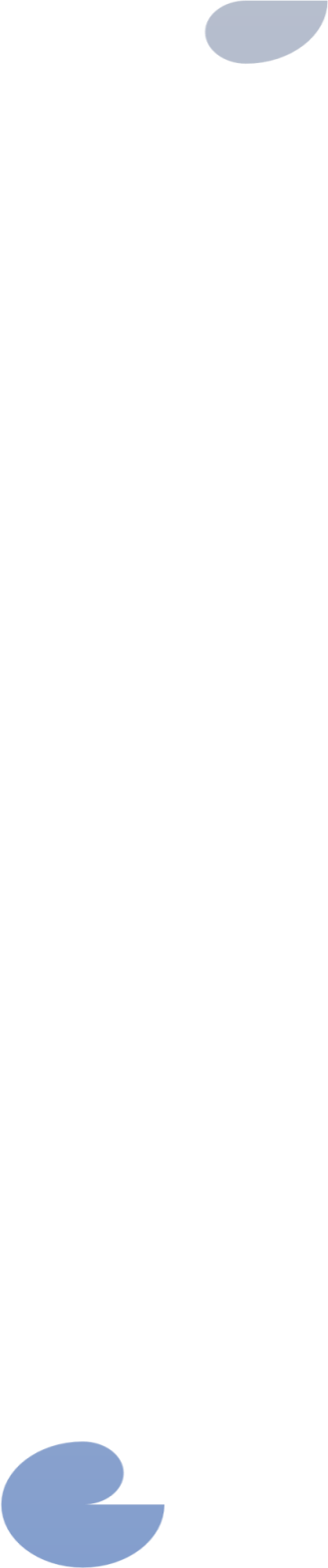
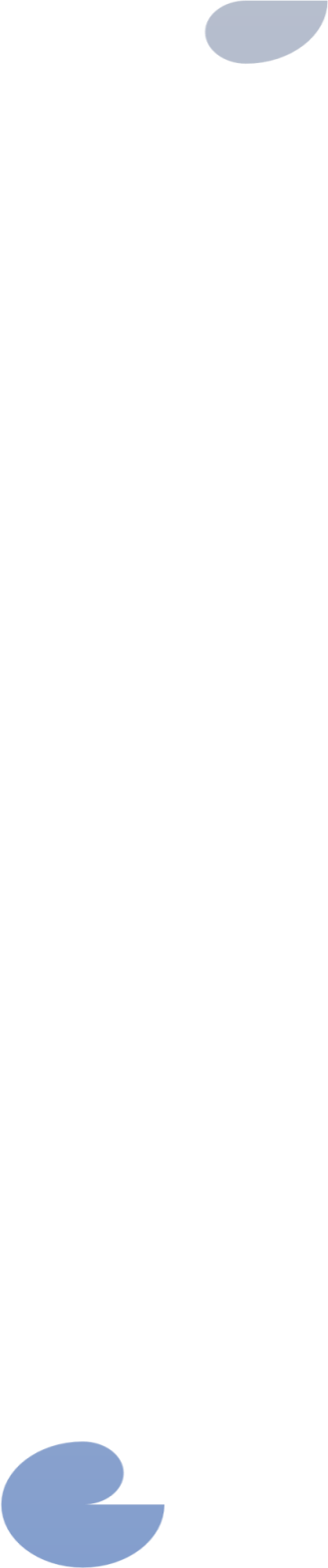
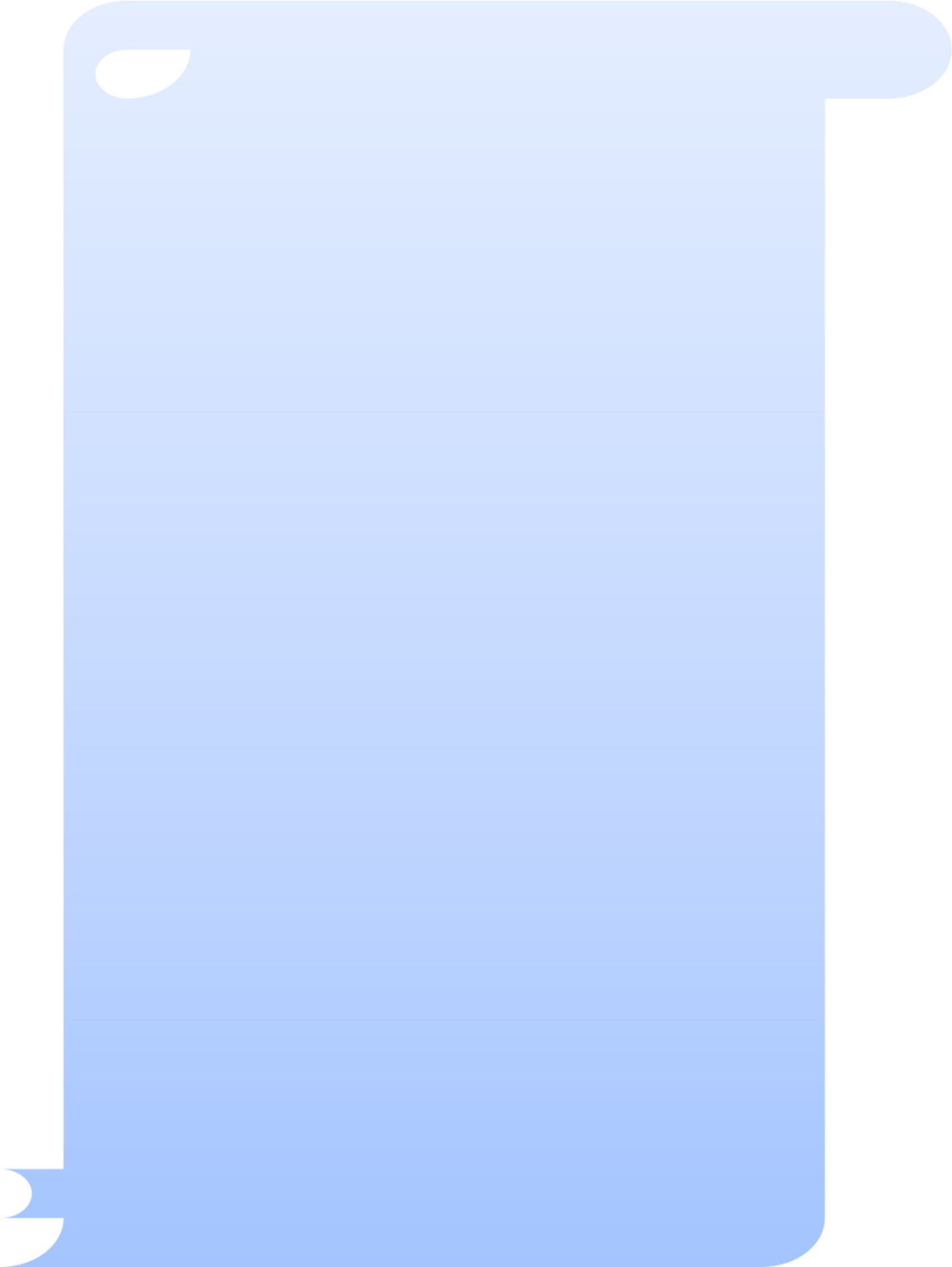
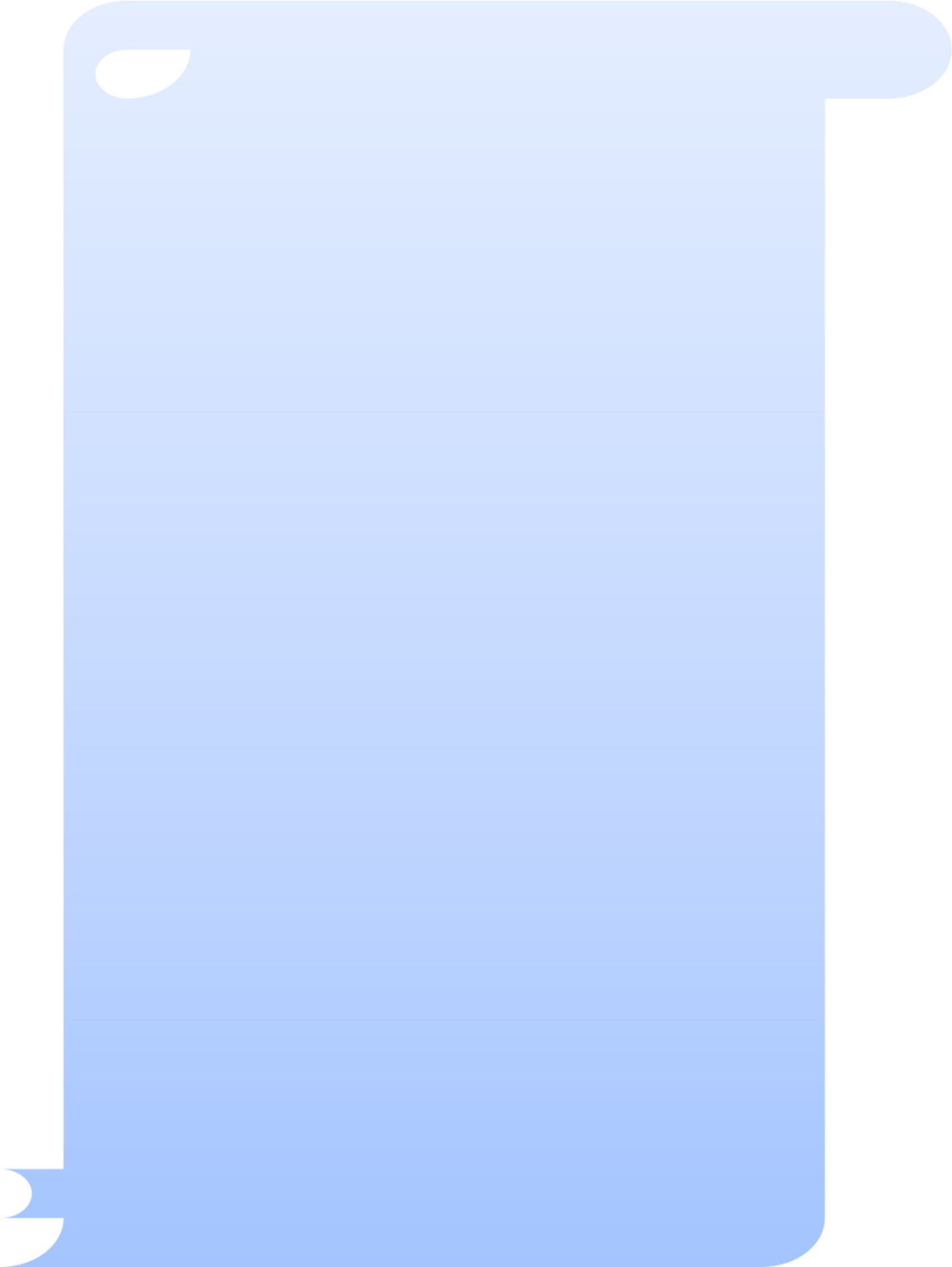
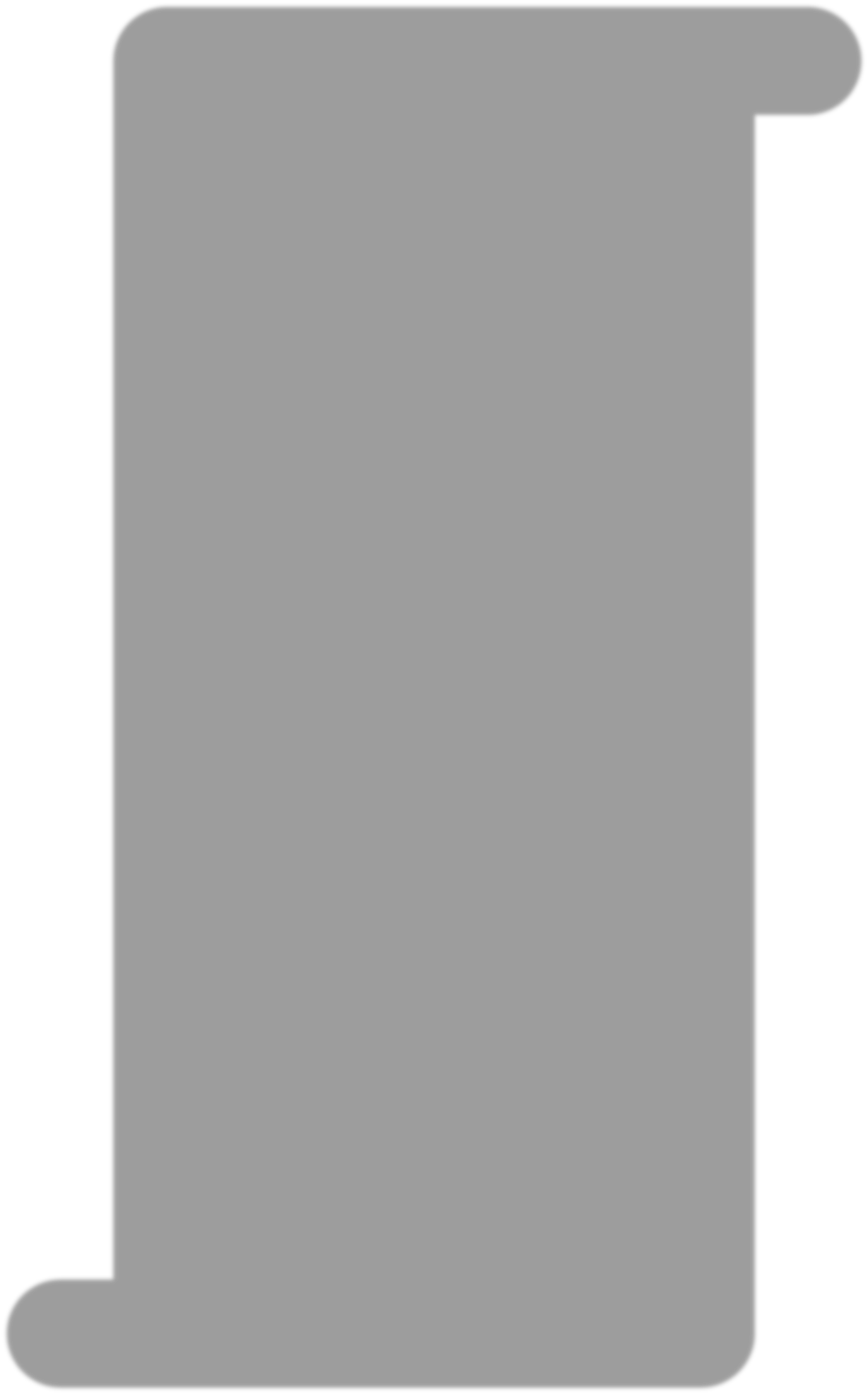
Also, the result of the current study agree of the study conducted by Purdy, (2016) to nurse practitioners’ knowledge, attitudes, and perceptions regarding irritable bowel syndrome and treatment, who revealed there are no statistically significant correlations among knowledge, attitudes, and perceptions, and nursing education level, gender, age, or years of nursing experience.

Otherwise, a study conducted by Hakami et al., (2019) inconsistent with the current study, carried out to the assessment of prevalence and risk factors in Saudi University students using Rome iv criteria, who reported The study showed that there was a significant difference in IBS prevalence between different college types and different living conditions.

A study conducted by Alharbi et al., (2019) inconsistent with the current study, carried out to assess the association of IBS with demographical and economic factor in Saudi Arabia, who reported IBS was significantly association with age and gender.

Another study is inconsistent with the result of current study was conducted by Elhosseiny et al., (2019) to estimate the frequency of IBS in selected sample of students of faculty of medicine in Ain AL Shams university and to find out the determinants associated with this disorder, who reported there was a statistically significant relationship between IBS and anxiety.

Also, study is consistent with the result of current study was conducted by .Sadiq & Salih, (2019) to estimate the prevalence of irritable bowel syndrome and associated factors among a sample of medical college students in Baghdad, who reported Female sex was significantly associated with IBS.



**Chapter six**

**Conclusions**

**and Recommendations**

**Chapter Six**

**Conclusion and Recommendations**

This chapter reviews the conclusions according to the results of the present study and lists the most important recommendations that may help in developing the strategic planning to Student's Knowledge about Preventative Measures of Irritable Bowel Syndrome in Al Basra University: comparison study

**6.1. Conclusion**

The study result concluded that

1. Most of the study sample of (the second stage and fourth stage) for the study and control group were females, at age (23-26) years, they were single and had not enough monthly income, also had house cooking.

