



University of Kerbala

College of Nursing

**Effect of Using Hot Water Bag and Acupressure Technique
in Constipation among Patients with Stroke:
A Comparative Study**

Thesis Submitted

by

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Supervised By

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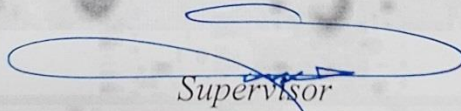
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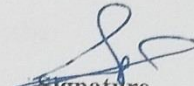
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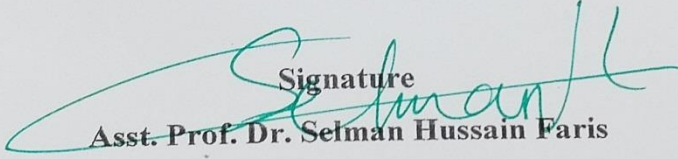

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Dedication

- I dedicate my effort and work to:

- Who inspired me with knowledge and the ability to work Allah and my Lord

- Who gave their life for my happiness..... My father

- To whom I wished to see this day My mother

- The shining stars in my life... My brother and sisters

- My love, my dear and my life partner... My husband

- My life and my soil my children

- Everyone who helped me to complete this thesis

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Abstract

Background: Constipation is a common concern after stroke. Patients with constipation usually strain to eliminate stool, which increases the risk of another stroke. This study aims to determine effect of hot water bag on constipation and compares the effect of hot water-bag and acupressure technique in constipation among patient with stroke.

Methods: A quasi-experimental study was conducted from 1st October 2023 to 30th June 2024 at Imam Al-Hussein Medical City and Imam Al-Hassan Al- Mujtaba Hospital, a purposive sample involving 88 stroke patients divided into three groups: hot water-bag (n=30), acupressure (n=30), and control (n=28). The hot water-bag group applied a hot water-bag to the abdomen four times daily for three days, while the acupressure group received instruction on applying pressure to specific points (LI4, LI3, SJ6) for three minutes each point, twice a day, for three days. The control group received conventional care. Data collection tools included patients' demographics and clinical data, Wexner constipation questionnaire, and constipation assessment scale. The study results were examined using both a descriptive analysis and an inferential analysis procedure (e.g., independent sample t-test, paired sample t-test, and one-way ANOVA); a p-value of <0.05 was detected to be statistically significant.

Results: Before the intervention, 92.9% of patients in the control group, 96.7% of patient in the hot water-bag group, and 100% of patient in the acupressure group had severe constipation. Post-intervention, these findings changed to 0.0% for the hot water-bag and acupressure groups and 92.9% for the control group. Significant differences were observed between pre- and post-intervention assessments in hot water-bag group and acupressure technique groups at p-value (p=0.000). However, there was no significant difference between the hot water-bag and acupressure groups in reducing constipation at p- value (p=0.136).

Conclusion: Both acupressure and hot water-bag application are effective in improving bowel movements in stroke patients with constipation. These non-

invasive techniques can be considered as complementary therapies for managing this common post-stroke complication. Moreover, patients with stroke who experience constipation respond similarly to hot water-bag and acupressure technique.

Recommendation: In addition to standard care, the researcher suggested using the hot water bag and acupressure approach to treat constipation in patients with stroke.

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List of Abbreviations and symbols

<i>Items</i>	<i>Meaning</i>
AHA	American Heart Association
AHP	Acupoint Herbal Patching
AIS	Acute Ischemic Stroke
AMI	Acute Myocardial Infarction
BBB	Blood-Brain Barrier
BMI	Body Mass Index
CAS	Constipation After Stroke
CED	Cerebral Edema

Qi	Flow Of Life Energy
CKD	Chronic kidney disease
CNS	Central Nervous System
CPSP	Central Post-Stroke Pain
CV12	Central Vener12
CV4	Central Venter4
CVI	Content Validity Index
DF	Degree Of Freedom
DM	Diabetes mellitus
DVT	Deep Vein Thrombosis
F	Frequency
FC	Functional Constipation.
FVI	Face Validity Index
G	Group
GCP	Good Clinical Practice
GI	Gastrointestinal
H0	Null Hypothesis
HR	Hazard Ratio
HSP	Hemiplegic Shoulder Pain
HSP	Hemp Seed Pill
HTN	Hypertension
ICH	Intracerebral Hemorrhage
ICU	Intensive Care Unite
I-CVR	Item Level Content Validity Index
I-FVI	Item Level Face Validity Index
IHD	Ischemic heart disease
II	Two
IICP	increased intracranial pressure
III	Three
LI4	Large Intestine 4
LI 3	Large Intestine 3
MBE	Malignant Brain Edema
MS	Mean Of Score
NIBS	Non-Invasive Brain Stimulation
NS	Non- Significant
OD	Oropharyngeal Dysphagia
PE	Pulmonary Embolism
PSC	Post-Stroke Constipation
PSD	Post-Stroke Depression
PSUI	Post-Stroke Urinary Incontinence
P-value	Probability Value
QOL	Quality of life
ROM	Range Of Motion

S	Significant
SAI	Stroke-Associated Infection
S-C.VI.UA	Scale-Level Content Validity Index Based On The Universal Agreement
SD	Standard Deviation
S-FVI	Scales Levels Of Face Validity Index
SHS	Stroke Heart Syndrome
SIHI	Stroke Induced Heart Injury
SJ6	San Jioe 6
SP6	Spleen 6
SPARS	Shoulder Pain After Recent Stroke
ST	Stomach 25
SAH	Subarachnoid hemorrhages
SPSS ver. 26	Statistical Package Of Social Sciences Version 26
ST 36	Stomach 36
TACS	Transcranial Alternating Current Stimulation
TB6	Triple Burner6
TCM	Traditional Chinese Medicine
TDCS	Transcranial Direct Current Stimulation
TEAS	Transcutaneous Electrical Acupoint Stimulation
TIA	Transient Ischemic Attack
TMS	Transcranial Magnetic Stimulation
TPU	Transcranial Pulsed Ultrasound
UA	Universal Agreement
UI	Urinary Incontinence
USA	United States of America
UTI	Is Urinary Tract Infections
UI	Urinary incontinence
VTE	Venous Thromboembolism
W+HO	The World Health Organization
X ²	Chi-Square
%	Percentage

Chapter One

Introduction

1.1. Introduction:

Stroke is a medical condition characterized by acute, concentrated neurological damage. It is caused by vascular injury (hemorrhage or infarction) to the central nervous system (Murphy and Werring, 2020) . Acute cerebrovascular accidents, or strokes, are classified into two categories based on their pathophysiology: ischemic stroke and hemorrhagic stroke (Liu, et al., 2022).

The most frequent cause of stroke is an unexpected blockage of an artery (ischemic stroke); however, blood can also flow into brain tissue when a blood vessel breaks, resulting in hemorrhagic strokes (Paul, et al., 2021). Although its effect varies according on the subtype, hypertension is the most important modifiable risk factor for stroke. Eighty-five percent of strokes are ischemic, mostly caused by arteriosclerosis, cardioembolism, big artery atherothromboembolism, and small vessels thrombosis. Extracranial dissection is one of the many possible causes of ischemic strokes in younger persons (Murphy and Werring, 2020).

The complications of a stroke in the early days of hospitalized patients significantly increase the mortality rate. The most common complication of stroke is constipation (Alijanpour , et al., 2022), cardiovascular complications (Battaglini, et al., 2020), brain edema (Cheng, et al ,2020), dysphagia (Jones ,et al., 2020), pneumonia (Ding, et al., 2019), urinary incontinence (Wang, et al., 2020), urinary tract infections (Faura ,et al., 2021), seizures (Galovicet et al., 2021), contractures (Matozinho, et al., 2021), shoulder pain (Nadler, et al., 2020), deep venous thrombosis (Wang, et al., 2019b), aphasia (Ryan, et al., 2022), headache (Lebedeva, et al., 2021), and depression (Blöchl, et al., 2019). Among the most frequent side effects after a stroke is constipation. The symptoms of constipation include hard stools, straining, elongated or failed bowel motions, stomach bloating,

and the need for digital dispassion. Constipation is also characterized by a decrease in the frequency of bowel movements per week (włodarczyk, et al., 2021). Zhang, et al., (2021) reported that 51% of people experience post-stroke constipation. This high incidence of the disease places a significant financial burden on individuals, families, the public health system, and the medical service system.

The rates of constipation in stroke patients during the acute stages is 45%. The percentage of patients who did not defecate within three to six days of admission was 45.1% and 31.8% in the intensive care unit (ICU) kamali, et al ,2022). Constipation symptoms might include rectal tearing, loss of appetite, and distension in the abdomen. Constipation can result in intestinal obstruction, fecal impaction, and even sepsis if treatment is not received (Shin and Park, 2018). Secondary constipation following stroke can have multiple causes, including new-onset of stroke constipation. Medications (such as antidepressants, antiepileptics, antihistamines, antispasmodics, anticholinergics, calcium channel blockers, and calcium and iron supplements) are among these causes. Metabolic illnesses are also included (hypothyroidism, hypoparathyroidism, hypercalcemia, hypokalemia, hypomagnesemia, diabetes mellitus, uremia, and heavy metal poisoning), neuropathies (cognitive impairment, immobility and Chagas disease) (Alijanpour, et al., 2022).

common pharmaceutical treatments for constipation can effectively relieve symptoms temporarily, while the prolonged use of these medications has been linked to a number of negative side effects, including metabolic changes and diarrhea. Numerous non-pharmacological methods have been studied for the management and prevention of constipation, including acupuncture, auriculotherapy, massage, biofeedback moxibustion, and herbal medicine (Wang, et al., 2019 b).

Acupressure are non-pharmacological treatments for constipation. It is a simple, non-invasive technique that involves applying pressure to certain body regions along energy meridians identified and utilized by traditional Chinese medicine. Chinese medicine holds that all matter, living or inanimate, is in a state of constant flux (Şahan and Yildiz, 2020). By strengthening the body and penetrating Qi (energy of life) through the meridians and collaterals, acupressure can alleviate constipation by causing Qi to flow through the meridians. This encourages the Qi to work and the gastrointestinal system to active (Nieh, et al., 2023).

Acupressure improves quality of life and works well for treating ailments like pain, allergy irritation, nausea and vomiting. Acupressure has the ability to increase digestive fluid and gastrointestinal motility when it is applied to the precise places. It activates the sacral nerve, which controls feces, and is used to treat and prevent constipation (Şahan and Yildiz, 2020).

Heat packs may increase intestinal motility by a somatovisceral response that is triggered by activating somatic nerves through the spinal or supraspinal pathway. As a supraspinal and/or spinal reflex, applying heat to stimulate warm receptors in the skin may reflexively suppress sympathetic nerves and increase parasympathetic nerve activity in the intestine. If such a reflex takes place at the same level of intestinal innervation, peristalsis would be enhanced (Makino, et al., 2015).

1.2 .Important of the study:

Stroke occurs when there is a disruption or cessation of blood flow to a portion of the brain, causing that area to stop functioning normally. A cerebral artery rupture or occlusion can result in a stroke. It is one of the most prevalent neurological conditions that incapacitate middle-aged and older people is stroke) Murphy and Werring, 2020). Stroke is second cause leading of death worldwide (Alijanpour, et al., 2022). The disturbance in

blood flow to the cerebral arteries could be caused by one of two things: Firstly, blood clots within the cerebral arteries may arise from the hardening and clogging of the arteries due to the narrowing induced by fat, cholesterol, and calcium. A blood clot that originates in the heart spreads to the brain, cutting off blood supply to it (Murphy and Werring,2020).

According to the most recent common recent World Health Organization (WHO) figures released in 2017, stroke accounts for 8.13% of all fatalities in Iraq (Al-Jubouri & Abd Ali, 2020). Stroke can have a number of complications including dysphagia, constipation, depression, consciousness disorders, and cognitive impairments (Liu, et al., 2022). Thirty to sixty percent of patients with stroke experience constipation after their stroke, it making a prevalent complication. Constipation was occurring in between 33% and 55% of patients with stroke (Alijanpour, et al., 2022) . Constipation can be brought on by low consciousness, poor water intake, irregular colon contractibility, immobility, and drug side effects. This illness has been linked to neurological disability, reliance, extended hospital stays, as well as motor, cognitive, and communication difficulties in stroke survivors (Zhang, et al., 2018).

Abdominal distension, hemorrhoids, rectal tearing, and appetite loss can all be complications or side effects of constipation. (Shin and Park, 2018) . Constipation is more common during the recovery phase than it is during the acute phase, which further impairs patients' ability to recover and negatively impacts their social interactions and quality of life (QoL)(Xu, et al., 2021). Blood pressure rises quickly when straining during stools because it raises intra-abdominal pressure. Stroke incidence and mortality rates rise as a result of the elevated intracranial pressure (Nieh, et al., 2023). Stool softeners, prokinetic drugs, osmotic, irritating laxatives, dietary changes, and lifestyle modifications are frequently used to treat constipation. Adverse responses

from conventional treatment include dehydration, distension in the abdomen, and recurrence following medication withdrawal) Li, et al., 2022).

Complementary non-pharmacological therapies have drawn more attention recently. According to the philosophy of traditional Chinese medicine (TCM), acupressure, a supplemental TCM therapy, is a useful way to manage and prevent constipation. TCM involves physically stimulating acupoints with the fingers. Thus, in addition to Western medicine, acupressure may be a supplemental therapy for managing constipation (Nieh, et al., 2023).

One of the most therapeutic and palliative technique that physicians, nurses, and even patients themselves employ is acupressure, which produces positive outcomes for patient care and nursing interventions. In acupressure, nurses use pressure with their fingers instead than utilizing needles, medications, or other tools (Mohammadi, et al., 2023).

However, by inducing a somatovisceral reflex through the activation of somatic nerves via the spinal or supraspinal pathway, hot packs have the potential to enhance intestinal motility. As a supraspinal and/or spinal response, heat activation of warm receptors in the skin may automatically decrease sympathetic nerve activity and promote parasympathetic nerve activity in the bowel. Peristalsis would increase if this reaction took place at the same level as intestinal innervation. (Makino, et al., 2015).

Abdominal hot water pack significantly lowered the mean time to passing the first flatus after staging surgery procedures using a hot water pack and rubber water bag with a fluffy cover filled with tap water [80°C] applied to the abdomen four-time a day postoperatively for 30 minutes each time in a subumbilical or supraumbilical vertical midline incision (Güngördük, et al., 2023).