2 The program has effectiveness on the study groups of the second and fourth stages for level of knowledge toward all domains IBS during the 2 periods of the test, the study group has a weak level of knowledge before the implementation of an educational program and the level of knowledge ascend to a good level after the implementation of an educational program. While the level of knowledge of the control groups was not improved due to not implementing the educational program on them.

3. There is no significant statistical relationship between the knowledge of the second stage and fourth-stage at the pretest and posttest for the study and control group and demographic characteristics

**6.2. Recommendations**

1- Perform continuous educational program for students to increase their level of knowledge regarding preventive measures of irritable bowel syndrome.

2- Increase lectures time and number about IBS and take lectures in more than one course for students.

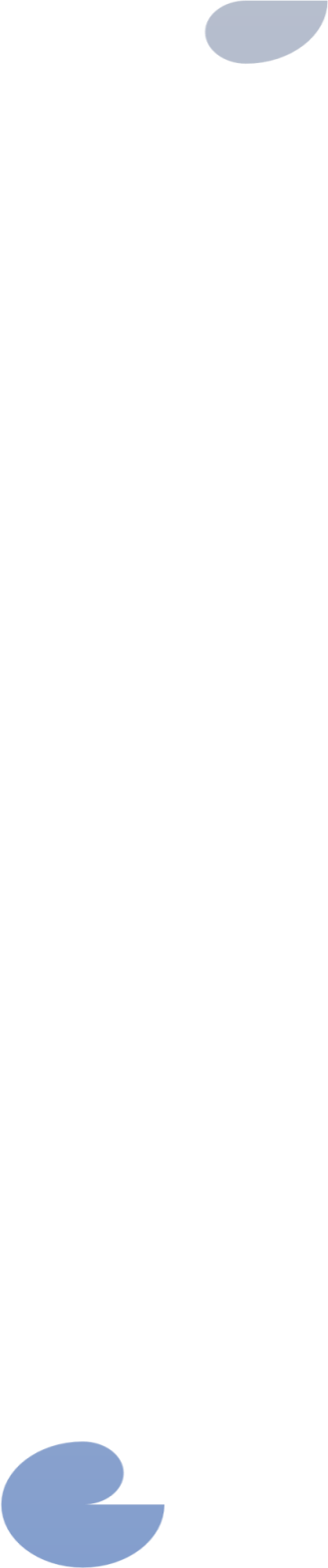
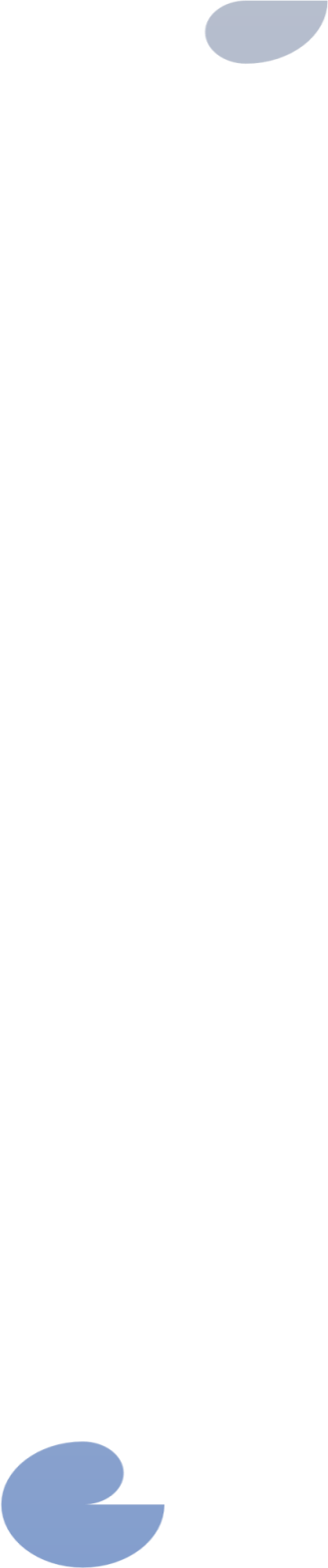
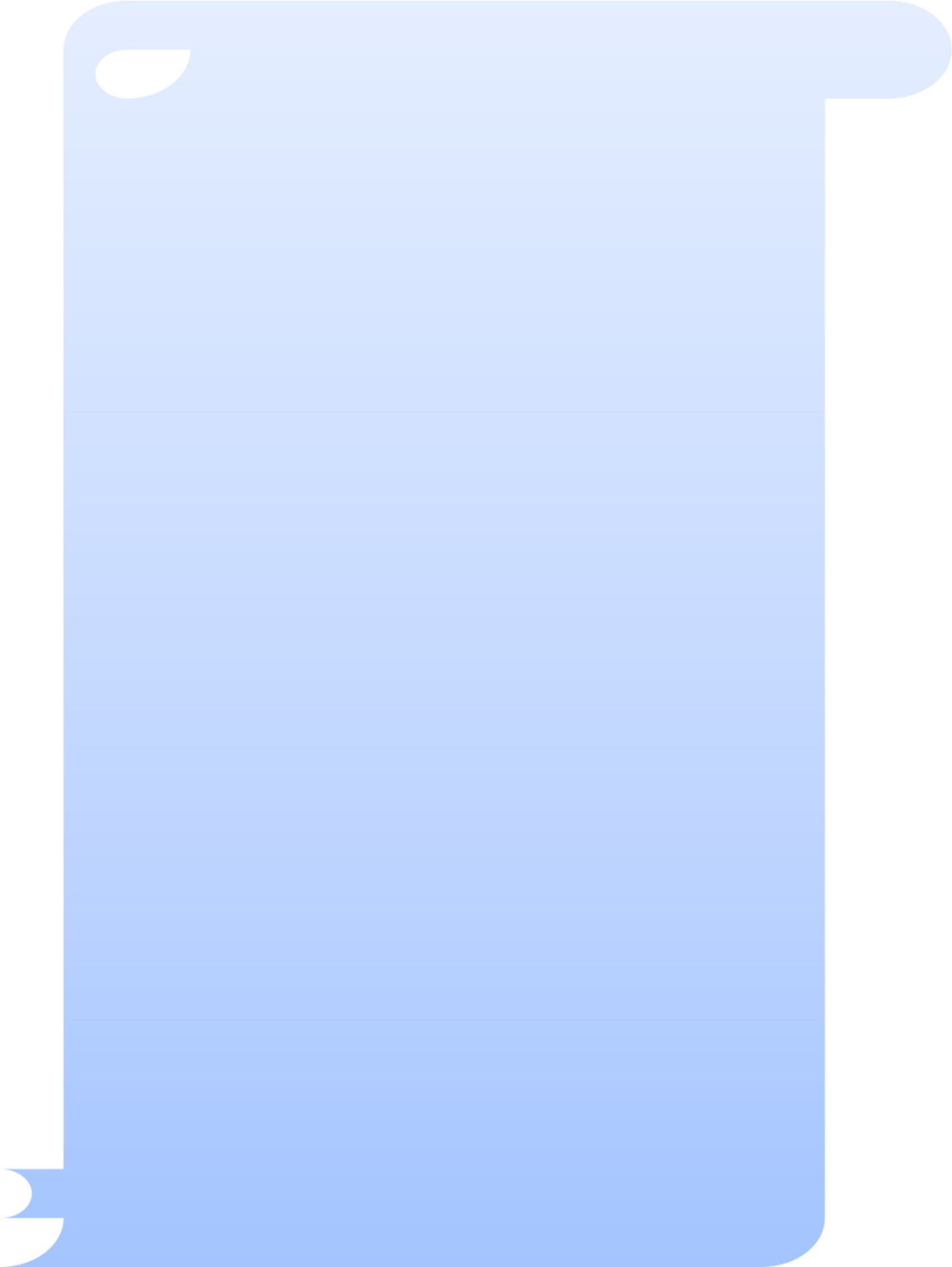
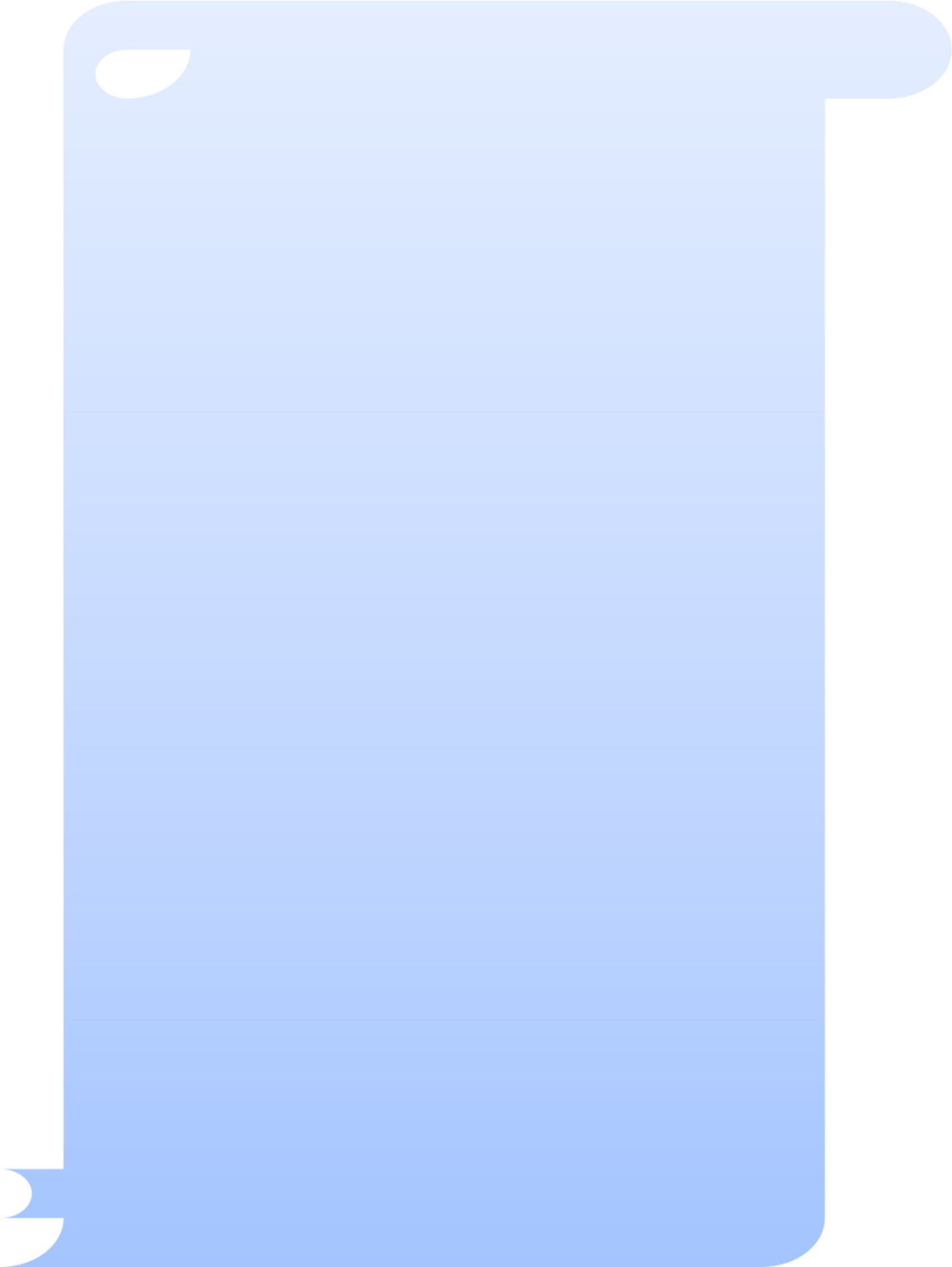
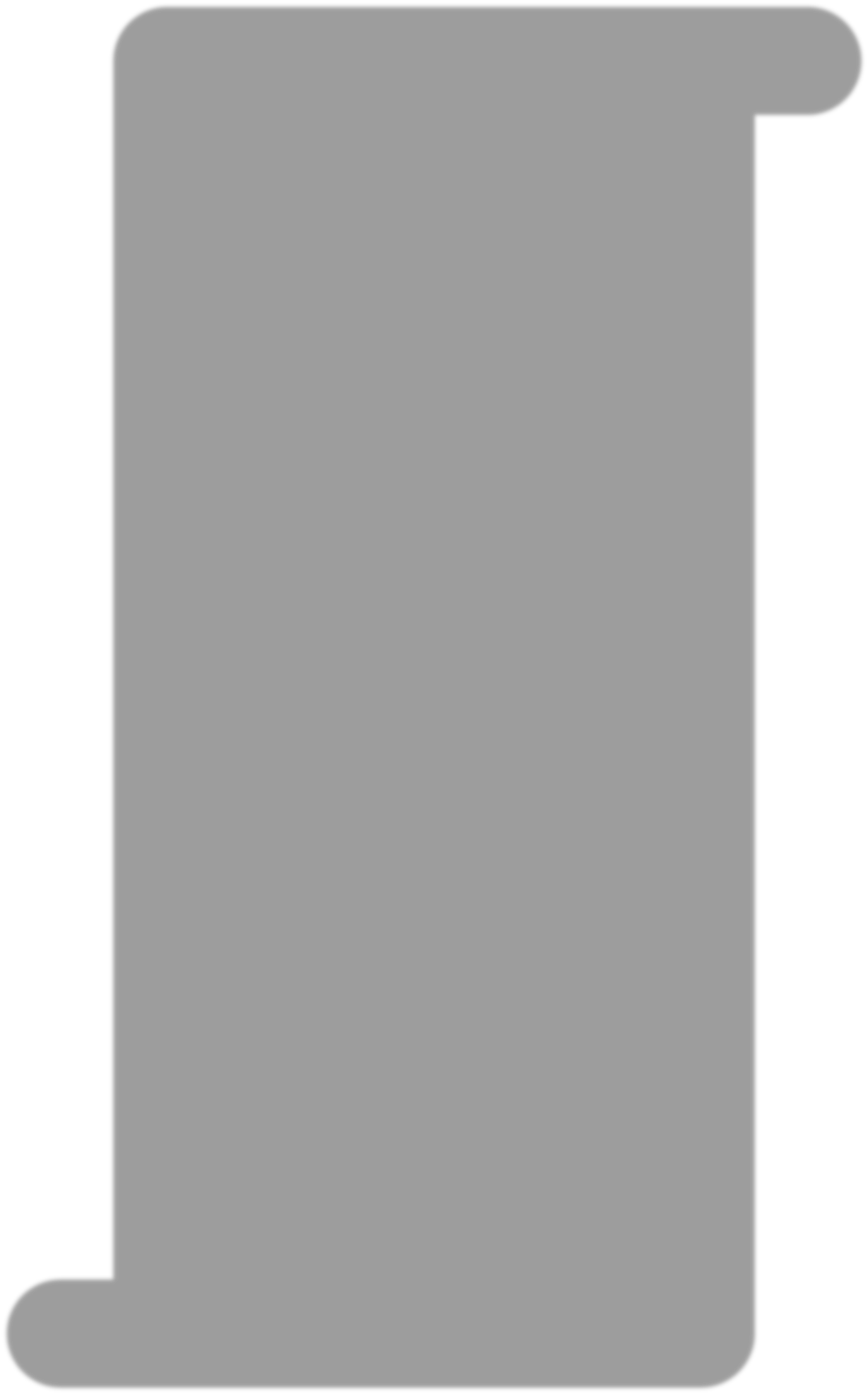
3-Instruction manual on preventive measures of IBS should be published and delivered to patients with the syndrome.

4- Increase health awareness among students through the implementation of courses and lectures for students in coordination with the Ministries of Higher Education and Health in order to control the preventive measures of IBS.

5- Conducted further studies in different setting and places with consideration to wide–range sample characteristics to be representative.

6- Future studies about preventive measures of IBS in Al-Basra City are required.

7- Emphasis on the effect of preventive measures of IBS among a large segment of society.