1.3.Statement of the Problem:

Stroke is a type of neurological disorder that is defined by a sudden, concentrated loss of function in the central nervous system due to vascular injury (hemorrhage, infarction). Stroke is the second most common cause of death (Silveira, et al., 2021). One of the most common adverse effects of stroke is constipation (Alijanpour, et al., 2022).

Constipation is characterized by bowel problems, including solid stools, decreased frequency of bowel movements, extreme straining to defecate, a feeling of anorectal obstruction, anal digitation, and a sense of incomplete evacuation after defecation (Bharucha, et al., 2019). Constipation can cause negative effects such as abdominal distension, appetite loss, rectal tearing, and hemorrhoids (Shin and Park al, 2018). Blood pressure rises quickly as a result of straining during bowel movements, which raise ICP. The incidence and fatality rates of strokes rise as a result of elevated ICP (Nieh, et al.,2023).

Constipation is severely affects patients' quality of life (QoL), social connections, and ability to heal (Xu, et al., 2021).Constipation treatments use a multimodal approach. Changes in lifestyle, such as a high-fiber diet and regular exercise, biofeedback therapies, cognitive behavioral therapy, and, if necessary, surgery, can all help manage constipation. To relieve symptoms, over-the-counter medications such bulking fibers, laxatives (osmotic & stimulants), and stool softeners are easily accessible (Naseer, et al., 2020).The most crucial stage in treating constipation is non-pharmacological therapy, which includes diet adjustments, exercise, and putty training. An average of one hour of exercise five days a week, depending on the patient's tolerance, can help the constipated patient's symptoms (Danialia, et al., 2020). However, the available data is insufficient to substantiate its safety and effectiveness of this method . this study used Chinese medicine holds that all matter, living or inanimate, is subject to an energy flow. The basis for

the unification among these energy flows is harmony and balance. According to the theory of Eastern medicine, illnesses result from disruptions in the flow of life energy (Chi/Ki), which circulates through the body through channels known as meridians (Şahan and Yildiz, 2020).

Acupressure is subtype of acupuncture. It treats constipation by applying pressure to certain acupoints with the palms, elbows, and fingers in order to facilitate the flow of Qi. It's been shown to work for pregnant women and patients with psychiatric conditions as well as for constipation patients with advanced cancer (Hu, et al., 2021). Long-term elevated abdominal pressure, decreased blood return, and persistently elevated ICP are all consequences of constipation. These conditions can quickly result in cerebral hemorrhage, cerebral thrombosis, myocardial infarction, and other cardiovascular disorders, as well as an increased risk recurrent stroke of patient (Zhang, et al., 2021).

Using an abdominal hot water pack and rubber water bag with a fluffy cover filled with tap water [80°C] applied to the abdomen four time –a day postoperatively for 30 minutes each time in a sub umbilical or supraumbilical vertical midline incision significantly reduced the mean time to passing the first flatus after staging surgery procedures (Güngördük, et al., 2023).

Many previous study reported that acupressure technique is effect on constipation for patient with stroke but related to hot water bag there is no previous study to determine effect of hot water bag on constipation among patient with stroke and there is no study that compare the acupressure and hot water bag on constipation in patient with stroke so researcher need to determine which method is more effect for decrease constipation severity among patient with stroke.

1.4. Research hypothesis:

- **H0:** There is no significant effect of acupressure technique and hot water bag on constipation in patient with stroke.
- **H1:** Acupressure technique has a significant effect and hot water bag on constipation in patient with stroke
- **H1:** There is a significant difference between the effect of acupressure technique and hot water bag on constipation in patients with stroke.
- **H0:** There is no a significant difference between the effect of acupressure technique and hot water bag on constipation in patients with stroke

1.5. The study objectives:

1.5.1. To assess constipation in patients with stroke.

1.5.2. To identify the effect of hot water bag on constipation in patients with stroke.

1.5.3. To investigate the acupressure technique affects constipation patients with stroke.

1.5.4. To compare the effect between hot water bag and acupressure on constipation in patients with stroke.

1.6. Definition of terms:

1.6 .Acupressure:

1.6 .1.a. Theoretical definition: Acupressure is a self-administered, non-invasive method of applying pressure on hand and for arm to certain energy channels on the body (Kamali, et al., 2022).

1.6.1 .b .Operational definition: alternative technique to stimulate acupoint in body to reduce constipation in patient with stroke.

1.6.2. Hot water bag:

1.6.2.a. Theoretical definition: is a hot water bottle with a stopper that is used to apply heat to a particular area of the body or to just keep warm, usually when in bed (Makino, et al., 2015).

1.6.2.b Operational definition: Hot water bags can increase intestinal motility . By applying heat, these bags assist in the treatment of discomfort. Increased body temperature causes improved blood circulation, which relaxes and soothes targeted muscles.

1.6.3. Constipation:

1.6.3.a Theoretical definition: Infrequent or difficult defecation, with or without symptoms like prolonged straining, a feeling of incomplete evacuation, hard or lumpy stools, or feces needing manual techniques to finish, are considered constipation (Wang, et al., 2020c).

.1.6.3. b Operational definition: Constipation is a common complication after stroke that can severely influence a patient's quality of life and rehabilitation. constipation can cause varying degrees of harm to patients with stroke, ranging from mild symptoms such as abdominal pain and bloating to severe symptoms such as intestinal obstruction.

Chapter Two

Review of

Literature

Chapter Two

Review of literature

This chapter presenting the previous studies that's are related to the study variables in concerns to the stroke, it is type, signs and symptoms, risk factors, complications, management of stroke including pharmacological and non-pharmacological intervention of problems related to stroke, in addition to theoretical frame work related to the study.

2.1. Theoretical framework:

Younas and Quennell, (2019) documented that nursing theory guided practice and enables the nurses to explain what they do for patients and why they do it, which enhances the quality of nursing care. Gonzalo, (2023) documented that nursing theorist Lydia Eloise Hall (September 21, 1906 – February 27, 1969) developed the Care, Cure, Core nursing model. Her idea defined nursing as "participation in care, core, and cure." parts of patient care, whereas nurses are solely in charge of providing care, while other members of the health team share responsibility for core and cure." Lydia Hall made an effort to inform the public about public health-related issues.

There are several ways to characterize Lydia Hall's theory, and there are just as many theories regarding the relationships between theories and models. Theories are large bodies of knowledge with a vast reach that seek to explain consistent events; they are a collection of related claims that describe or explain phenomena in a methodical manner (Fried, 2020).

Nursing is defined by Hall's theory as the "participation in care, core, and cure aspects of patient care, where the core and cure are shared with other members of the health team, whereas care is the sole function of nurses." Establishing an interpersonal contact with the person is the main goal of care in order to support the development of the core (Bhaumik & Priyadarshini, 2021).

2.1.1. Lydia E. Hall theory major concepts:

Individual:

Hall's primary focus is providing nursing care to individuals sixteen years of age or older who have finished the acute phase of a long-term illness. The patient, not the medical professional, is the source of inspiration and energy for healing. Hall emphasizes the significance believe that every individual is special, capable of learning and development, and in need of an all-encompassing plan (Gonzalo, 2023).