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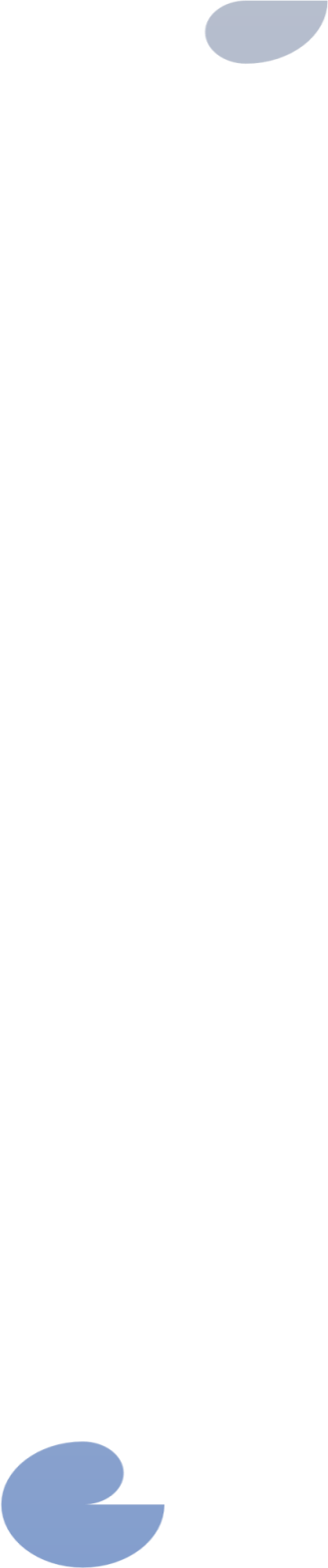
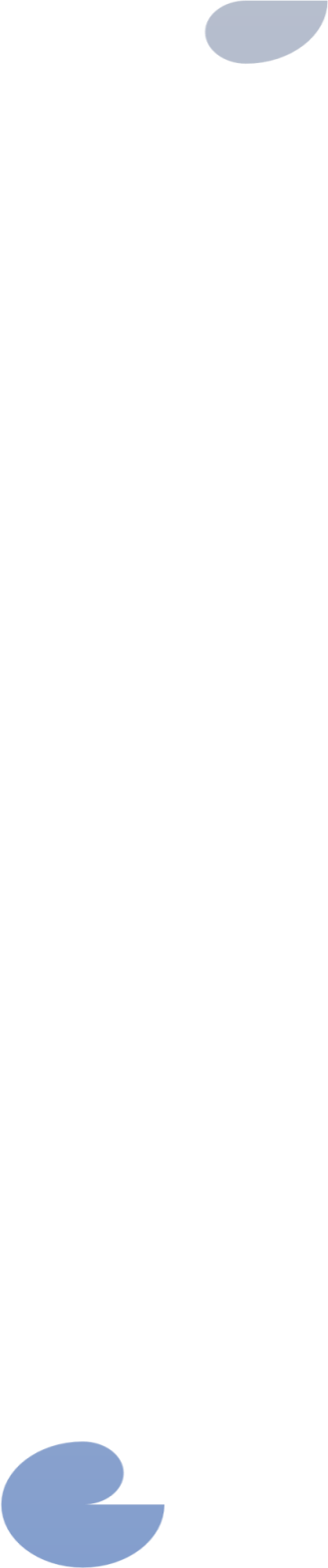
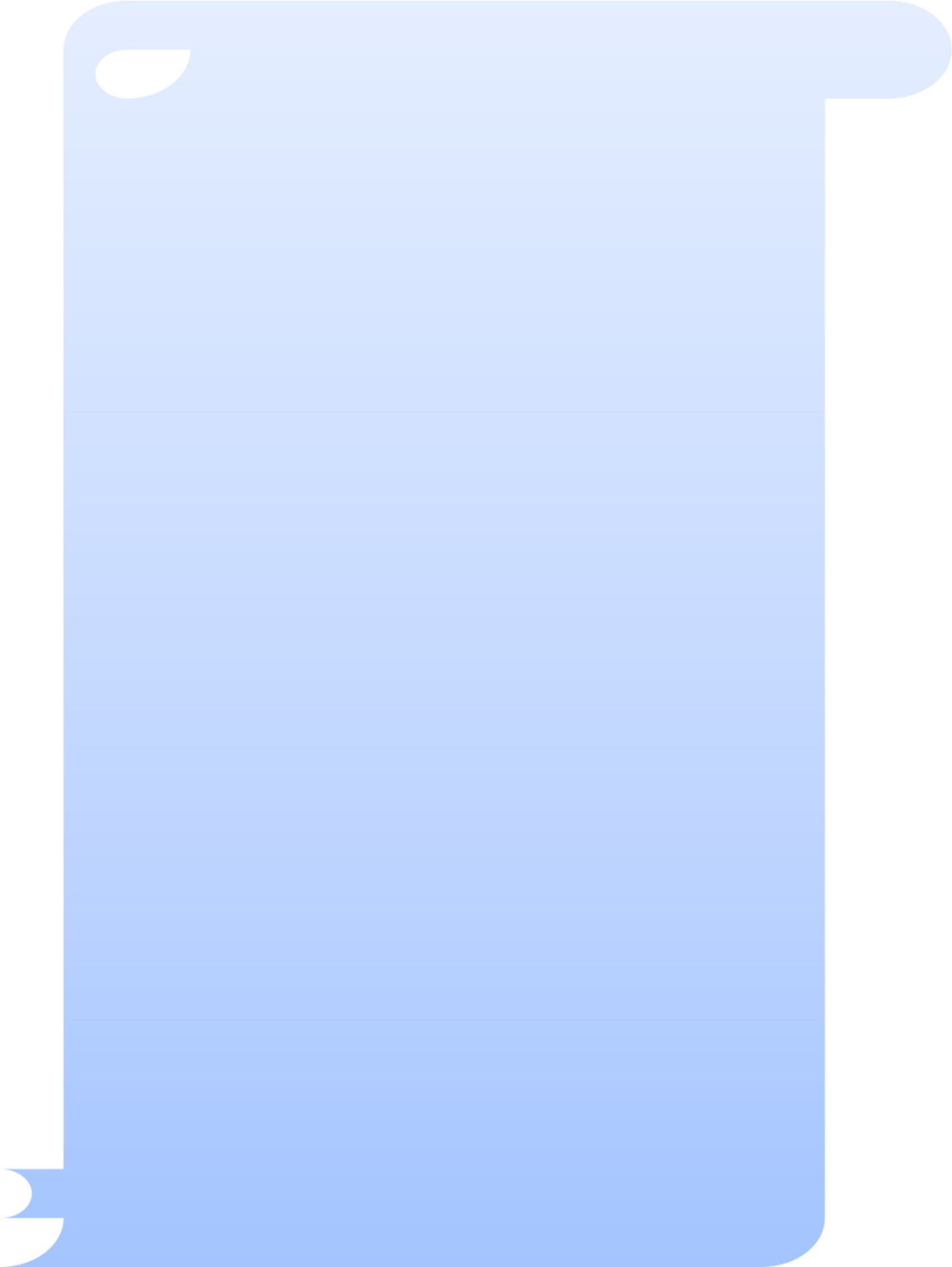
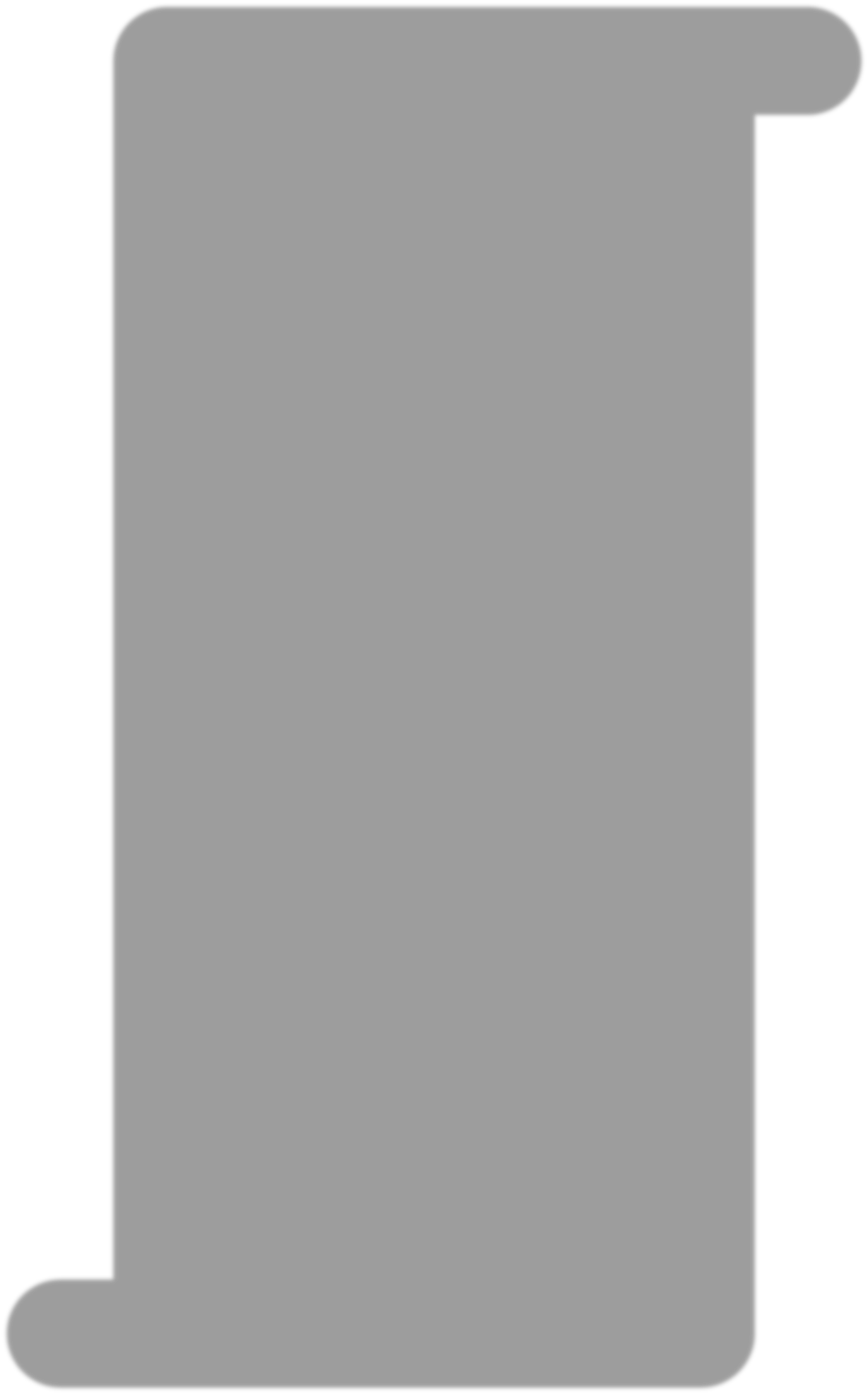
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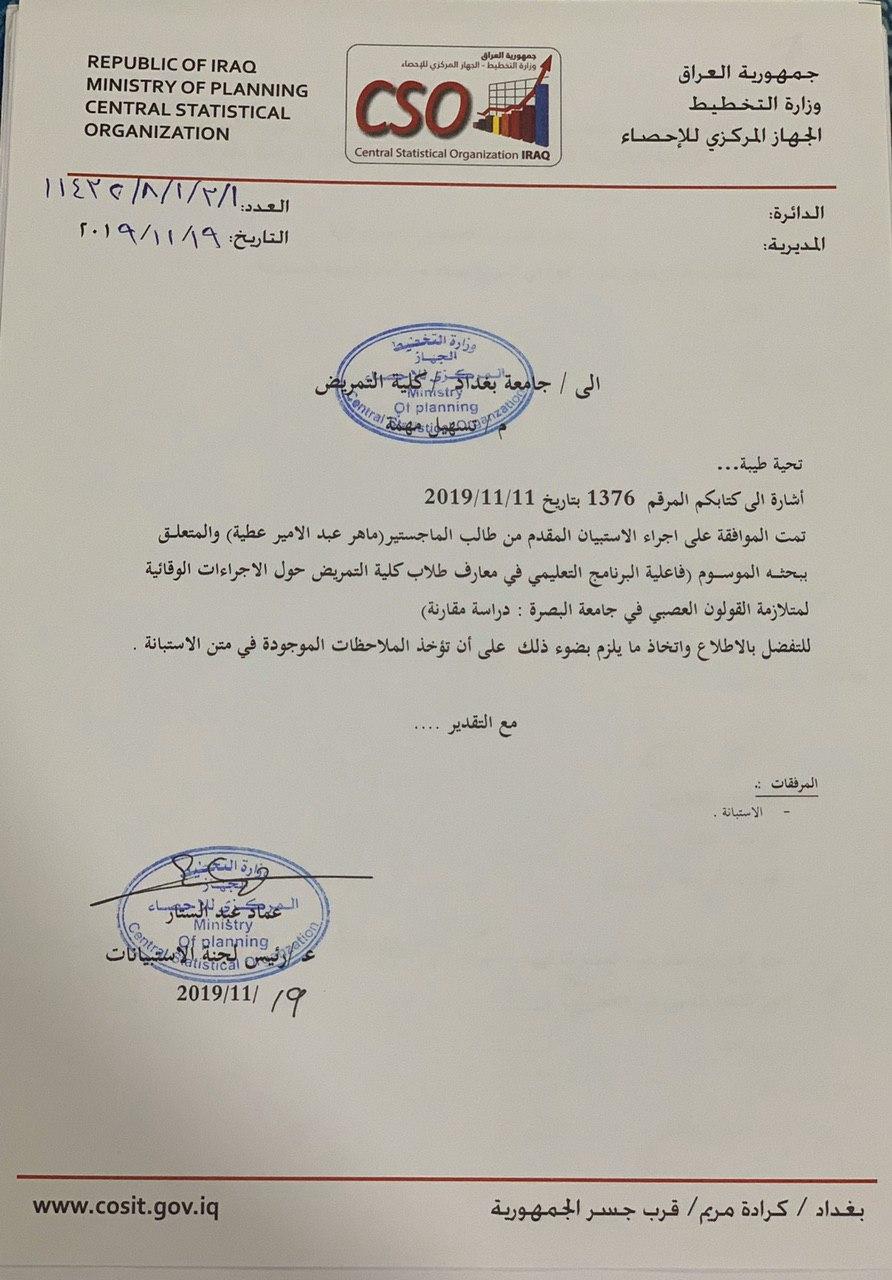
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**Appendices**

**Appendix A1: Administrative Arrangement**

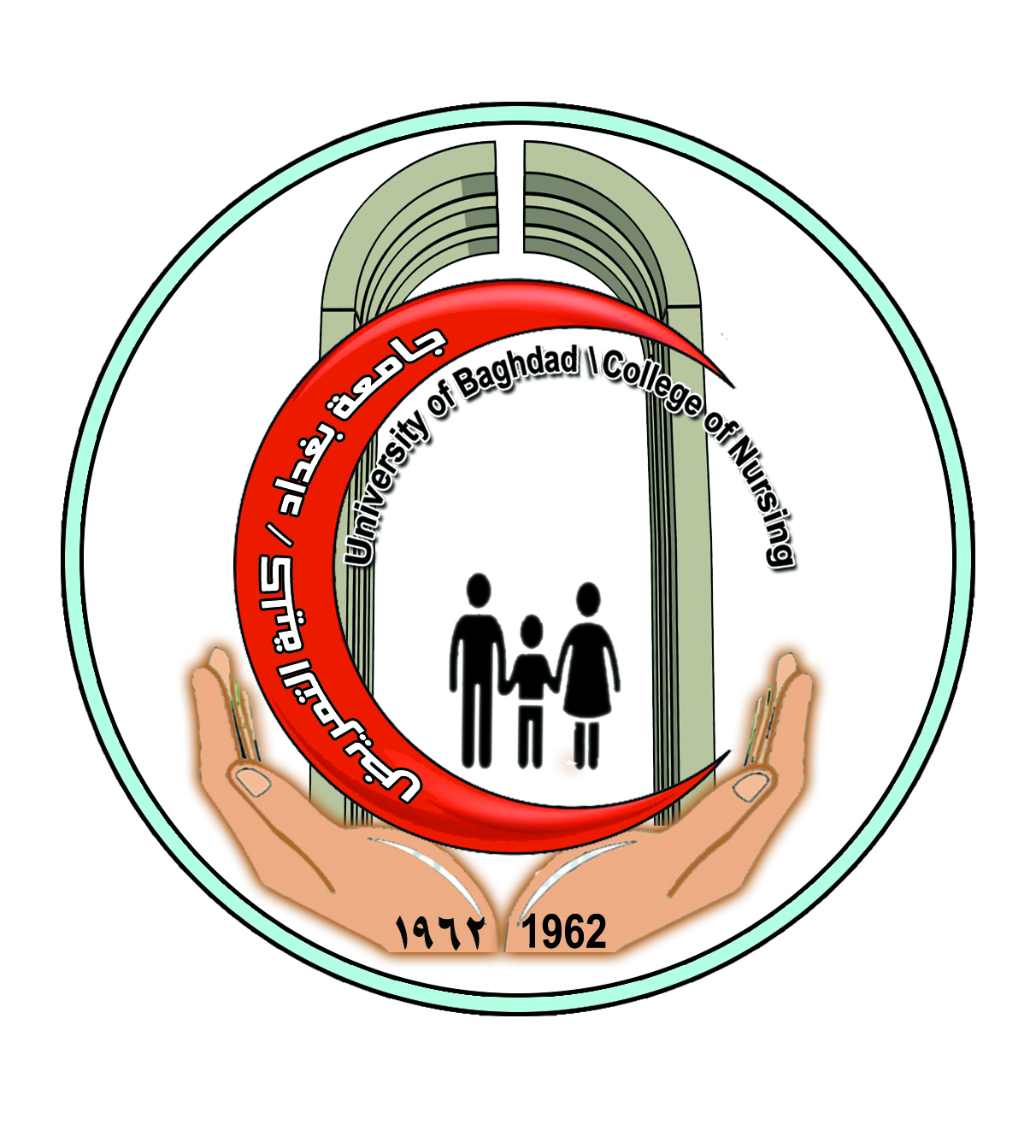
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**Appendix A2: administrative arrangement**