Health:

Bhaumik & Priyadarshini, (2021) emphasized that's it is reasonable to assume that being in a state of self-awareness and actively choosing activities that are best for oneself constitutes health. Hall emphasizes the importance of assisting the individual in understanding the significance of their actions in order to recognize issues and find solutions by growing in maturity and self-awareness.

Society and Environment:

The individual is taken into consideration when discussing the idea of society or environment. Hall is credited with coming up with the concept for the Loeb Center because she thought that being admitted to the hospital for treatment during a severe illness presents a difficult psychological experience for the patient. The goal of Loeb Center is to create an atmosphere that supports personal growth. In such a situation, the individual is the center of the nurses' efforts, and whatever actions they do in respect to the environment or society are done so with the intention of helping the individual achieve a particular objective (Bhaumik & Priyadarshini, 2021).

Nursing:

According to Lydia Hall's theory, nursing is thought to be responsible for all of the care, core, and cure aspects of patient care (Gonzalo, 2023).

2.1.2. Halls three aspect of nursing (Figure 2-1):

Care: Nurses are determined to fulfill their noble responsibility of providing patients with care. The care circle lists a professional nurse's main duties, which include providing patients with physical care and helping them with actions such as eating, cleaning, peeing, and clothing. The comfort of the patient is the nurse's first focus when providing this care (Gonzalo, 2023). Education and assistance with need that patients cannot meet on their own are also part of the nurse's job description (Bhaumik & Priyadarshini, 2021).

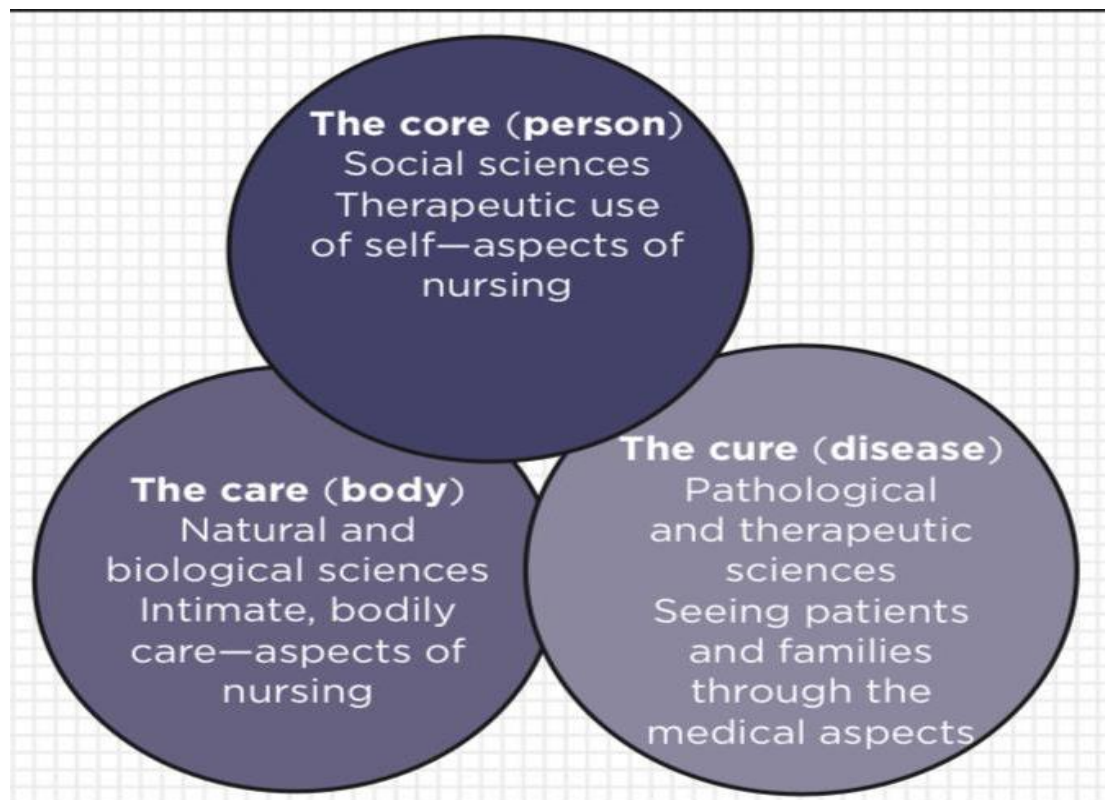


Figure (2-1): Lydia Hall's theory three aspects of nursing (Bhaumik & Priyadarshini, 2021)

Cure:

Bhaumik & Priyadarshini, (2021) documented that a part of nursing that entails giving treatments and medications is the cure. In the approach, Hall clarifies that the nurse shares the cure circle with other medical specialists including doctors and physical therapists. These are the interventions or activities intended to treat the patient for the condition or illness that they are experiencing. The nurse actively represents the patient throughout this part of nursing care. This approach holds that the part of nursing that involves administering treatments and medications is the remedy. The nurse talks about the cure cycle with medical professionals like doctors and physical therapists, according to the model proposed by Hall. Put another way, these are the procedures or therapies meant to control the patient's state, irrespective of the ailment or situation they are facing. In this nursing care phase, the nurse advocates on behalf of the patient (Gonzalo, 2023).

Core:

The third element, which Hall believed all assisting professions shared with nursing, was the core. Hall claims that using relationships for therapeutic reasons is the fundamental component (Smith and Parker, 2015). The social, emotional, spiritual, and intellectual needs of the patient in connection to their family, their institution, their society, and the wider world were the focus of this area. This can use a reflective method to help the patient express their ideas and feelings about the disease process and its consequences. Through this kind of conversation, the patient is able to grow in maturity and self-identification (Bhaumik & Priyadarshini, 2021). The foundations of fundamental knowledge are found in the social sciences and in self-healing techniques. Among the background knowledge and interpersonal skills development are self-awareness and competencies a nurse needs in order to apply themselves therapeutically. The goals of the

interpersonal process are to help patients focus on and solve problems while also helping them understand themselves (Smith and Parker, 2015).

2.1.3. Assumptions of Hall's Care, Cure, Core Theory:

Bhaumik & Priyadarshini, (2021) asserts the main presumptions of this model that include: the patient, not just the medical staff, possesses the motivation and vitality required for healing. Rather than being seen as acting independently, the three components of nursing should be seen as being interrelated. The three aspects interact and the circles that represent them change in size based on the patient's overall course of progress.

2.1.4. The practical application of Lydia Hall's theory in the present study:

Among the three main components the patient (core), the body (care), and the nursing attitude (cure), different diseases may cause the patient to experience a range of different feelings and behaviors, necessitating the nurse's implementation of the necessary procedures and nursing care in consideration of these variations. Patients with stroke in the present clinical study who had constipation related to stroke as shown in figure (2-2). Numerous complications related to stroke, including constipation, delayed the patient's recovery time as well as the effectiveness of the medication. Patients might utilize their self-potential to the maximum extent by controlling their own emotions, motivations, and goals by using acupressure technique and hot water bag to relieve constipation. Consequently, rehabilitation's objective can be successfully attained.

- **Care:** The researcher tries to assist the patient to reduce the severity of constipation through implementing acupressure technique and hot water bag for three days.

- **Cure:** The researcher solved the patients’ problems including severity of Constipation level through the application of an interventional protocol using acupressure technique and hot water bag procedures.
- **Core:** The researcher tries understand the patients’ feeling and determine the effect of constipation on patient’ social, emotional, spiritual and intellectual status through a therapeutic relationship.

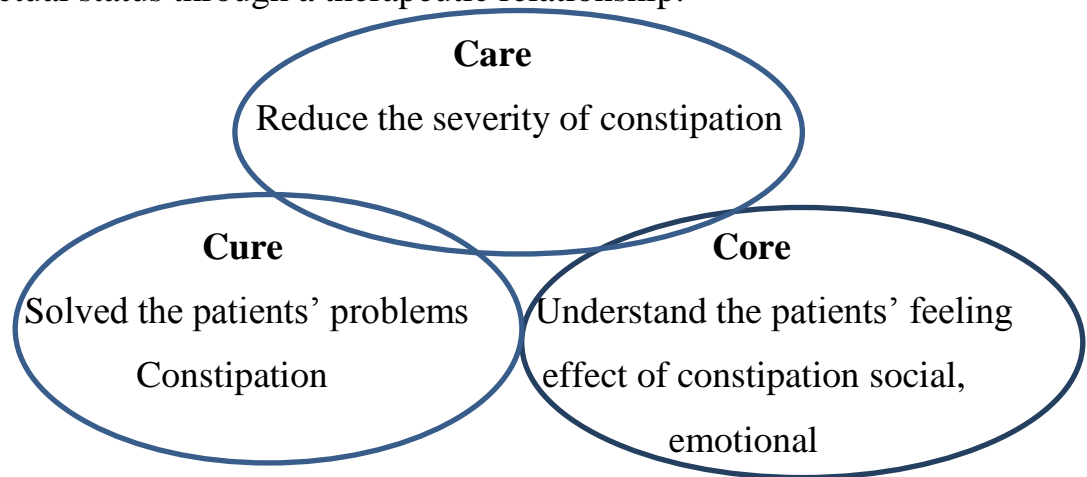


figure (2-2) diagram application of theory

2.2. Overview of stroke:

Stroke is well-defined as a quickly emerging focal neurological deficit maintaining more than 24 hours or causing death without clear causes other than vascular origin. Globally, stroke is the leading cause of severe functional impairment and chronic neurologic impairment (Alharbi, et al., 2019). Hollist, et al., (2021), reported that the stroke is firstly referred to as "apoplexy" following Hippocrates' discovery of it more than 2500 years ago. In Greek, "apoplexy" means "struck by violence." This indicates a rapid attack on one's bodily well-being upon the onset of its symptoms, which are primarily paralysis.

Overtime, the term "apoplexy" has developed from its archaic origins to a form of brain attack. Since additional details about the disease's pathophysiology and clinical course become available, the nomenclature has changed to reflect the vast amount of knowledge that has been discovered about the disease process (Furie, 2020).

The World Health Organization (WHO) reported, that the stroke was determined as the third most common cause of death after ischemic heart disease and infectious/parasitic disease in 40 of the 57 countries that the WHO represented, including the United States of America (USA). It was also one of the top ten causes of death in fifty-four countries (Chang, et al., 2021). Al-Obaidi, et al., (2023), stated that over 12 million people globally have suffered from strokes, with annual death rates exceeding 5.5 million over the last 20 years. Based on statistical data, stroke ranks as the second most common cause of death, resulting in lifelong disability for around 5 million people.

Paul and Jalil, (2020) revealed that's one in four people globally will experience a stroke at some point in their lifetime. The incidence of stroke is also on the rise. The burden of accumulated risk factors and an aging population are the two main causes of this rise in the lifetime risk of stroke. Furthermore, a rising epidemic of stroke risk factors in younger persons has been linked to rising socioeconomic level in developing nations.

In Iraq, the coronary heart disease and stroke are the most common diseases seen in clinical practice. According to Global Burden of Disease 2019, the stroke incidence in Iraq wide-ranging from 196.2 to 218.3 per one-hundred thousand persons in 2019. Furthermore, a lot of Iraqis claim to have unhealthy lives, which include eating high-calorie meals poorly and not getting enough exercising, this may increase the risk of developing this fatal condition (Al-Obeidi, et al., 2023).

2.3. Type of stroke:

Three different types of strokes, that include ischemic, hemorrhagic, and transit ischemic attack. They will be discussed as follow:

2.3.1. Ischemic stroke:

An ischemic stroke occurs when a brain vessel occludes, obstructing 80% or more of the vessel (Alrabghi, et al., 2018). Shoily, et al., (2019) exposed that the most prevalent kind of stroke is ischemic stroke (IS). According to predictions made by the American Heart Association (AHA), ischemic strokes, which happen when a clot or other obstruction stays in a brain blood channel, account for 87% of all stroke cases. There are two types of ischemic stroke: thrombotic stroke and embolic stroke. An embolic stroke can occur from a blockage or clot that forms anywhere in the body and travels to the brain to impede blood flow. Thrombotic stroke is brought on by a clot that restricts blood flow in an artery supplying blood to the brain.

According to the result of a descriptive cross-sectional study that was done in the Babylon Governorate, Iraq, by Talib and Baiee, (2024), to examine the epidemiologic features of patients diagnosed with stroke admitted to Al Sadiq Teaching Hospital, reported that 51.9% of cases were ischemic strokes. Hastuti, et al., (2024), conducted retrospective cross-sectional study in the neurology department of Blambangan General Hospital in Banyuwangi, confirmed that the ischemic strokes accounted for 62.0% of patients diagnosed with stroke. In a systematic review and meta-analysis study that was conducted by Liu, et al., (2022) to determine the effect of acupuncture for disorders of consciousness in patients with stroke, indicated that's according to it is pathophysiology, strokes can be clinically classified into two categories: ischemic stroke and hemorrhagic stroke. The ischemic kind accounts for roughly 62.4% and the hemorrhagic, 37.6%.

According to Boehme, et al. (2017), ischemic stroke can be further classified into groups known as etiologic subgroups, which are believed to represent the etiology of the stroke. Chugh, (2019), reveals that ischemic stroke can be classified into three categories: large vessel stroke,

lacunar stroke, and cardio-embolic stroke. A massive artery stroke can cause thrombosis or embolism to obstruct several major brain arteries, including the vertebra basilar structure, the middle cerebral arterial system, the anterior cerebral arterial system, and the inside of the carotid artery.

2.3.2. Hemorrhagic stroke:

Hemorrhagic strokes can be show in a number of various medical conditions. The majority of individuals enter with serious headaches, nausea, and a dangerously elevated blood pressure. Severe neurological issues start to appear minutes after the first clinical signs. These early symptoms are mostly consistent with bleeding strokes, however they can sometimes occasionally be associated with other types of strokes (Ojaghihaghghi, et al., 2017). Montañó, et al., (2021), reported that about 20% of strokes are hemorrhagic type, with intracerebral hemorrhage (ICH) being the most prevalent kind. Where hypertension is left untreated, the frequency of ICH rises. A disproportionately increased risk of early death and long-term impairment is associated with ICH. Shoily, et al., (2019) emphasized that a weak blood artery burst or split, which results in hemorrhagic stroke. Though they are more deadly than ischemic strokes, hemorrhagic strokes are only predicted to represent 10–15% of all stroke cases. Hemorrhagic strokes can be classified as either intracerebral or subarachnoid.