**Appendix B1: Ethical Consideration**

**جامعة بغداد / كلية التمريض استمارة أخلاقيات البحث العلمي**

**لجنة اخلاقيات البحث العلمي**



عنوان البحث : -

(فاعلية البرنامج التعليمي على معارف طلاب كلية التمريض نحو الإجراءات الوقائية لمتلازمة القولون

العصبي في جامعة البصرة : دراسة مقارنة)

اسم الباحث الرئيسي :- ماهر عبد الأمير عطية

الايميل :- maheralmaliky.ma@gmail.com

رقم الهاتف / موبايل:-07703114998

الباحث المشارك : -

عينة الدراسة :- طلاب كليه التمريض

مكان الدراسة : - كلية التمريض/ جامعة البصرة

توقيع الباحث

توصية اللجنة :-

نحن اعضاء اللجنة الاخلاقية توصي بان موضوع الباحث ذو قيمة علمية ومهم للمجتمع والمريض

اعضاء اللجنة

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| عضو | عضو | عضو | عضو | رئيسا |
|  |  |  |  |  |

**Appendix B2: Ethical Consideration**

**جامعة بغداد / كلية التمريض**

**تعهد اخلاقيات البحث العلمي**

**تعهد خطي**

**أني الموقع أدناه ( ماهر عبد الأمير عطية ) الباحث في كلية التمريض / جامعة بغداد اطلعت على استمارة أخلاقيات البحث العلمي الصادرة من جامعة بغداد / كلية التمريض أتعهد بمراعاة الدقة في تنفيذ جميع البنود الواردة بالاستمارة المرفقة وبعدم الإخلال بما هو منصوص بالاستمارة .**

**1- عدم المساس بحقوق المبحوثين .**

**2- المحافظة على سرية المعلومات المقدمة من قبل المبحوثين.**

**3- عدم الضغط على المبحوث في ما يخص البحث .**

**4- استحصال موافقة المريض عند اجراء الدراسة .**

**واذا ثبت عكس ذلك من عدم تنفيذ ماورد بالاستمارة ساتحمل كافة التبعات القانونية ومنه الغاء البحث ولأجله وقعت .**

**اسم الباحث / ماهر عبد الأمير عطية**

**التوقيع /**

**التاريخ /**

**Appendix B3: Ethical Consideration**

**صفحة موافقة المبحوث**

**عزيزي الطالب / عزيزتي الطالبة**

**بين ايديكم إستمارة إستبيان لدراسة**

**فاعلية البرنامج التعليمي على معارف طلاب كلية التمريض نحو الإجراءات الوقائية لمتلازمة القولون العصبي في جامعة البصرة : دراسة مقارنة.**

**Effectiveness of an Educational Program on Nursing College Student's Knowledge about Preventative Measures of Irritable Bowel Syndrome in Al Basra University: Comparison study.**

**لذا يرجى التفضل بمليء المعلومات المتعلقة بالبحث اعلاه وأود أعلامك بأن المعلومات التي ستدلي بها تكون في غاية السرية فقط لغرض البحث العلمي خدمة للصالح العام.**

**هل توافق بالمشاركة**

**نعم............. لا.......**.....

**أسم الباحث**

**ماهر عبد الأمير عطية**

**ماجستير تمريض البالغين**

**Appendix C1: Preliminary Assessment**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **NO.** | Item | No. of correct answer | percent | No. of wrong answer | Percent |
| **1** | Encourage the eating of a few fiber foods is not considered as a treatment for irritable bowel syndrome (IBS) . | 2 | **20%** | 8 | **80%** |
| **2** | Artificial sugary foods are considered as a food that irritable bowel syndrome patients can eat while following a low diet( FODMAP) | 3 | **30%** | 7 | **70%** |
| **3** | One of an important preventative measures to control IBS is a patient adaptation with the disease by taking medications of probiotics. | 2 | **20%** | 8 | **80%** |
| **4** | IBS is a healthy disease, but attention must be paid to several things that require further investigation, these things involves age over than 45 year and unexplained weight loss. | 3 | **30%** | 7 | **70%** |
| **5** | IBS can be managed with alternative therapy that involves acupuncture, relaxation technique, probiotics and mint oil. | 3 | **30%** | 7 | **70%** |
| 6 | The pain associated with IBS is reduced through caffeine intake. | 2 | **20%** | 8 | **80%** |
| 7 | IBS symptoms are reduced by taking soda. | 3 | **30%** | 7 | **70%** |
| 8 | Lactose administration is one of the therapeutic measures for constipation associated with IBS. | 4 | **40%** | 6 | **%60** |
| 9 | Wheat is one of the foods that worse the symptoms of IBS. | 3 | **30%** | 7 | **70%** |
| 10 | Antidepressant is one of the treatments used for IBS patients. | 2 | **20%** | **8** | **80%** |
| **The total** | | **27** | **27%** | **73** | **73%** |

***Assessing the knowledge of nursing college students about preventative measures for IBS patients***

**Appendix C2: Preliminary assessment in Arabic**

***تقييم معارف طلبة كلية التمريض حول التدابير الوقائية لمرضى متلازمة القولون العصبي(IBS )***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ت** | **السؤال** | **عدد الإجابات الصحيحة** | **%** | **عدد الإجابات الخاطئة** | **%** |
| 1 | التشجيع على تناول نظام غذائي قليل الألياف لا يعتبر علاجاً لمتلازمة القولون العصبي. | 2 | **20%** | 8 | **80%** |
| 2 | الأطعمة السكرية الصناعية تعتبر من الأطعمة التي يمكن لمرضى متلازمة القولون العصبي تناولها أثناء اتباع نظام غذائي منخفض FODMAP | 3 | **30%** | 7 | **70%** |
| 3 | أحد التدابير الوقائية المهمة للسيطرة على متلازمة القولون العصبي هي أن يتكيف المريض مع المرض من خلال تناول أدوية البروبيوتيك. | 2 | **20%** | 8 | **80%** |
| 4 | القولون العصبي هو مرض سليم ولكن يجب الانتباه لعدة أمور قد تستدعي إجراء المزيد من الإستقصاءات وهذه الأمور تشمل العمر فوق 45 سنة، هبوط الوزن غير المفسر | 3 | **30%** | 7 | **70%** |
| 5 | يمكن معالجه متلازمه القولون العصبي بالعلاج البديل الذي يتضمن الوخز بالإبر، تقنيه الاسترخاء، البروبيوتك، وزيت النعناع. | 3 | **30%** | 7 | **70%** |
| 6 | الألم المصاحب لمتلازمة القولون العصبي يتم تقليله من خلال أخذ الكافيين. | 2 | **20%** | 8 | **80%** |
| 7 | يتم تقليل أعراض متلازمة القولون العصبي عن طريق تناول الصودا. | 3 | **30%** | 7 | **70%** |
| 8 | إعطاء اللاكتوز هو احد التدابير العلاجية لحالة الإمساك المصاحبة لمتلازمة القولون العصبي. | 4 | **40%** | 6 | **%60** |
| 9 | يعتبر القمح من الأطعمة التي تزيد من أعراض متلازمة القولون العصبي. | 3 | **30%** | 7 | **70%** |
| 10 | يعتبر مضاد الاكتئاب من العلاجات المستخدمة لمرضى متلازمة القولون العصبي . | 2 | **20%** | **8** | **80%** |
|  | **المجموع** | **27** | **27%** | **73** | **73%** |

**Appendix D: Questionnaire in Arabic**

**فاعلية البرنامج التعليمي على معارف طلاب كلية التمريض حول الإجراءات الوقائية لمتلازمة القولون العصبي في جامعة البصرة: دراسة مقارنة**

**الجزء الأول: الخصائص الديموغرافية**

**التعليمات:**

**1.1 قم بوضع إشارة (✔) في المربع المخصص أمام الإجابة الصحيحة**

**الجنس:**

أنثى

ذكر 

**العمر:**

19-22 

23-26 

**الحالة الاجتماعية:**

غير متزوج 

متزوج 

مطلق 

ارمل 

**الدخل المادي:**

يكفي 

لا يكفي 

**وجبات الطعام التي تتناولها:**

اكلات جاهزة سريعة 

طبخ في البيت 

اكلات معلبة

**المستوى التعليمي:**

المرحلة الثانية 

المرحلة الرابعة 

**الجزء الثاني**

**معارف طلاب كلية التمريض تجاه المعلومات العامة لمتلازمة القولون العصبي**

**التعليمات:**

**2.1.قم بوضع إشارة (✔) في المربع المخصص أمام الإجابة الصحيحة**

1. متلازمة القولون العصبي IBSهي:

أ. تلف معوي نتيجة للمرض.

ب. مجموعة من الأعراض التي تؤثر على البطن.

ج. مصطلح آخر لمرض الاضطرابات الهضمية.

د. مصطلح اخر لمرض لقولون التقرحي .

2. متلازمه القولون العصبي IBS اكثر حدوثا في:

أ. الرجال.

ب. النساء.

ج. سائدة الحدوث في كلا الجنسين .

د. لا يتأثر حدوثها بنوع الجنس.

3. أسماء أخرى لمتلازمة القولون العصبي تشمل كل ممايلي باستثناء:

أ. التهاب القولون.

ب. القولون المتشنج.

ج. التهاب القولون المخاطي.

د. التهاب القولون المجهري.

4. أي مما يلي لا يعتبر عامل خطورة لمتلازمة القولون العصبي:

أ. تاريخ العائلة 

ب. البدانة 

ج. العمر 

د. الجنس 

5. أي ما يلي لا يعتبر من أنوع لمتلازمة القولون العصبي:

أ. الإمساك السائد (IBS-C).

ب. الإسهال السائد (IBS-D).

ج. متلازمة القولون العصبي المختلط (IBS-M).

د. متلازمة القولون العصبي غير المستقر(IBS-U).

6. الفسلجة المرضية لمتلازمة القولون العصبي ترجع إلى عدة عوامل تشمل ما يلي باستثناء:

أ. تشوهات حركية للأمعاء.

ب. سوء الامتصاص.

ج. استخدام المضادات الحيوية.

د. بكتريا قولونية.

7. العلامة المميزة لـ لمتلازمه القوالون العصبي IBS هي:

أ. ألم في البطن أو عدم الراحة.

ب. الغازات والنفخة.

ج. عدم تحمل الطعام.

د. إعياء.

8. الألم المرتبط بـ IBS غالبًا ما يهدئ من خلال :

أ. التغوط.

ب. الكافيين.

ج. التمارين.

د. النوم.

9. أي مما يلي يقلل من أعراض القولون العصبي:

أ. أكل وجبة أصغر.

ب. شرب الماء مع الوجبة.

ج. شرب الصودا.

د. التمرين بعد الوجبة.

10. أي مما يلي لا يعتبر من مضاعفات متلازمه القولون العصبي( IBS ):

أ. ضغط عصبي.

ب. سوء التغذية.

ج. بواسير.

د. سرطان الامعاء.

11. أي من العبارات التالية حول متلازمة القولون العصبي صحيحة:

أ. يصيب حوالي 80 ٪من البالغين في جميع أنحاء العالم.

ب. سائد بنفس القدر في كلا الجنسين.

ج. يتميز بألم في البطن والانتفاخ.

د. هو اضطراب الأمعاء لغير الوظيفية.

12. أي من الإصابات التالية ترتبط بزيادة انتشار القولون العصبي:

أ. جيارديا لامبليا(Giardia lamblia).

ب. الإشريشيا القولونية(Escherichia coli).

ج. شيكلا(Shigelia). 

د. السالمونيلا(Salmonella). 

13.الأدوية التي تؤثر على وظيفة الجهاز الهضمي والتي قد تسبب الإمساك تشمل كل ما يلي باستثناء:

أ. مضادات مفعول الكولين.

ب. مضادات الحموضة المغنيسيوم. 

ج. المواد الأفيونية 

د. مضادات الحموضة الألومنيوم.

14. يمكن تشخيص متلازمة القولون العصبي IBS من خلال كل مما يلي با ستثناء:

أ. الفحص البدني.

أ. فحص الدم.

ب. تحليل البراز.

ج.اختبار H. pylori.

15. الكائنات البكتيرية المسؤولة عن معظم نوبات الإسهال المعدية تشمل ما يلي:

أ. بكتريا الـ (E. coli). 

ب. بكترياالـ (Salmonella). 

ج. بكتريا الـ (Campylobacter). 

د. بكترياالـ (Pseudomonas). 

1. في حالة حدوث الإسهال لمرضى متلازمة القولون العصبي فأن الأهداف العلاجية للإسهال تشمل كل مما يلي باستثناء:
2. منع فقد الألكتروليات 
3. يخفف الأعراض 

ج. معالجة الأسباب 

د. وقف الإسهال 

**الجزء الثالث**

**معارف طلاب كلية التمريض تجاه التدابير التي تحمي من متلازمة القولون العصبي**

**التعليمات:**

**3.1 قم بوضع إشارة (✔) في المربع المخصص أمام الإجابة الصحيحة**

1.أي مما يلي لا يعتبر علاجا لمتلازمة القولون العصبي

1. ممارسة الرياضة بانتظام 
2. تغيير في عادات النظام الغذائي 

ج معالجة الحالة العقلية 

د. التشجيع على تناول نظام غذائي قليل الألياف 

1. اي من تدابير العلاج التالية يوصى باستخدامه في حالة الإمساك المصاحب لمتلازمة القولون العصبي
2. أعطاء محلول ملحي 
3. لوبيراميد 

ج.الياف غذائية 

د.اللاكتوز 

1. اي مما يلي يعتبر علاجا للألم المصاحب لمتلازمة القولون العصبي

ا. مضاد للتشنج 

ب. أيقاف الأدوية الملينة 

ج. ايقاف الأدوية المستخدمة للإيقاف الإسهال 

د. ايقاف ادويه مضادة للاكتئاب 

1. اي مما يلي يعتبر علاجا للامساك المصاحب لمتلازمة القولون العصبي
2. مضادات الأفيونية 
3. مستقبلات الفا 

ج. مضادات التشنج 

د. مضادات البكتيرية 

1. الغرض من استخدام المضادات الحيوية لمتلازمة القولون العصبي:
2. زيادة امتصاص الجهاز الهضمي 
3. تقليل الالاَم البطن والحاجة الملحة للتبرز 

ج. تغير محتوى البكتريا في الجهاز الهضمي 

د. لا شيء مما سبق 

1. العلاج الذي يستخدم لعلاج الإسهال الحاد لمريض يعاني من متلازمة القولون العصبي:
2. لوبيراميد (loperamide) 
3. بولي ايثيلين(polyethylene) 
4. ليناكلوتيد Linaclotide(linzess)
5. فلوكستين(fluxetine) 
6. أي مما يلي لا يؤدي الى تحسين المعالجة لمريض متلازمة القولون العصبي:
7. تشجيع المريض على الإبلاغ عن اي عرض سلبي نتيجة المعالجة الدوائية 
8. تقييم مدى التزام المريض 

ج. تحديد الحد الأدنى للجرعة المناسبة لتقليل احتمالية حدوث الأثار الضارة 

د .تشجيع المريض على مضغ العلكة 

8. أي واحد مما يلي لا يقلل من التوتر والمشاكل المرتبطة بـ IBS

أ. التنفس العميق. 

ب. التأمل. 

ج. اخذ الكافيين. 

د. العلاج بالموسيقى. 

9. الأطعمة التي تحتوي على مكونات يمكن أن تحفز الأمعاء وتسبب الإسهال ، تشمل كل مما يلي صحيح باستثناء؟

أ. منتجات الألبان 

ب. الأطعمة السكرية الصناعية 

ج. الكافيين 

د. الأطعمة ذات المحتوى السكري القليل 

10.الأطعمة التي تؤدي إلى حدوث الأعراض المصاحبة للقولون العصبي تشمل كل مما يلي باستثناء:

أ. قمح.

ب. الألبان.

ج. بيض.

د. الشوفان.

11.من الأطعمة التي قد تؤدي إلى ظهور الأعراض, كالخضروات والبقوليات الصليبية ، تشمل كل مما يلي صحيحًا باستثناء

أ. قرنبيط 

ب. بروكلي 

ج. جرجير 

د. الخس 

12. ي من الأطعمة التالية التي يمكنك تناولها أثناء اتباع نظام غذائي منخفض FODMAP تشمل كل مما يلي باستثناء؟

أ. المحليات الصناعية 

ب. بصل

ج. خبز منزوع الجلوتين

د. لحم 

13. أحد التدابير الوقائية المهمة للسيطرة على متلازمة القولون العصبي هي أن يتكيف المريض مع المرض من خلال تشمل كل ممايلي باستثناء:

أ. تناول وجبات صغيرة. 

ب. التقليل من الإجهاد. 

ج. تجنب الأطعمة المقلية أو الحارة. 

د. عدم تناول أدوية البروبيوتيك

**الجزء الرابع**

**:معارف طلاب كلية التمريض تجاه التدابير التي تقلل أو تمنع متلازمة القولون العصبي**

|  |  |  |
| --- | --- | --- |
| **السؤال** | **نعم** | **كلا** |
| **1.النظام الغذائي الأمثل لتجنب او لمعالجة الإسهال عدم تناول الأطعمة مثل الماء البارد والحساء الساخن في نفس الوجبة.** |  |  |
| **2.الإجهاد والقلق يمكن ان يجعل متلازمة القولون العصبي اسوأ.** |  |  |
| **3.لمعالجة الإجهاد الذي يؤثر بمرضى متلازمة القولون العصبي يتوجب أتباع عادات صحية مثل ممارسة الرياضة والنوم الكافي.** |  |  |
| **4.الأعراض التي قد تصاحب القولون العصبي لربما تشمل قلة النوم والخمول وعسر الجماع.** |  |  |
| **5 . ينبغي ان يكون لدى الأشخاص الذين يعانون من متلازمة القولون العصبي معلومات عن نمط الحياة العام والنشاط البدني والنظام الغذائي الذي يؤدي الى سوء الاعراض المصاحبة للمرض.** |  |  |
| **6.يجب على متخصصي العناية الصحية تثبيط استخدام الألوفيرا في معالجة متلازمة القولون العصبي.** |  |  |
| **7.متلازمه القولون العصبي لا تؤدي إلى سرطان أو تزايد احتمال الإصابة به.** |  |  |
| **8.القولون العصبي هو مرض سليم ولكن يجب الانتباه لعدة أمور قد تستدعي إجراء المزيد من الإستقصاءات هذه الأمور تتضمن العمر فوق 45 سنة، وهبوط الوزن غير المفسر؟** |  |  |
| **9.يعتبر ريفاكسيمين من الأدوية التي تستخدم كعلاج الاسهال في متلازمة القولون العصبي** |  |  |
| **10.يمكن معالجه متلازمه القولون العصبي بالعلاج البديل الذي يتضمن الوخز بالإبر، تقنيه الاسترخاء، البر وبيوتك، زيت النعناع؟** |  |  |
| **11.استعمال الألياف القابلة للذوبان يساعد في تقليل الأعراض المصاحبة لمتلاومة القولون العصبي بشكل تام بأستثناء تقليل الالم المصاحب له.** |  |  |
| **12. الالتزام بحمية (FODMAP) يساعد على تقليل اعراض مرضى القولون العصبي بنسبة 70٪ والتي تتضمن انتفاخ البطن، وآلام البطن، والتغوط.** |  |  |
| **13.يشار إلى ان الألياف الغذائية تستخدم كعلاج الإسهال الغالب في متلازمة القولون العصبي.** |  |  |
| **14.يمكن السيطرة على اعراض متلازمة القولون العصبي لكن لكل شخص له تدابير تختلف عن الاخر حسب نوع الجنس ,والعمل, والنمط الغذائي وغيرها** |  |  |

**Appendix E: Educational Program**

**فاعلية البرنامج التعليمي على معارف طلاب كلية التمريض نحو الإجراءات الوقائية لمتلازمة القولون العصبي في جامعة البصرة: دراسة مقارنة**

**مقدمه:**

تعد متلازمة القولون العصبي من الحالات الاكثر شيوعا في الجهاز الهضمي حيث يهتم هذا البرنامج التعليمي على زيادة معارف طلاب كلية التمريض نحو الإجراءات الوقائية لمتلازمة القولون العصبي وكذلك زيادة معارف الطلاب حول متلازمه القولون العصبي من حيث تعريفه و اسبابه وتشخيصه وعلاجه لقد اثبتت البحوث والدراسات في هذا المجال عن اهمية مثل هكذا برنامج تعليمي لكونه ان اغلب الاشخاص الذين يعانون من هذه المتلازمة وعدم معرفة كيفيه اتخاذ لا أجراء الوقائي لمنع الأعراض والإصابة بها, والذي من المؤمل تحقيق الأهداف التالية من خلال تطبيقه.

**الاهداف التعليمية للبرنامج:**

تتضمن الأهداف التعليمية للبرنامج التثقيفي ما يأتي:

**-الهدف العام:**

تطوير وتثقيف طلاب كلية التمريض جامعة البصرة فيما يخص متلازمة القولون العصبي

**-الهدف الخاص:**

1- معرفة التشريح والفسلجة الجهاز لهضمي

2- معرفة ماهي متلازمة القولون العصبي وما هي مسبباتها

3- معرفة عوامل الخطورة لهذا المتلازمة

4- معرفة ماهي العلامات والأعراض متلازمة القولون العصبي

5- افهام الطالب كيفية تشخيص هذه المتلازمة

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**أ- العلاج غير الدوائي:**

* التعديلات الغذائية.
* النشاط البدني.
* العلاج النفسي.

**ب- العلاج الدوائي:**

* العلاج الدوائي للامساك السائد لـ (IBS-C).
* العلاج الدوائي للإسهال السائد لـ (IBS-D).
* معالجة آلام في القولون العصبي.

**ج. الأدوية - المتنوعة**

* مضادات التشنج.
* مضادات الاكتئاب.
* البروبيوتيك

**الوسائل التعليمية :**

1. محاضرة ورقية مطبوعة.
2. مناقشة جماعية.
3. بوسترات )صور مطبوعة)
4. عرض المحاضرة بواسطة باوربوينت

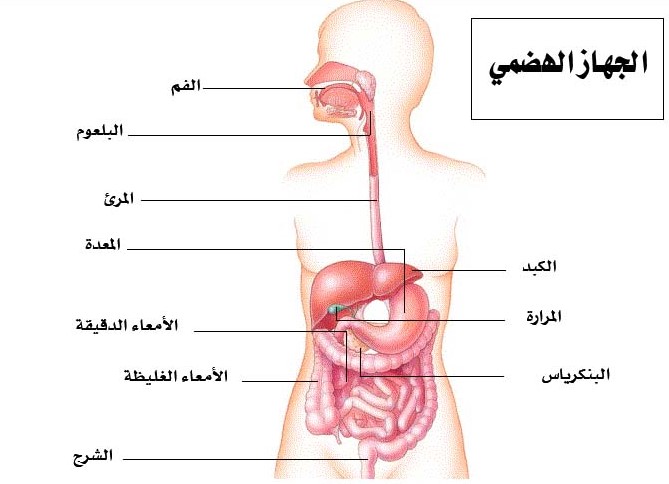
**المدة الزمنية للمحاضرة:** (45) دقيقة.

**مكان المحاضرة:** جامعة البصرة/ كلية التمريض

**الجهاز الهضمي**

* **تعريف**

الجهاز الهضمي، وتسمى أيضًا القناة الهضمية ، هو المسار الذي يدخل به الطعام إلى الجسم ويتم طرد النفايات الصلبة. تشمل القناة الهضمية الفم والبلعوم والمريء والمعدة والأمعاء الدقيقة والأمعاء الغليظة والشرج.



* **تشريح الجهاز الهضمي**

القناة الهضمية هي طريق طويل يمتد من الفم عبر المريء والمعدة والأمعاء إلى فتحة الشرج:

**الفم: mouth**

هو الجزء الأول من القناة المعدية المعوية وهو مجهز بعدة بنيات والتي منها تبدأ العمليات الأولى لعملية الهضم. وهذا يتضمن الغدد اللعابية والأسنان واللسان.

**البلعوم : pharynx**

البلعوم هو جزء من المنطقة الموصلة للجهاز التنفسي وأيضًا جزء من الجهاز الهضمي. وهو جزء من الحلق يقع مباشرة خلف تجويف الأنف في الجزء الخلفي للفم وفوق المريء والحنجرة. ويتكون البلعوم من ثلاثة أجزاء. ويشارك في الجهاز الهضمي كلا من البلعوم الفموي والبلعوم الحنجري وهما الجزئيين السفليين. والبلعوم الحنجري متصل بالمريء ويعمل بمثابة ممر لكل من الهواء والغذاء.

**المريء: esophagus**

يقع في المنصف في تجويف الصدر الأمامي للعمود الفقري والخلفي إلى القصبة الهوائية والقلب. هذا الأنبوب القابل للطي ، والذي يبلغ طوله حوالي 25 سم (10 بوصات)

**المعدة: stomach**

تقع المعدة في الجزء العلوي من البطن إلى يسار خط الوسط ، أسفل الحجاب الحاجز الأيسر. إنها حقيبة قابلة للتوزيع بسعة تصل إلى حوالي 1500 مل. يمكن تقسيم المعدة إلى أربع مناطق تشريحية: القلب (المدخل)، قاع ، الجسم، البواب (المخرج).

**الأمعاء الدقيقة: small intestinal**

هي أطول قطعة في الجهاز الهضمي، حيث توفر مساحة سطح تبلغ 7000 سم تقريبًا للإفراز والامتصاص، العملية التي تدخل بها المواد الغذائية إلى مجرى الدم من خلال جدران الأمعاء. تنقسم الأمعاء الدقيقة إلى ثلاثة أجزاء تشريحية: الجزء العلوي يسمى الاثني عشر. الجزء الأوسط، الصائم؛ والجزء السفلي، اللفائفي

**الأمعاء الغليظة : large intestinal**

الأمعاء الغليظة هي الجزء الأخير من الجهاز الهضمي الذي يؤدي المهمة الحيوية المتمثلة في امتصاص الماء والفيتامينات أثناء تحويل الطعام المهضوم إلى براز

يبدأ من الجانب الأيمن من البطن، ترتبط الأمعاء الغليظة بأمعاء الأمعاء الدقيقة عبر العضلة العاصرة اللفائفي. وتكون الأمعاء الغليظة على شكل حرف"T"، يتكون القولون من سبعة أقسام:

**الزائدة الدودية: Appendix**

تمتد من الطرف السفلي من الأعور الأمعاء الغليظة، وهو عبارة عن كيس ضيق من الأنسجة تشبهه الدودة اسمها البديل الزائدة الدودية (مثل الدودة). وهي تقع في منطقة الحرقفي الأيمن من البطن (في منطقة أسفل البطن اليمنى)، ويبلغ طولها حوالي أربع بوصات وقطرها حوالي ربع بوصة.

**الأعور : Cecum**

الأعور عبارة عن منطقة قصيرة تشبه الحقيبة من الأمعاء الغليظة بين القولون الصاعد والزائدة الدودية. وهي تقع في الربع السفلي الأيمن من تجويف البطن السفلي والجانبي إلى الدقاق. يلعب الأعور دورًا مهمًا في الجهاز الهضمي من خلال المساعدة في تكوين البراز.

**القولون الصاعد : Ascending colon**

هو واحد من المناطق الأربعة الرئيسية في القولون، والتي هي في حد ذاتها واحدة من أجزاء الأمعاء الغليظة. يحمل القولون الصاعد البراز من الأعور بشكل متفوق على طول الجانب الأيمن من تجويف البطن إلى القولون المستعرض

**القولون المستعرض : Transverse colon**

هو أطول منطقة في القولون ويقع بين القولون الصاعد والقولون الهابط. تم تسميته لحقيقة أنه يعبر التجويف البطني مستعرضًا من الجانب الأيمن إلى الجانب الأيسر أسفل المعدة مباشرة.

**القولون النازل : Descending colon**

هو جزء من الأمعاء الغليظة وهو الجزء الثالث قبل الأخير من القولون. ينقل البراز من القولون المستعرض دون المستوى على طول الجانب الأيسر من تجويف البطن إلى القولون السيني.

**القولون السيني: Sigmoid colon**

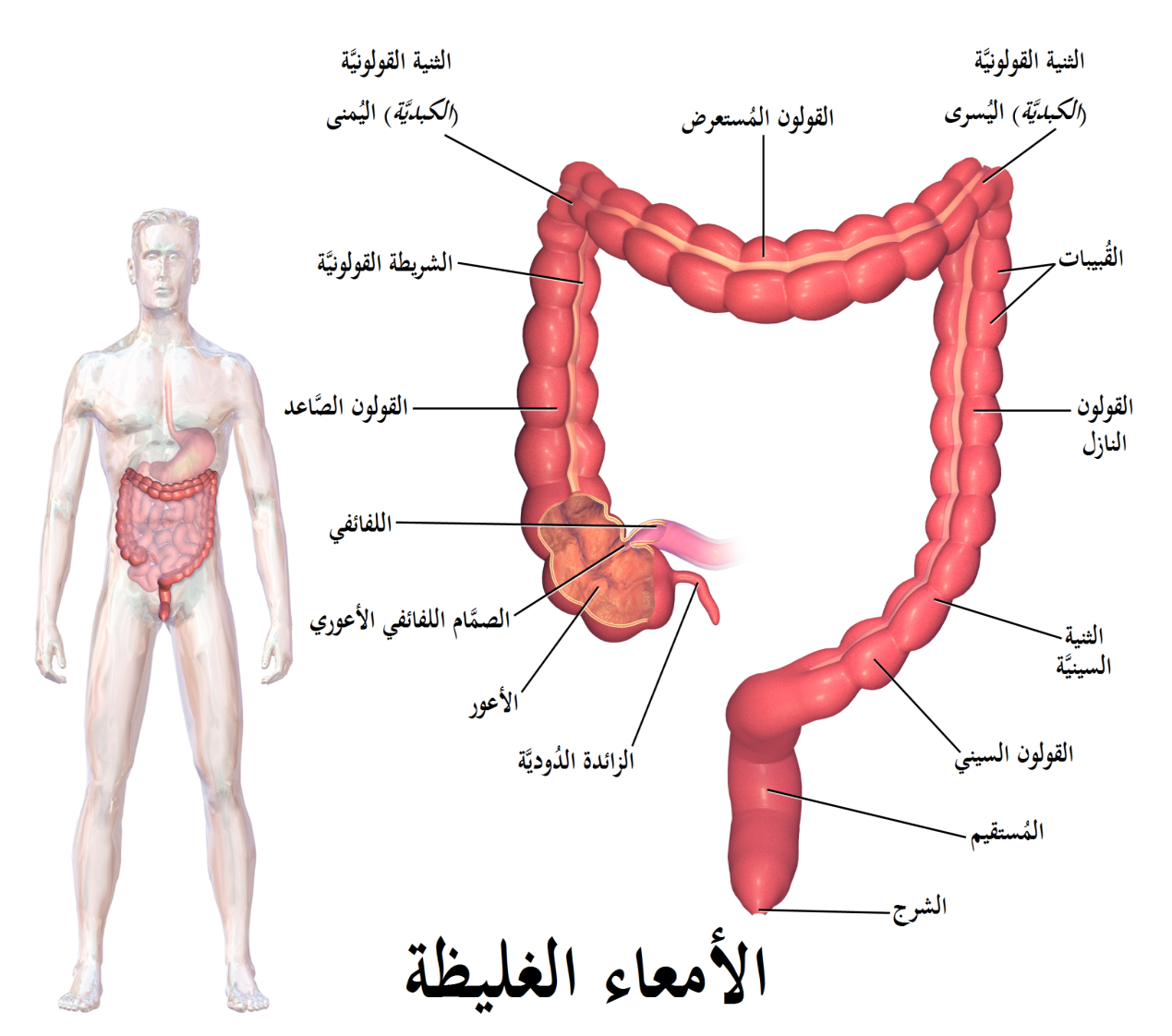
هو منطقة منحنية على شكل حرف S من الأمعاء الغليظة وهي الجزء الأخير من القولون. ينقل البراز من القولون الهابط إلى المستقيم والشرج.