O'Carroll, et al., (2020) exposed that are more than 80% of subarachnoid hemorrhages (SAH) are caused by aneurysm rupture; the remaining one-third of hemorrhages are from non-aneurysmal perimesencephalic. Although it is twice as lethal as ischemic stroke.

2.3.3. Transient ischemic attack:

A transient ischemic attack (TIA) is characterized as a brief episode of focused neurological impairment that does not result in a

permanent brain infarction and lasts less than 24 hours (Murphy and Werring, 2020). Shoily, et al., (2019) reported that the TIA caused by a clot, it is referred to as a "mini-stroke." Compared to other forms of stroke, TIA is characterized by a momentary blockage that lasts for an average of one minute, after which the symptoms go away in twenty-four hours. Although TIA does not result in long-term damage to the brain or its tissues, it is interpreted as a sign that another stroke may occur soon.

The clinical features of TIA appear prior to 20–25% of ischemic strokes, these clinical features last only a few seconds or minutes. Symptoms usually lasting less than an hour and infrequently may last up to 24 hours (Amarenco, 2020). Based on observational data, there was a 5% probability of having a stroke within three months, but that risk increased significantly after a TIA. Early clinical diagnosis and timely preventive therapies of TIA are connected to a decrease in the 3-month risk factors of stroke of up to 80% (Perry, et al., 2022).

2.4. Effect of stroke on body systems:

2.4.1. Cardiovascular effect:

Many of cardiovascular problems are commonly associated with stroke. Sposato, et al., (2020), documented that heart failure, nonfatal coronary syndromes, and cardiac arrhythmias are the most common frequent problems result in patients with stroke. Among other neuro-cardiogenic conditions, the brain-heart axis is linked to Takotsubo syndrome, sudden cardiac death, and the stroke-heart syndrome, which are post-stroke cardiovascular problems, an increased risk of nonfatal cardiovascular problems is associated with stroke. The clinical term "stroke heart syndrome" (SHS) refers to a series of post-stroke cardiac events that are caused by multiple pathophysiological pathways together referred to as "stroke induced heart injury" (SIHI).

Battaglini, et al., (2020) stated that the likelihood of cardiovascular problems varies: 3% for myocardial infarction; 50% for asymptomatic coronary stenosis. The likelihood of developing cardiac complications is directly correlated with the severity of the stroke, and the most dangerous complications after a stroke have been discovered during the acute period.

Wang, et al., (2019a) conducted a prospective observational study among 452 patients have acute stroke who had a stroke within 14 days to determine the clinical risk factors of asymptomatic deep venous thrombosis (DVT) in patients with acute stroke, reported that due to their immobility, patient with acute stroke may have an increased risk of DVT, however the majority of these patients are found to be asymptomatic. It is debatable whether routine DVT screening is necessary and whether preventative medication is beneficial for those who have had an acute stroke.

Ji, et al., (2019) conducted a cohort study (in-hospital medical complication) after acute stroke, which is a prospective registry of consecutive patients with stroke admitted to the Beijing Tiantan Hospital's department of vascular neurology, Venous thromboembolism (VTE) is especially dangerous for patient with stroke while they are in the hospital. Hemiplegic patient with stroke who do not take VTE prophylaxis are thought to have a 75% chance of developing DVT and a 20% chance of developing pulmonary embolism (PE). About 25% of occurrences of early fatalities following stroke are likely to be caused by VTE, which also kills 1%–2% of cases of acute stroke.

Tao, et al., (2021) conducted a study to investigate the role of vitamin D in the relationship between gender and DVT among patients with stroke, documented that age and sex have been demonstrated to affect the risk of DVT. It was more common in women over 65 years old, while it

was less common in women under 50. In addition, women were more likely than men to develop DVT.

2.4.2. Neurological effect:

Cheng, et al., (2020), stated that the brain edema occurred when conservative therapy is used, the deadly side effect of massive hemispheric infarction, malignant brain edema (MBE), has a high death rate of 40–78%. Within the first five days following the commencement of a stroke, quickly accumulating edema typically develops, leading to increased intracranial pressure (IICP), neurological degradation, and a herniation that ultimately results in death. Chen, et al., (2021) reported that in addition to impairing cerebral circulation, enlarged brain tissues can cause transtentorial herniation. The blood-brain barrier (BBB), which serves as a biochemical and physical barrier separating the central nervous system (CNS) from the peripheral circulation, is essential to preserving the CNS stable microenvironment. Increased paracellular permeability brought on by BBB malfunction under pathological circumstances, such as ischemic stroke, directly contributes to blood components extravasating into the brain and producing cerebral vasogenic edema.

Thorén, et al., (2017) revealed that the severe cerebral edema (CED) following an acute ischemic stroke accounts for five percent of cases of cerebral infarction-related death. The cause of CED is a disruption of the BBB brought on by endothelial dysfunction of the capillaries. Usually occurring between the second and fifth day following the commencement of the stroke, edema results in tissue changes and elevated intracranial pressure, both of which can be fatal. Malignant middle cerebral artery infarct is a term used to describe a massive, potentially fatal infarct of the middle cerebral artery region.

Galovic, et al., (2021) stated that the most frequent cause of epilepsy and seizures in older persons is stroke. About 6% of the 3-6

million stroke victims each year go on to develop post-stroke epilepsy. Shortly after a stroke, seizures may cause more metabolic stress and cell death, which can increase the size of the infarct, increase mortality, and have a poor functional impact. Another study that was done by Atuesta, et al., (2022) to investigate the prevalence of seizures after ischemic stroke reported that there are two types of post-stroke seizures: acute symptomatic, which manifests within the first week following the stroke, and remote symptomatic, which manifests after the first week.

Ryan, et al., (2021) conducted a systematic review of non-drug interventions to prevent and treat anxiety in people with aphasia after stroke, exposed that about 30–34% of stroke survivors suffer from aphasia, an acquired language impairment. Distress, despair, and anxiety are just a few of the detrimental psychological effects that can arise from aphasia, which impairs a person's capacity to use and/or understand language. Panic disorder, phobias, and generalized anxiety disorder are among the conditions classified as anxiety disorders. Xu, et al., (2021) conducted a study to investigate the associations between upper extremity motor function and aphasia after stroke. The study results exposed that 21%–38% of patients with stroke had aphasia, and roughly 24% also had co-occurrence.

Headache following ischemic strokes vary widely in frequency, and they are commonly described as a type of persistent discomfort following a stroke. Six months following an acute ischemic stroke, a persistent headache is predicted by a new-onset headache that manifests at that time (Harriott, et al., 2020). Lebedeva, et al., (2020) demonstrated that the percentage of cases of headaches linked to ischemic stroke ranges from 7.4% to 34%. Harriott, et al., (2020) revealed that it has been extensively documented that headache can manifest as a presenting symptom of

cerebrovascular disorders like vasculitis, venous sinus thrombosis, cervical artery dissection, and reversible cerebral vasoconstriction syndrome.

There are two sorts of headaches: acute (new, generally acute onset) and chronic (lasts longer than three months after the stroke has stabilized), depending on how the headaches progress. Acute headaches typically go away on their own, but chronic headaches can indicate an ischemic stroke, which can be extremely painful and can incapacitate a person's daily activities (Xie, et al., 2023).

2.4.3. Gastrointestinal effect:

Swallowing difficulties, or dysphagia, can be brought on by stroke-related lesions in the brainstem, subcortical control circuits, or cortical hemisphere (Jones, et al., 2020). Marin, et al., (2020) conducted a systematic review study to determine healthcare-related cost of oropharyngeal dysphagia and its complications after stroke, reported that because of the neurological damage they have sustained, patients with post-stroke syndrome frequently develop oropharyngeal dysphagia (OD). The incidence ranges from 37% to 78% during the acute phase. Although many patients show improvement in the weeks following their stroke, around 50% of individuals continue to have OD as a chronic illness, and complications may develop. Dysphagia affects a patient's overall health and can result in two main types of complications in post-stroke patients: those resulting from impaired swallow efficacy, which affects 25–75% of patients and causes malnutrition and dehydration, and those resulting from impaired swallow safety, which causes tracheobronchial aspiration, which in 50% of cases can result in pneumonia.

Alijanpour, et al., (2022) concludes that constipation is determining as the main gastrointestinal complication following stroke, it is among the most typical effects of an acute stroke. The usage of laxatives and the presence of constipation are both independently linked to an

increased risk of stroke and all-cause death. It happens to 22.9%–79% of stroke victims. Constipation was occurring in between 33% and 55% of patients with stroke, and it was linked to worse outcomes for those who had moderately severe strokes at baseline. Yuan, et al., (2022) conducted a systematic review and meta-analysis study to determine the effectiveness of acupoint herbal patching for constipation after stroke reported that when the basal ganglia and thalamus are the first sites of a stroke, constipation is more likely to happen. In 10% of stroke patients, constipation after stroke (CAS) is the cause of death. Constipation following intracerebral hemorrhage is more common in patients than ischemic stroke, according to data from a prior systematic review. Compared to the acute stage, the incidence is higher during the rehabilitative stage.

Shang, et al., (2021) conducted a systematic review and meta-analysis study to determine comparison of therapeutic effects of different acupuncture and moxibustion therapies on constipation after stroke treatment, reported that the constipation is more common during the recovery phase than during the acute phase, which negatively impacts patients' quality of life, social interactions, and ability to rehabilitate themselves. Constipation can also have detrimental impacts on a patient's mental and physical health, such as poor mood, reduced social activities, and a decreased quality of life, which can have a negative impact on treatment outcomes and raise expenditures.

2.4.4. Respiratory problem:

Jonge, et al., (2022) reported that respiratory complication after stroke such as pneumonia accounting for about one-third of cases after a stroke, the development of an infection is linked to an increased risk of death or a bad prognosis. The development of pneumonia usually occurs during hospital admission or within the first week or month following

stroke, the majority of pneumonias occur in the 48 to 72 hours following stroke.

Ding, et al., (2019) conducted a study using the burden scale for assessing pneumonia after acute ischemic stroke, documented that following an acute ischemic stroke (AIS), pneumonia is a common medical consequence that increases the risk of death and morbidity as well as lengthens hospital stay. Treating pneumonia is not as important as effective prevention. The following factors have been linked to pneumonia following AIS: advanced age, cognitive decline, the severity of the stroke, prolonged bed rest, dysphagia, and lowered body resistance.

2.4.5. Urinary tract effect:

Wang, et al., (2020a) conducted a systematic review and meta-analysis study to evaluate the efficacy and safety of electro-acupuncture against urinary incontinence after stroke, reported that urinary incontinence (UI) shows as one of the typical problems that patients with stroke experience. UI is defined by the International Continence Society as any involuntary urine leakage. It is a problem for 28% to 79% of stroke survivors worldwide. Stroke causes neurological abnormalities in the brain that impede survivors' detrusor function. UI is still one of the most prevalent side effects linked to high rates of morbidity, impairment, and institutionalization.

Jiang, et al., (2023) conducted a systematic review and meta-analysis study to determine electro-acupuncture for post-stroke UI, recognize that urinary urgency, frequency, and uncontrollably flowing urine from the urethra are the hallmarks of UI. 22% of male stroke survivors and 34% of female stroke survivors, respectively, had UI. Damage to the anterior cingulate gyrus, its descending pathways, and the basal ganglia is the main cause of urine dysfunction in stroke patients. The pathogenic

mechanisms underlying post-stroke urinary incontinence (PSUI) are not entirely known.

Faura, et al., (2021) conducted a study to evaluate stroke-induced immunosuppression and prediction of post-stroke infections, reported that one of the main post-stroke consequences that lowers patients' functional outcomes and raises their mortality rates is stroke-associated infection (SAI). Following a stroke, infections affect about 30% of stroke patients; the most prevalent type is urinary tract infections (UTI).

Rashid, et al., (2020) in a study to investigate the role of prophylactic antibiotics in critical care of stroke patients, report that a number of things, including the use of invasive techniques like catheterization and mechanical ventilation, can result in infections. Moreover, a stroke's systemic inflammatory response might impair immunity and raise the risk of infection.

2.4.6. Musculoskeletal effect:

Matozinho, et al., (2019) performed a study to explore the incidence and potential predictors of early onset of upper-limb contractures after stroke, reported that the main secondary consequences following a stroke are contractures, which are characterized by a decrease of passive joint range of motion (ROM). Long-term maintenance of the paretic upper-limb muscles in shortened positions due to inactivity and disuse causes soft tissue changes, including decreased number of sarcomeres in series, connective tissue remodeling, and decreased extensibility, which increases stiffness and decreases ROM in the joints. Persson, et al., (2020) indicted that the increased muscular tone and spasticity following a stroke may be detrimental to motor control recovery, muscle architecture, and day-to-day activities, among other health-related quality of life issues. The prevalence of elevated muscle tone in the first year following a stroke range from 4% to 46%.

Shoulder pain after recent stroke; hemiplegic shoulder pain (HSP) is a common consequence following stroke, which is the biggest cause of disability, it is occur within 72 hours' post-stroke and 8-10-week follow-up. There are numerous contributing variables to HSP, with distinct aspects taking precedence based on the time elapsed since a stroke. These considerations encompass both central and mechanical pain mechanisms. Patients with poor arm function, diminished passive shoulder abduction, left sided hemiplegia, and sensory impairment have an increased chance of developing HSP (Nadler, et al., (2020). Dyer, et al., (2020) conducted a systematic reviews study to determine the interventions for post-stroke shoulder pain reported that following a stroke, shoulder discomfort is a typical debilitating issue that affects 10% to 22% of patients with stroke. Three main etiological groups—central (central post-stroke pain), regional (chronic regional pain syndrome) and local mechanical pain—may present with HSP. Anwer, et al., (2020) conducted a systematic review study to determine the incidence, prevalence, and risk factors of HSP, reported that withdrawal from rehabilitation programs, lengthier hospital stays, less limb movement, and a lower quality of life are all possible outcomes of HSP.

Among persons with long-term shoulder pain after stroke, a range of physical therapies, including robotic training, mirror therapy, electrical stimulation, strapping and orthoses, and paretic arm placement, are mentioned in the literature as ways to relieve shoulder discomfort. However, no particular strategy has been proven to be more effective than the others. Since shoulder discomfort following a stroke may persist for a long time, many people must

control their pain in order to go about their everyday lives (Lindgren, et al.,2019).