**المستقيم : the rectum**

هو الجزء الأخير من الأمعاء الغليظة التي تربط القولون بالشرج. يقوم بتخزين البراز الناتج في القولون حتى يكون الجسم جاهزًا للتخلص من النفايات خلال عملية التغوط.

**الشرج : Anal**

فتحة الشرج، أو القناة الشرجية، هي الجزء الأخير من الجهاز الهضمي. إنها بمثابة الفتحة التي تمر عبر البراز أثناء التغوط.

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**متلازمة القولون العصبي**

* **تعريف**

متلازمة القولون العصبي (IBS) هي مجموعة من الأعراض ، وهي واحدة من أكثر حالات الجهاز الهضمي شيوعًا ، وهي اضطراب وظيفي في حركية الأمعاء ، وهو اضطراب يتميز بـ ألم في البطن وعادات الأمعاء المتغيرة في غياب علم الأمراض العضوية

* وكما هو معروف متلازمة القولون العصبي (التهاب القولون العصبي) ، التهاب القولون التشنجي ، والتهاب القولون المخاطي ، والقولون العصبي.
* السمة المميزة لـ IBS هي ألم البطن أو عدم الراحة المرتبطة بتغيير في تناسق و تكرار حركات الأمعاء
* **الفسيولوجيا المرضية لـمتلازمة القولون العصبي**

الفسيولوجيا المرضية لـمتلازمة القولون العصبي IBS غير واضحة ، في وقت سابق كان يُعتقد أنها اضطراب أمعاء غير مفسر ، ولكن تم تحديد أسباب كامنة مختلفة في الآونة الأخيرة تشير إلى اضطراب الأمعاء الأساسي. تشمل الآليات الأساسية التي يمكن أن تؤدي إلى القولون العصبي المتغير التغييرات التالية للعدوى ، والالتهابات المزمنة ، والاضطرابات في الكائنات الحية الدقيقة المعوية ، والعوامل الوراثية ، والتهابات الغشاء المخاطي منخفضة الدرجة ، وتفعيل المناعة ، ونفاذية الأمعاء المعدلة ، واستقلاب ملح الصفراء المضطرب ، وخاصة في 10– 20 ٪ من الحالات مع الإسهال والتمثيل الغذائي غير طبيعي للسيروتونين. هذه التغييرات تحفز فرط الحساسية الحشوية والتشوهات الحركية الثانوية ، والاستجابات الخلوية والخلايا التائية المعوية عن طريق الآليات الطرفية ، مما يسبب زيادة القلق وغيرها من الأعراض غير المعدية المعوية ، مثل التعب والآلام المعممة. هناك نظرية أخرى تشير إلى أن IBS يُعتقد أنه ناجم عن تشوهات أولية في مسار الإجهاد ، مما يؤدي إلى حدوث تغيير في نفاذية القناة الهضمية ويفجر سلسلة من التنشيط المناعي ينتج عنها IBS. يمكن أن تؤدي آليات أخرى مثل استقلاب حمض الصفراء غير الطبيعي إلى حدوث إسهال أو إسهال أو نبتة ميثانوجينية بعد الإصابة ، مع تباطؤ غاز الميثان في النقل المعوي ، أو استجابات سلوكية مستفادة ، مما يؤدي إلى خلل في قاع الحوض وإمساكه مما قد يؤدي إلى القولون العصبي والإمساك.

* **العوامل الخطورة لمتلازمة القولون العصبي**:

1- النساء: حوالي ضعف عدد النساء المصابات بالشرط. ليس من الواضح السبب ، لكن بعض الباحثين يعتقدون أن الهرمونات المتغيرة في الدورة الشهرية قد يكون لها علاقة بها.

2-العمر: يمكن أن يؤثر IBS على الأشخاص من جميع الأعمار ، لكنه أكثر احتمالًا للأشخاص في سن المراهقة خلال الأربعينات من العمر.

3-التاريخ العائلة: أظهرت بعض الدراسات أن جيناتك قد تلعب دورًا لأصابه بمتلازمة القولون العصبي.

4-المشكاكل العاطفية: يبدو أن بعض الأشخاص الذين يعانون من القولون العصبي يعانون من مشكلة في التوتر أو لديهم اضطراب عقلي أو تعرضوا لحدث صدمة في حياتهم ، مثل الاعتداء الجنسي أو العنف المنزلي.

5-الحساسية الغذائية: قد يكون لدى بعض الأشخاص جهاز هضمي متهيج عندما يأكلون منتجات الألبان أو القمح أو السكر في الفواكه التي يطلق عليها الفركتوز أو السوربيتول البديل للسكر. الأطعمة الدهنية والمشروبات الغازية والكحول يمكن أن تزعج الهضم. لا يوجد أي دليل على أن أي من هذه الأطعمة تسبب القولون العصبي ، ولكنها قد تسبب الأعراض.

6- وجبات كبيرة ، أو تناول الطعام أثناء قيامك بشيء من التوتر ، مثل القيادة أو العمل: مرة أخرى ، هذه الأنشطة لا تسبب متلازمة القولون العصبي ، ولكن بالنسبة لأولئك الذين يعانون من القولون الحساس للغاية ، فإنها يمكن أن تتسبب في مشاكل.

7-الادوية: أظهرت الدراسات وجود صلة بين أعراض القولون العصبي والمضادات الحيوية ومضادات الاكتئاب والأدوية المصنوعة من السوربيتول.

**مسببات متلازمة القولون العصبي**

إن السبب الدقيق وراء الإصابة بمتلازمة القولون المتهيج (IBS) غير معروف. وتتضمن العوامل التي يبدو أنها تلعب دورًا ما يلي:

1 - **التغير الهرموني**: تتعرض المرأة لاحتمال الإصابة بمتلازمة الامعاء المتهيجة بمعدل الضعف مقارنة بالرجل، وقد يُشير ذلك إِلى الدور الذي تلعبه التغييرات الهرمونية، فنجد العديد من النساء أن العلامات والأعراض تسوء خلال أو عند اقتراب الدورة الشهرية.

2 - **التهاب المعدة والأمعاء البكتيرية**: بحكم التعريف ، IBS لا يظهر مع التهاب مرئي. ومع ذلك ، على الرغم من أنه قد لا يكون مرئيًا أثناء الاختبارات التشخيصية الروتينية ، إلا أنه قد لا يزال مشاركًا. يُعتقد أن هذا الالتهاب يرتبط على الأرجح بالحالات التي سبقت فيها التهاب القولون العصبي نوبة من التهاب المعدة والأمعاء ، وهي حالة تصنف على أنها IBS بعد العدوى(IBS-PI).

3- **عدم تحمل بعض الأطعمة** (حساسية الطعام) على سبيل المثال: القمح ، الأطعمة الدهنية ، المشروبات الغازية والكحول.

4-**الحساسية المفرطة للألم**: (الأشخاص الذين يعانون من التهاب القولون العصبي يشعرون بمزيد من الألم عند توسع القناة الهضمية لديهم قد يكون لديهم عتبة أقل للتعرض لألم من القناة الهضمية).

5-**التهاب في الأمعاء:** (يؤدي إلى زيادة عدد استجابة الجهاز المناعي المرتبطة بالألم والإسهال).

6-**فرط الحساسية الحشوية** هو شعور متزايد بالألم في الأعضاء الداخلية للجسم.

7**-تغيرات في البكتيريا الموجودة في الأمعاء (النُبيتات المجهرية).** والنبيتات المجهرية هي البكتيريا "النافعة" القاطنة في الأمعاء، والتي تعلب دورًا رئيسيًا في صحتك. تشير الأبحاث إلى أن النبيتات المجهرية لدى الأشخاص الذين يعانون متلازمة القولون المتهيج قد تختلف عن النبيتات المجهرية لدى الأصحاء.

* **علامات وأعراض متلازمة القولون العصبي**

1. **الألم والتشنجات**: إن الشعور بالألم والتشنجات في أسفل البطن هما من الأعراض الرئيسية لمرض القولون العصبي. قد تؤدي تقلصات العضلات الهضمية المفرطة إلى انخفاض آلام البطن والتشنج.

2. **الغاز الزائد**: قد يتعرض الأشخاص المصابون بـ IBS للغاز الزائد. الشجاعة من الناس مع IBS أقل قدرة على تحمل ونقل الغاز. هذا يؤدي إلى شعور الأشخاص الذين يعانون من IBS بالغاز أكثر من الآخرين

3. **الانتفاخ** : يشير الانتفاخ إلى مجموعة من الغازات في القناة الهضمية ، مما قد يؤدي إلى شعور البطن بالشبع ويبدو أكثر استراحة من المعتاد.

4. **الإسهال**: هو أحد الأعراض الرئيسية للـ IBS. يحدث ذلك بسبب تقلص العضلات في القناة الهضمية أكثر مما يحتاجون إليه. قد يصاحب الإسهال شعور بتشنجات العضلات.

5. **الإمساك**: وهو ايضا من الاعراض الرئيسية للقولون العصبي يحدث عندما يجد الشخص صعوبة في تمرير البراز.

6. **التعب**: الشعور بالإرهاق الشديد أو التعب هو أحد الأعراض الشائعة الأخرى للـ IBS.

.**7ألم المفاصل**: قد يتعرض الأشخاص المصابون بالـ IBS لألم المفاصل بسبب زيادة الالتهاب في الجسم. كان لدى الأشخاص الذين يعانون من التهاب القولون العصبي زيادة في خطر حدوث نوع من آلام المفاصل تسمى اضطراب الفك الصدغي.

8. **الشعور بالإجهاد**: هناك صلة قوية بين القولون العصبي والإجهاد. يتحكم الجهاز العصبي في القناة الهضمية وكذلك الاستجابة للضغط النفس

* **انواع القولون العصبي:**

لغرض العلاج ، يمكن تقسيم القولون العصبي إلى ثلاثة أنواع فرعية ، بناءً على الأعراض: الإمساك السائد ، الإسهال السائد أو المختلط.

* **القولون العصبي مع الإمساك السائد (IBS-C**): تقارير المريض أن حركات الأمعاء غير الطبيعية عادة ما تكون الإمساك
* **القولون العصبي مع الإسهال السائد (IBS-D)**: تقارير المريض أن حركات الأمعاء غير الطبيعية عادة ما تكون إسهال
* **القولون العصبي مع عادات الأمعاء المختلطة (IBS-M)**: يفيد المريض أن حركات الأمعاء غير الطبيعية عادة ما تكون إمساك وإسهال (أكثر من ربع الإمساك وأكثر من ربع الإسهال).
* **التشخيص**

ليس هناك أي اختبار لتشخيص متَلاَزِمَةُ القولونِ المُتَهَيِّج (IBS) بشكل نهائي. من المرجح أن نبدأ بتاريخ طبي شامل وفحص طبي واختبارات لاستبعاد الحالات الأخرى. إذا كان يعاني من مُتَلاَزِمَةُ القولونِ المُتَهَيِّج (IBS) مع الإسهال، فمن المرجح أن يتم فحصك للكشف عن عدم تحمل الجلوتين (الداء البطني).

بعد أن تم استبعاد الحالات الأخرى، فمن المرجح أن نستخدم واحدة من هذه المجموعات من معايير التشخيص لمُتَلاَزِمَةُ القولونِ المُتَهَيِّج (IBS):

* **معايير روما:** تتضمن هذه المعايير ألمًا بالبطن وشعورًا بعدم الراحة يستمران لمدة يوم واحد على الأقل في الأسبوع خلال الأشهر الثلاثة الأخيرة، ويصاحبهما اثنان من هذه العوامل على الأقل: الألم وعدم الشعور بالراحة مرتبط بالتغوط أو بتغير عدد مرات التغوط أو بتغير قوام البراز.
* **معايير مانينغ:** تركز هذه المعايير على تخفيف الألم من خلال إخراج البراز وعلى حركات الأمعاء غير الكاملة والمخاط في البراز والتغيرات في قوام البراز. وكلما زادت الأعراض، ازدادت احتمالية الإصابة بُمتَلاَزِمَةُ القولونِ المُتَهَيِّج (IBS).
* **فحوصات إضافية**

وقد نقترح إجراء العديد من الاختبارات منها دراسات البراز للكشف عن الالتهاب أو الاضطرابات في قدرة الأمعاء على امتصاص عناصر التغذية من الطعام (سوء الامتصاص الغذائي). وقد تضطر إِلى إجراء عدد من الاختبارات الأُخرى التي تفيد في استبعاد الأسباب الأُخرى وراء الأعراض.

وتتضمن الاختبارات التصويرية ما يلي:

* **التنظير السيني المرن:** فحص القسم الأسفل من القولون (السيني) باستعمال أنبوب مرن ينتهي بضوء (التنظير السيني).
* **تنظير القولون:** يستعمل أنبوب صغير ومرن لفحص القولون بأكمله.
* **التصوير بالأشعة السينية أو التصوير المقطعي المحوسب:** تُنتج هذه الاختبارات صوراً للبطن والحوض قد تتيح لنا استبعاد الأسباب الاُخرى وراء ظهور الأعراض لاسيِّما إِذا كان يُعاني من ألم البطن. وقد تملأُ الأمعاء الغليظة بسائل (الباريوم) الذي من شأنه إظهار أي مشاكل كانت على الصور السينية. ويُدعى اختبار الباريوم في بعض الأحيان باختبار مجموعة المعدة والأمعاء السفلية.

ويُمكن أن تتضمن الفحوص المختبرية ما يلي:

* **اختبارات عدم تحمل اللاكتوز:** اللاكتيز هو إنزيم ضروري لهضم السكر الموجود في منتجات الألبان. فإذا كنتَ لا تُنتج اللاكتيز فقد تُعاني من مشاكل تشبه تلك التي تُسببها متلازمة الأمعاء المتهيجة بما في ذلك الألم البطني والغازات والإسهال. وقد يوصي الطبيب بإجراء اختبار النفس أو يطلب منك عدم تناول الحليب ومنتجاته لعدة أسابيع.
* **اختبار النفس للكشف عن الإفراط في نمو الجراثيم:**يُمكن أن يحدد اختبار النفس أيضاً ما إِذا كان المريض يعاني من زيادة في نمو الجراثيم في الأمعاء الدقيقة. ويشيع فرط نمو الجراثيم أكثر لدى الأشخاص الذين خضعوا إِلى عملية جراحية في الامعاء أو عانوا من مرض السُّكَّري أو من مرض آخر يُسبب إبطاء الهضم.
* **التنظير الداخلي العلوي:** يتم إدخال أنبوب طويل ومرن في الحلق ويمر أسفلاً عبر القناة التي تربط الفم بالمعدة ( المريء). وتسمح الكاميرا المتصلة بنهاية الأنبوب بمعاينة أعلى القناة الهضمية والحصول على عينة نسيج (الاختزاع) وسائل من الأمعاء الدقيقة ذلك للكشف عن فرط نمو الجراثيم. وقد يقترح أيضاً إجراء التنظير الداخلي إِذا اشتبه بالإصابة بالداء البطني:
* **اختبارات البراز:** يُمكن أن يتم فحص بُراز للكشف عن الجراثيم والطفيليات أو عن السائل الهضمي الذي يُنتَج في الكبد (الحمض الصفراوي) إِذا يعاني من الإسهال المزمن.
* **المضاعفات:**

1**-البواسير:**  **Hemorrhoids**

**2-سوء التغذية: Malnutrition**

**3-الاكتئاب والقلق:** **Depression and anxiety**

**4-تغيير نمط الحياة:** **Changing the lifestyle**

* **دور التمريض بالإجراءات الوقائية من متلازمه القولون العصبي**

1-توفير التعليم المريض والأسرة وتعزيز العادات الغذائية الجيدة.

2 - تشجيع المريض على تجنب مسببات الطعام (مثل القمح والأطعمة الدهنية والتفاح والمشروبات الغازية).

3 - يتم تشجيع المريض على تناول الطعام في أوقات منتظمة ومضغ الطعام ببطء وبدقة.

4 - تجنب تناول السوائل مع وجبة الغذائية وذلك بسبب قد يؤدي إلى انتفاخ البطن.

5. ممارسة الرياضة بانتظام والحصول على قسط كاف من النوم.

6- تخفيف الضغط عن طريق (تقنيات الاسترخاء - مثل تمارين التأمل أو التنفس). الأنشطة البدنية - مثل اليوغا ، وممارسة التمارين الرياضية بانتظام - مثل المشي والجري أو السباحة

7 - تجنب شرب الكحول وتعاطي السجائر

8- يجب على الأشخاص المصابين بالإمساك زيادة الأطعمة الغنية بالألياف (مثل الخبز والحبوب الغنية بالنخالة والحبوب الكاملة مثل الأرز البني).

9- يجب على الأشخاص المصابين بالإسهال تجنب التحلية الصناعية الموجودة في حلويات السكر والمشروبات.

* **التدابير الوقائية من القولون العصبي**

نظرًا لأن مرض القولون العصبي هو مرض معقد ، لا يوجد طريق محدد واحد يجب اتباعه عند تصميم خطة النظام الغذائي المثالية. يوصي معظم الأطباء بنهج من مرحلتين:

 1- تتضمن توصيات أولا الالتزام بنمط الوجبة العادية مع تقليل استهلاك الألياف غير القابلة للذوبان والكحول والكافيين والأطعمة الغنية بالتوابل والدهون. وهناك حاجة أيضا ممارسة التمارين الرياضية بانتظام وتجنب الجفاف.

2- إذا فشلت هذه التدخلات فيجب ان نبدئ في المرحلة الثانية، أي تنفيذ نظام FODMAP منخفض أو نظام غذائي خالٍ من الغلوتين تحت إشراف أخصائي رعاية صحية .

**أ .نمط الحياة والعلاجات المنزلية:**

 التغييرات البسيطة في النظام الغذائي ونمط الحياة غالبا ما توفر الوقاية من القولون العصبي, سيحتاج الجسم إلى وقت للرد على هذه التغييرات:

**- تجربة مع الألياف:** تساعد الألياف في تقليل الإمساك ولكن يمكن أن تؤدي أيضًا إلى تفاقم الغاز والتشنج. حاول ببطء زيادة كمية الألياف في النظام الغذائي على مدار أسابيع مع الأطعمة مثل الحبوب الكاملة والفواكه والخضروات والفاصوليا. مكملات الألياف قد تسبب غازات ونفخ أقل من الأطعمة الغنية بالألياف**.**

**- تجنب الأطعمة المشكلة:** القضاء على الأطعمة التي تؤدي إلى أعراض مثل. (الأطعمة الدهنية ، منتجات الألبان ، القمح ، الفواكه عالية FODMAP ، الخضراوات عالية الفودماب والفاصوليا والبقول ، الأطعمة الغنية بالتوابل ، المحليات الصناعية ، الصودا ، الكحول ، القهوة والمشروبات الأخرى مع الكافيين ، والوجبات الكبيرة)

**- أكل في أوقات منتظمة:** لا تخطي وجبات الطعام ، وحاول تناول الطعام في نفس الوقت تقريبًا كل يوم للمساعدة في تنظيم وظائف الأمعاء. إذا كنت تعاني من الإسهال ، فقد تجد أن تناول وجبات صغيرة ومتكررة يجعلك تشعر بالتحسن. ولكن إذا تم الإمساك ، فإن تناول كميات أكبر من الأطعمة الغنية بالألياف قد يساعد في نقل الطعام عبر الأمعاء.

- **ممارسة الرياضة بانتظام:** التمرين يساعد في تخفيف الاكتئاب والضغط النفسي ، ويحفز الانقباضات الطبيعية للأمعاء

**ب .نظام غذائي منخفض FODMAP:**

هو اختصار قابل للتخمر، سكريات متعددة السلسلة ، سكريات ثنائية السلسلة، سكريات أحادية السلسلة و البوليولات**(**FODMAPs). هذه هي الكربوهيدرات قصيرة السلسلة الموجودة في العديد من الأطعمة التي تميل إلى التخمير وزيادة حجم السائل والغاز في الأمعاء الدقيقة والكبيرة. يمكن أن يؤدي الاستهلاك المفرط لـ FODMAPs إلى تطور انتفاخ البطن والانتفاخ وآلام في البطن. بالنظر إلى أن هذه هي السمات المميزة لـ IBS ، فمن المنطقي أن التخلص من الأطعمة عالية FODMAP من شأنه أن يساعد في منع و / أو تخفيف هذه الأعراض. يمكن أن يكون النظام الغذائي صعبًا ، حيث أن العديد من الأطعمة الشائعة مرتفعة في FODMAPs.

**هناك خمسة أنواع من FODMAPs:**

• **الفركتان** (الموجود في القمح والبصل والثوم والشعير والملفوف والقرنبيط)

• **الفركتوز** (الموجود في الفاكهة والعسل وشراب الذرة عالي الفركتوز)

• **جلاكتوليغوساكاريدس** (موجود في البقوليات والفاصوليا)

• **اللاكتوز** (الموجود في الحليب وأطعمة الألبان الأخرى)

• **البوليولات** (موجود في ثمار الحجر والبطاطا الحلوة والتفاح والكرفس).

* تم تصميم نظام غذائي منخفض FODMAP على مرحلتين كجزء من نظام غذائي للتخلص:

**المرحلة الأولى**: الأطعمة التي تحتوي على نسبة عالية من الفودماب مقيدة لفترة قصيرة من الوقت ، بشكل عام ما بين ثلاثة إلى ستة أسابيع.

**المرحلة** **الثانية**: يتم إعادة إدخال الأطعمة في النظام الغذائي ، نوع FODMAP واحد في كل مرة ، لتقييم التحمل لكل منها.

* **المعالجة الطبية لمتلازمه القولون العصبي**
* **المعالجة الغير الدوائية:**

العلاج غير الدوائي هو العلاج الأولي الذي يتم تقديمه بشكل خاص للمرضى الذين ليس لديهم أعراض ليست حادة بما يكفي لإضعاف نوعية الحياة.

1. **التعديلات الغذائية:** يجب نصح المرضى الذين يعانون من أعراض القولون العصبي لتجنب الأطعمة المنتجة للغاز مثل الفول والبصل والجزر والموز والكرفس والخوخ والمشمش وبراعم بروكسل ، جرثومة القمح ، المعجنات ، الخبز ، وكذلك بالمثل فرط الحساسية الحشوية يؤدي إلى إزعاج مبالغ فيه. يجب وضع المرضى الذين يعانون من عدم تحمل اللاكتوز في نظام غذائي خالٍ من اللاكتوز. وبالمثل ، يجب وضع هؤلاء المرضى الذين يعانون من الانتفاخ المستمر على الرغم من تجنب الأطعمة المنتجة للغاز في تجربة تجريبية على نظام غذائي خالٍ من اللاكتوز ، كما يجب وضع مرضى القولون العصبي على نظام غذائي منخفض في السكريات المخمرة ، السكاريد ، السكريات الأحادية والبوليولات ( FODMAPs) والتي تشمل تجنب العسل ، وشراب الذرة عالي الفركتوز ، والتفاح ، والكمثرى ، والكرز ، والمانجو أو القمح.
2. **النشاط البدني**: ثبت أن التمرين مفيد للصحة لأنه يقلل من خطر الإصابة بأمراض القلب والأوعية الدموية واضطرابات الغدد الصماء ويحسن تكييف العظام والعضلات ويقلل مستويات القلق والاكتئاب . أظهرت نتائج **تجربة العشوائية المنتظمة** مع 75 مريضا IBS أن زيادة النشاط البدني بشكل معتدل على مدى فترة 12 أسبوعا خفض الأعراض المرتبطة IBS.
3. **العلاج النفسي**: المرضى الذين يعانون من القولون العصبي قد زادوا أيضًا من معدلات القلق والاكتئاب والجسدنة مقارنةً بالأفراد الأصحاء , وبالتالي ، فإن التدخل النفسي هو أيضًا طريقة عقلانية للعلاج لمرضى القولون العصبي ، والعديد من طرائق العلاج النفسي مثل العلاج السلوكي المعرفي (CBT) ، العلاج بالتنويم المغناطيسي الموجه. تشتمل مكونات علاج CBT لـ IBS على تثقيف نفسي حول الفيزيولوجيا المرضية الدقيقة لـ IBS ، واستراتيجيات الاسترخاء مثل التنفس الغشائي ، وإعادة الهيكلة المعرفية لمعالجة القلق المتعلق بالأعراض

* **المعالجة الدوائية**
* **المعالجة الدوائية للامساك السائد لمتلازمه القولون العصبي IBS-C:**

**المسهلات Laxatives : -**

المسهلات تساعد في تقليل الإمساك ولكن ليس لها أي تأثير على آلام البطن. بعض المسهلات الشائعة المستخدمة تشمل اللاكتولوز وحليب المغنيسيا والبولي إيثيلين جليكول (PEG). بالنسبة لأولئك الذين لا يستجيبون مع المسهلات ، ينصح باستخدام خط إضافي من العلاج قد يشمل عقاقير مثل لوبيبروستون أو ليناكلوتيد أو بليكاناتيد.

**لوبيبروستون (آميتيزا) Lubiprostone:-**

 يُمكن أن يزيد اللوبيبروستون من إفراز السوائل في الأمعاء الدقيقة، وبالتالي يفيد في دفع البراز إِلى خارج الجسم. هو منشط لقناة الكلوريد يعزز إفراز السائل المعوي الغني بالكلوريد والذي تمت الموافقة عليه للاستخدام في الإمساك مجهول السبب المزمن و IBS-C وهو متاح كبسولات الجيلاتين. ، يوصف في جرعة من 8 ميكروغرام مرتين يوميا تؤخذ عن طريق الفم مع الطعام والماء وموانع للاستخدام في المرضى الذين يعانون من انسداد الجهاز الهضمي المشتبه أو المعروف.

**ليناكلوتيد (لينزس)**  **Linaclotide**: -

مكن أن يزيد الليناكلوتايد من إفراز السوائل في الأمعاء الدقيقة للمساعدة على دفع البراز إِلى خارج الجسم , مؤشرات وموانع استخدامه مماثلة مثل لوبيبروستون ومتاح كبسولات.

هو موانع استخدامه أيضا في مرضى الأطفال الذين تقل أعمارهم عن 6 سنوات ويوصف بجرعة 290 ميكروغرام عن طريق الفم مرة واحدة يوميا ل IBS-C. ثأثيره الجانبي الأكثر شيوعًا هي الإسهال وآلام البطن وانتفاخ البطن وانتفاخ البطن.

**بليكاناتيد Plecanatide**: -

آلية العمل والإشارة وموانع هي نفس ليناكلوتيد. وهي متوفرة على شكل أقراص وتعطى بجرعة 3 ملغ مرة واحدة يوميًا عن طريق الفم من أجل IBS-C. التأثير السلبي الأكثر شيوعًا هو الإسهال الذي قد يكون شديدًا ، وتشمل الآثار النادرة الأخرى التهاب الجيوب الأنفية وعدوى الجهاز التنفسي العلوي وانتفاخ البطن وآلام البطن وانتفاخ.

* **المعالجة الدوائية للإسهال السائد IBS-D:**

**لوبيراميد Loperamide** : -

هوعامل شائع مضاد للإسهال تم اختباره من خلال تجارب محكومة في مرضى IBS-D. ينصح بجرعة 2 ملغ ، 45 دقيقة قبل الوجبة على جرعة محددة بانتظام. يمنع استخدامه في الأطفال أقل من 2 سنة خوفا من الاكتئاب في الجهاز التنفسي ، في الإسهال من الأمراض المعدية والزحار الحاد.

**الوكسادولين (فايبرزي) Eluxadoline**: -

يُمكن أن يُخفف الالوكسادولين الإسهال ذلك عن طريق تقليل التقلصات العضلية وإفراز السوائل في الأمعاء وزيادة انفتال العضلات في المستقيم. ويُمكن أن تتضمن الآثار الجانبية الغثيان وألم البطن والإمساك الخفيف. وهو ناهض لمستقبلات الأفيونيات المفعول ومضاد إسهال تم إدخاله مؤخرًا تم الإشارة إليه للاستخدام في البالغين الذين يعانون من IBS-D بجرعة تتراوح بين 75 و 100 ملغ عن طريق الفم مرتين يوميًا تؤخذ مع الطعام. وهي متوفرة أقراص وموانع استخدامه في المرضى الذين يعانون من تعاطي الكحول

**ريفاكسيمين (زيفاكسان) Rifaximin** : -

وهو مشتق من ريفاميسين ، وهو يعمل عن طريق تثبيط تخليق الحمض النووي الريبي البكتيري عن طريق الارتباط بوليميريز الحمض النووي الريبي البكتيري المعتمد على الحمض النووي. تمت الموافقة على استخدامه في المقام الأول في الإسهال والاعتلال الدماغي الكبدي ، وهو متوفر على شكل أقراص ويتم بطلانه في المرضى الذين يعانون من فرط الحساسية المعروف لمجموعة ريفاميسين المضادة للبكتيريا. . الآثار الجانبية الأكثر شيوعًا عند تناول جرعات أقل هي انتفاخ البطن والصداع وآلام البطن والتشنج المستقيمي والغثيان وإلحاح البراز.

**الوستيرون (لوترونيكس)** **Alosetron**: -

إِن الالوستيرون مُصمم لتحقيق استرخاء القولون وإبطاء حركة الفضلات خلال الأمعاء السفلية.  هو مضادات مستقبلات **5HT3**على الخلايا العصبية المعوية وكذلك الخلايا العصبية الطرفية والمركزية الأخرى التي تؤثر على تنظيم الألم الحشوي ، والإفرازات المعدية المعوية ، والعبور القولوني الذي يرتبط جميعها بالفيزيولوجيا المرضية لـ IBS. يشار حاليًا فقط إلى النساء المصابات بـ IBS-D الوخيم بجرعة 1 ملغ عن طريق الفم مرتين يوميًا وموانع الاستعمال عند المرضى الذين يعانون من الإمساك ومرض الأمعاء الالتهابي والتهاب الرتج والانسداد المعوي.

* **العوامل الدوائية - متنوعة:**

**مضادات التشنج Antispasmodics : -**

هذه الأدوية هي تلك التي تؤثر إما على استرخاء العضلات على نحو سلس (مثل مبيفيرين وبنافيرين) أو تلك التي تعمل من خلال خصائصها المضادة للكولين أو مضادة المسكارين. هذه الأدوية توفر الراحه على المدى القصير في أعراض آلام البطن في المرضى الذين يعانون من

القولون العصبي.

**المضادة للاكتئاب Anti-depressants: -**

هناك عنصر نفسي كبير في القولون العصبي ، بما في ذلك أعراض الاكتئاب والقلق والرهاب والجسدنة. تحتوي مضادات الاكتئاب على العديد من الإجراءات الفعالة في علاج القولون العصبي. بالإضافة إلى علاج الاكتئاب الأساسي ، فإنها تعدل حركية الأمعاء ، وتغير استجابات العصب الحشوي ، ولها خصائص مسكنة قد تفيد بعض المرضى.

 تميل مضادات الاكتئاب ثلاثية الحلقات إلى إبطاء انتقال القناة الهضمية بينما تميل مثبطات إعادة امتصاص السيروتونين المحددة (SSRI) إلى إنتاج عبور أسرع ، خاصة في الأمعاء الدقيقة. لذلك ، قد يكون SSRIs أكثر ملاءمة في القولون العصبي المهيمن على الإمساك ولكن هذا التأثير لا يزال قيد التقييم. قد تحتاج مضادات الاكتئاب ثلاثية الحلقات إلى استخدامها بحذر عند بعض المرضى لأنها قد تسبب الإمساك أو تزيده.

تحتوي مضادات الاكتئاب على خاصية مسكنة بالإضافة إلى تأثيرات تحسين الحالة المزاجية ، كما تعمل مضادات الاكتئاب ثلاثية الحلقات على إبطاء وقت العبور المعوي من خلال آثارها المضادة للكولين وبالتالي تفضيل استخدامه في IBS-D.

**منثاكارينMenthacarin :-**

هذا هو مزيج من الزيوت الأساسية مثل زيت النعناع وزيت الكراويا حيث يكون المنثول في زيت النعناع يعمل على عرقلة قناة الكالسيوم وبالتالي ممارسة تأثير تشنج في حين يعتقد أن زيت الكراوية له آثار على تدفق الصفراء ويحسن الانتفاخ ويؤثر على خلايا العضلات الملساء المعوية.

خلصت مراجعة منهجية حديثة إلى أن منثاكارين يقلل من قيمة شدة الألم بمعدل 50-75 ٪ على مدى فترة 28 يومًا في المرضى الذين يعانون من عسر الهضم الوظيفي المرتبط بأعراض القولون العصبي وبالتالي يشير إلى أن منثاكارين يمكن أن يكون بالفعل خيار علاج للمرضى الذين يعانون منمتلازمة القولون العصبي

**البروبيوتيك Probiotics : -**

البروبيوتيك هي الكائنات الحية الدقيقة الموجودة بشكل طبيعي في الجهاز الهضمي التي تساعد في الهضم وتقليل الالتهابات.

من أمثلة منتجات الألبان التي تحتوي على البروبيوتيك:

• الأجبان القديمة ، مثل الشيدر ، جودة ، أو جبن موزاريلا

•زبادي

**العلاج بالتنويم المغناطيسي** **Hypnotherapy**

هو استخدام التنويم المغناطيسي أو حالة تشبه الغيبوبة التي يكون للمريض خلالها تركيز وتركيز كبير. في مثل هذه الحالة ، يمكن أن يكون للاقتراحات والصور الشفهية تأثير أكبر على الأداء البدني والعقلي للشخص بشكل أكبر من أي شيء آخر. يتم التنويم المغناطيسي عادة مع معالج مرخص من أجل مساعدة المريض على السيطرة على بعض السلوكيات أو التعامل بشكل أكثر فعالية مع القلق أو الألم. لقد ثبت أن العلاج بالتنويم المغناطيسي فعال في تقليل وإدارة أعراض القولون العصبي من خلال التجارب السريرية

**الوخز بالإبر Acupuncture**

هو استخدام الإبر الرفيعة التي يتم إدخالها عن طريق الجلد في نقاط استراتيجية في الجسم. وهو مكون رئيسي في الطب الصيني التقليدي وغالبًا ما يستخدم لعلاج الألم. كثير من المرضى الذين يعانون من متلازمة القولون العصبي (IBS) يسعون لتخفيف أعراضهم مع الوخز بالإبر. تم دراسة الوخز بالإبر كعلاج للـ IBS في التجارب السريرية ، وقد أثبتت بعض التجارب أن المرضى قد يستفيدون من الوخز بالإبر ويخففون من أعراضهم.

**الارتجاع البيولوجي** **Biofeedback**

هو أسلوب يمكن تعلمه لممارسة المزيد من التحكم في وظائف الجسم ، مثل التحكم في الأمعاء. الارتجاع البيولوجي هو عملية غير مؤلمة تستخدم أجهزة استشعار كهربائية تراقب وظائف الجسم وتوفر معلومات (ملاحظات) على جهاز كمبيوتر أو شاشة عرض فيديو. أظهرت الدراسات أن الارتجاع البيولوجي مفيد في تقليل الأعراض وشدة الأعراض من القولون العصبي. بالإضافة إلى ذلك ، يمكن أن يكون علاجًا فعال التكلفة

**العلاج السلوكي المعرفي cognitive behavioral therapy**

يمكن استخدام العلاج السلوكي المعرفي في إدارة المرضى الذين يعانون من القولون العصبي. لقد وجدت المراجعات المنهجية الحديثة أن التدخلات النفسية فعالة ، بما في ذلك الفوائد طويلة الأجل ، وأن المكاسب لا تعتمد على عدد الجلسات. في الواقع ، يبدو العلاج السلوكي المعرفي فعالًا في تنسيقات الحد الأدنى من الاتصال بالإضافة إلى التقنيات المختلفة (مثل الإنترنت والهاتف وتطبيقات الهواتف الذكية) وتدخلات المساعدة الذاتية وإشراك المتخصصين المدربين في مجال الصحة العقلية غير المحترفين لتقديم تدخلات







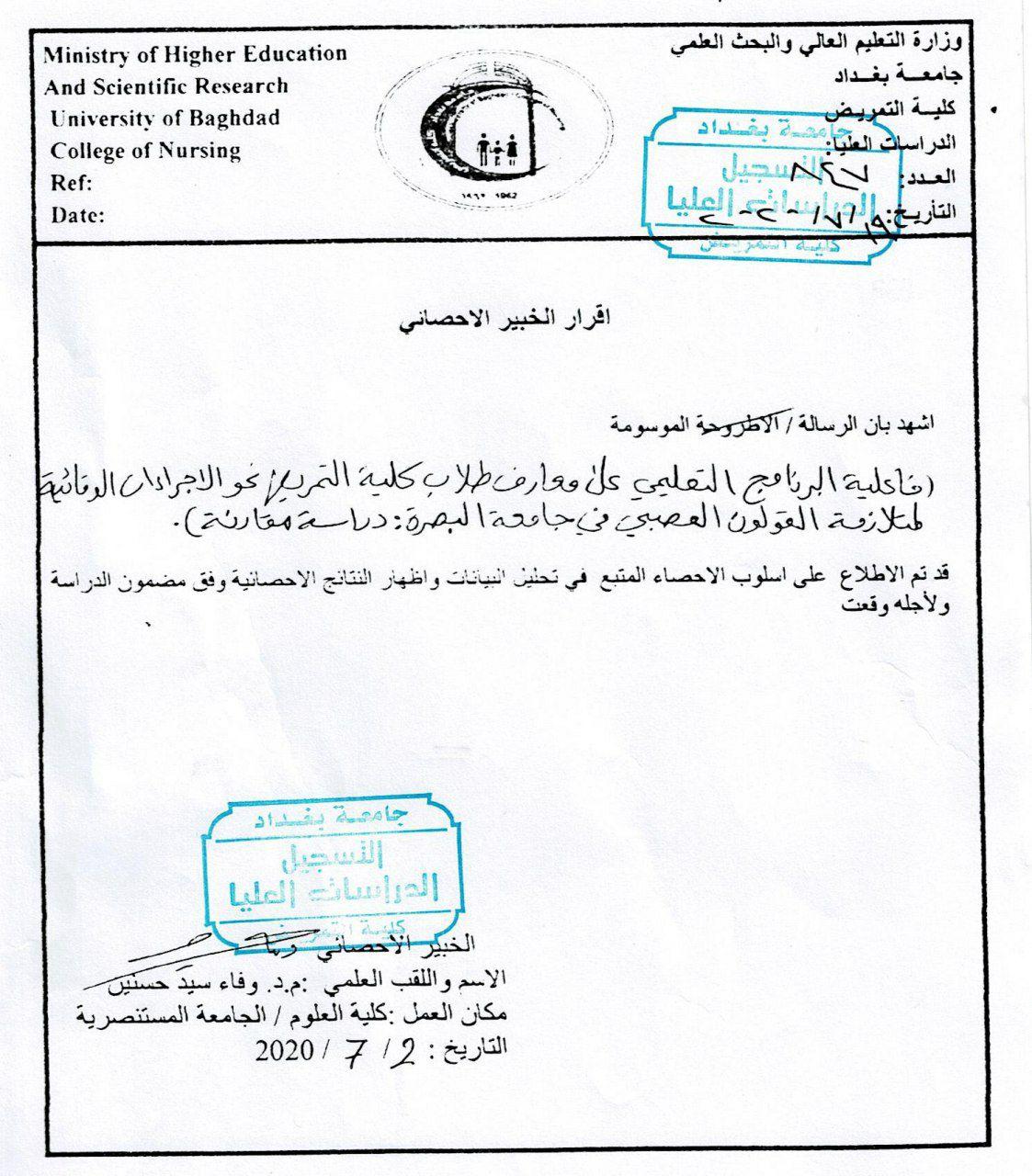
**Appendix F: Panel of experts**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ت | أسم الخبير | اللقب العلمي | الاختصاص | مكان العمل | سنوات الخبرة |
| 1 | **أ.د. هدى باقر حسن** | **أستاذ** | **تمريض بالغين** | **جامعة بغداد / كلية التمريض** | **33 سنة** |
| 2 | **أ.د حكيمة شاكرحسن** | **أستاذ** | **تمريض بالغين** | **جامعة بغداد/كلية التمريض** | **32سنة** |
| 3 | **أ.د.ضرغام مجيد حميد** | **أستاذ** | **تمريض بالغين** | **جامعة المثنى /كلية لتمريض** | **23 سنة** |
| 4 | **أ.د.خالدة محمد خضر** | **أستاذ** | **تمريض بالغين** | **جامعة بغداد / كلية التمريض** | **19 سنة** |
| 5 | **أ.د.حسين هادي عطية** | **أستاذ** | **تمريض بالغين** | **جامعة بغداد / كلية التمريض** | **16سنة** |
| 6 | **أ.م.د. سعاد جاسم محمد** | **أستاذ مساعد** | **تمريض البالغين** | **جامعة بغداد / كلية التمريض** | **40 سنة** |
| 7 | **أ.م.د سميرة محمد ابراهيم** | **أستاذ مساعد** | **صحة مجتمع** | **جامعة البصرة / كلية التمريض** | **35 سنة** |
| 8 | **أ.م.د. رجاء ابراهيم عبد** | **أستاذ مساعد** | **تمريض بالغين** | **جامعة بغداد / كلية التمريض** | **23 سنة** |
| 9 | **أ.م.د. جمعة جبر عبد الرضا** | **أستاذ مساعد** | **تمريض بالغين** | **جامعة بغداد / كلية التمريض** | **18 سنة** |
| 10 | **أ.م.د. سمير رزاق عليوي** | **مدرس** | **تمريض بالغين** | **جامعة المثنى /كلية التمريض** | **42 سنة** |
| 11 | **د.عبد الفتاح علي لزم** | **طبيب اختصاص** | **بورد عربي (دكتوراه) اختصاص طب باطني** | **مستشفى الفيحاء التعليمي** | **25سنة** |
| 12 | **د. مصطفى يونس حوشي** | **طبيب اختصاص** | **بورد عربي (دكتوراه) اختصاص طب باطني** | **مستشفى الموانئ العام** | **25 سنة** |
| 13 | **د.عبد علي شنان صابر** | **طبيب اختصاص** | **بورد عربي (دكتوراه) اختصاص طب باطني** | **مستشفى البصرة التعليمي** | **16 سنة** |

**Appendix F2:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Table (3. 5) degree of questions** | | | |
| **Questionnaire’s parts** | **Score per question** | **Number of Sample** | Score |
| Information | 2.5 | 20 | 50 |
| Protection | 3 | 20 | 60 |
| Prevention | 1.5 | 20 | 30 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Table (3. 6) Evaluation of Question’s degrees** | | | |
| **Information’s questions** | | | |
| **Degree** | **Evaluation** | **Min** | **Max** |
| 0 – 9 | Very Weak | 0 | 50 |
| 10 – 19 | Weak |
| 20 – 29 | Medium |
| 30 – 39 | Good |
| 40 – 50 | Very Good |
| **Protection’s questions** | | | |
| **Degree** | **Evaluation** | **Min** | **Max** |
| 0 – 11 | Very Weak | 0 | 60 |
| 12 – 23 | Weak |
| 24 – 35 | Medium |
| 36 – 47 | Good |
| 48 – 60 | Very Good |
| **Prevention’s questions** | | | |
| **Degree** | **Evaluation** | **Min** | **Max** |
| 0 – 5 | Very Weak | 0 | 30 |
| 6 – 11 | Weak |
| 12 – 17 | Medium |
| 18 – 23 | Good |
| 24 – 30 | Very Good |

Appendix F3:

Appendix F4:



**الخلاصة**

متلازمة القولون العصبي (IBS) هو اضطراب شائع يتميز بألم في البطن وتغير عادة في الأمعاء لمدة 3 أشهر على الأقل يتميز أيضًا بعدم الراحة في البطن المرتبطة بوظيفة الأمعاء المتغيرة ؛ الشذوذات الهيكلية والكيميائية الحيوية غير موجودة.

تصميم شبه تجريبي تم استخدامه لإجراء هذه الدراسة ، تم إجراؤه باستخدام نهج ما قبل وبعد الاختبار لمجموعتين من العينات (الدراسة والتحكم) لتحديد فعالية برنامج تعليمي على معرفة طلاب التمريض تجاه متلازمة القولون العصبي (IBS) في كلية التمريض - جامعة البصرة خلال الفترة من 8 كانون الاول 2019 إلى 8 تموز 2020.

تكونت العينة الهادفة (غير الاحتمالية) من (80) طالباً تمريضاً تم اختيار العينة من كلية التمريض جامعة البصرة.

تم استخدام استبانة لجمع بيانات الطلاب والتي تتكون من أربعة أجزاء: الجزء الأول يتعامل مع الخصائص الاجتماعية والديموغرافية للطلاب ، والجزء الثاني يتعامل مع المعلومات العامة حول متلازمة القولون العصبي ، بينما يتعامل الجزء الثالث مع الحماية من متلازمة القولون العصبي والجزء الرابع يتناول الوقاية من متلازمة القولون العصبي الذي يتكون من (43) مادة (اختيارات متعددة وصحيح أو خطأ). الاستبيان الذي تم تكوينه من البرنامج التعليمي للدراسة.

يتم تنفيذ صلاحية الأداة من خلال لجنة مكونة من (13) خبيراً ، وقد أجريت دراسة تجريبية لتحقيق موثوقية الأداة التي تتكون من (10) طلاب في كلية التمريض جامعة البصرة. استخدم الباحث إصدار SPSS) 16 (لتحليل البيانات ، وتم تطبيق الأساليب الإحصائية الوصفية والاستدلالية.

كانت نتائج الاختبار المسبق لمعرفة الطلاب بالتدابير الوقائية لـ IBS. كانت معرفة ضعيفة المستوى ، بينما أظهرت نتائج ما بعد الاختبار أن معرفة الطلاب بالتدابير الوقائية لـ IBS. تحسن إلى مستوى جيد من المعرفة بسبب التأثير الإيجابي لبرنامج التدريس.

ووجدت الدراسة أن هناك فرقًا كبيرًا بين الفترة الأولية للاختبار القبلي والبعدي لمجموعتي الدراسة في كلتا المرحلتين لمعرفة الطلاب عند (P 0.01).

وخلصت الدراسة إلى أن البرنامج كان له تأثير على معرفة الطلاب بمجموعات الدراسة للمرحلتين ، حيث تحسنت مستويات المعرفة من مستوى ضعيف إلى مستوى جيد.

يوصي الباحث بإجراء برامج تعليمية مستمرة للطلاب فيما يتعلق بالتدابير الوقائية ل IBS لزيادة مستوى معرفتهم فيما يتعلق بكيفية إرشاد المرضى إلى كيفية التعامل مع هذه المتلازمة ، وزيادة وقت المحاضرات وعددهم حول IBS وأخذ محاضرات في أكثر من دورة واحدة

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**جامعة بغداد**

**فاعلية البرنامج التعليمي على معارف طلاب كلية التمريض نحو الإجراءات الوقائية لمتلازمة القولون العصبي في جامعة البصرة : دراسة مقارنة**

**رسالة تقدم**

**ماهر عبد الامير عطية**

**لفرع**

**تمريض البالغين − كلية التمريض/جامعة بغداد**

**كجزء من متطلبات نيل درجة الماجستير علوم في التمريض**

**بإشراف**

1. **د. صباح عباس احمد**

**ذو الحجة 1441 هجرية تموز 2020 ميلادية**