2.4.7. Psychological effect of stroke:

Guo, et al., (2021) documented that people who have had a stroke may experience a number of consequences, such as dementia, cognitive disorder, psychosis, mania, sadness, anxiety, exhaustion, apathy, and sleeplessness. One of the frequent and dangerous side effects of stroke is post-stroke depression (PSD). Roughly one in three stroke survivors had post-stroke depression. It had a significant impact on functional rehabilitation, which resulted in a lower standard of living. Blöchl, et al., (2019) conducted a systematic review and meta-analysis of longitudinal study to determine how does depression after stroke negatively influence physical disability, described that many stroke survivors experience a wide range of physical and neuropsychiatric impairments following their stroke. Following a stroke, depression is more common and problematic. It is a significant burden for patients and their caregivers and affects approximately 30% of patients, often even months after the acute shock.

López-Espuela, et al., (2020) conducted a cross-sectional and observational study to identify depression following a stroke a predictive factor at six months' follow-up. According to patients who survived a stroke and subsequently visited the Complejo Hospitalario's vascular neurology clinic in Cáceres, post-stroke depression may have biological roots in addition to being a psychological response to a new impairment or possibly fatal event. The biological factors associated with PSD include lesion location, genetic predisposition, inflammation, overproduction of pro-inflammatory cytokines, neurogenesis in response to ischemia, modifications in neurotrophic factors, disruption of cortico-striato-pallido-thalamic-cortical projections, and changes in serotonergic, noradrenergic, and dopaminergic pathways, which alter amine levels.

2.5. Constipation in patients with stroke:

The inability or infrequency of bowel movements when wanted is known as constipation (Daniali, et al., 2020). Włodarczyk, et al., (2021) reported that's in Western countries, constipation is one of the most common gastrointestinal illnesses that are diagnosed in clinical practice. The estimated global prevalence ranges from 12% to 19%. Compared to Asia, constipation is more common in North America and Europe, most likely as a result of dietary, environmental, or cultural changes. Wang, et al., (2022) conducted a cross-sectional study to determine the prevalence of constipation in elderly and its association with dementia and mild cognitive impairment, reported that patient with stroke frequently experience constipation, which can have a serious negative impact on quality of life. Its primary symptoms include hard or lumpy stools, infrequent bowel movements (less than three times per week), or a feeling that something is missing. Constipation is more common as people age, with community-dwelling adults over 60 years old reporting a 33.5% prevalence rate. Narayanan, et al., (2021) conducted a study to assess sex-related differences in common functional gastroenterologic disorders, reported that more often women experience severe symptoms. Bloating and constipation are more common in males and females, respectively. This may be partially due to the fact that women are more likely than males to experience defecatory problems, which can lead to constipation.

Silveira, et al., (2021) conducted a study to investigate the prevalence of constipation in adults with obesity class II and III and associated factors, reported that obesity is a multifactorial chronic illness that is highly prevalent in adults of both sexes and is defined by an excessive buildup of body fat women's constipation has been linked to obesity and hormonal issues. In a multi-stage evolutionary study that was done by (Alijanpour, et al., 2022) exposed that the consequences of stroke

are still unknown. Secondary constipation resulting from multiple cerebrovascular accidents is known as stroke constipation. These include the use of medications, metabolic disorders, neuropathies (caused by Parkinson's disease, medullar lesions or neoplasia, cerebrovascular disease, autonomic neuropathy, and other ailments such as cognitive impairment, immobility, and Chagas disease. Han, et al., (2023) stated other causes of constipation that include immobilization, dehydration, decreased consciousness, and medication side effects are some of the hypothesized causes of constipation in patients with stroke. In a cross-sectional study, logistic regression models were developed by Du, et al., (2023) to assess the association between constipation and stroke prevalence. Reported that the frequency of constipation in patients with stroke varies from 3% to 79%, depending on age, gender, and other factors.

In a review and meta-analysis study conducted by Han, et al., (2023) documented that among 51% of individuals with acute ischemic stroke, constipation develops. Constipation and ischemic hemiplegia are closely associated, and constipation and poor stroke outcomes are anticipated to be related. Another systematic review and meta-analysis study that was done by Ma, et al., (2024) to determine efficacy and safety of auricular therapy in the treatment of post-stroke constipation, revealed that the patients with stroke may experience moderate symptoms of constipation like bloating and stomach pain, or more severe symptoms like intestinal blockage brought on by constipation. Additionally, the following are additional constipation risks. The extended excrement buildup in the digestive tract can break down endotoxin and be reabsorbed by the body, exacerbating harm to various bodily systems, including the central nervous system; the pressure inside the abdominal cavity rises during forced defecation, potentially causing hypertension and perhaps another stroke.

Daniali, et al., (2020) exposed that the most crucial phase in treating constipation is non-pharmacological management. Teaching the patient, the value of making lifestyle choices, changing behavior, eating a healthy diet, and exercising. Jin, et al., (2021) conducted a systematic review and meta-analysis study to explore the traditional East Asian herbal medicines for the treatment of post stroke constipation, reported that pharmacotherapies have mostly been utilized to treat post-stroke constipation. These include laxatives, anticholinesterases, enterokinetic drugs, and serotonin 5-HT₄ receptor agonists.

2 .6. Effect of constipation on body:

Ma, et al., (2024) conducted a systematic review and meta-analysis study to determine the efficacy and safety of auricular therapy in the treatment of post-stroke constipation, reported that one of the most typical gastrointestinal side effects following a stroke is constipation. It not only makes stroke victims' conditions worse, but it also significantly increases their medical costs and lowers their quality of life, constipation following a stroke occurs in 22.9% to 79% of cases.

Han, et al., (2023) stated that regarding the connection between constipation and stroke, as well as the mechanics of bowel movements. Colon motility is regulated by both the extrinsic autonomic neural system and the internal enteric nervous system. gastrointestinal contraction, local blood flow, and intestinal secretion are all increased by parasympathetic nerve activity, which also affects defecation. The rectum's storage of feces and the sphincter's control are two additional aspects of defecation. Rectal pressure increases and the brain receives sensory data when feces build up. The external sphincter relaxes and the colon and rectum peristalsis trigger defecation when the time comes. Increasing rectal pressure during this procedure causes the internal sphincter to relax, the autonomic nervous system facilitates communication between the enteric and central nervous

systems; however, apart from the autonomic brainstem nuclei and spinal cord higher brain areas are anticipated to play a role in the connection with the gastrointestinal tract.

Ma, et al., (2024) reported that patients with stroke who have experienced a stroke may experience more serious side effects from post-stroke constipation, such as intestinal blockage brought on by the condition, or less severe symptoms like bloating and stomach pain. Potential risks associated with constipation include: endotoxins that have been broken down by a prolonged build-up of feces in the digestive tract may be reabsorbed by the body, exacerbating damage to other organs, including the central nervous system; pressure inside the abdominal cavity rises during forced defecation, potentially aggravating brain nerve damage at the lesion site and worsening the prognosis of patients. This can result in hypertension and even spark another stroke. Symptoms of constipation are uncomfortable for patients recovering from stroke, and they are frequently accompanied by aberrant feelings like fear and depression. Blood pressure rises quickly as a result of straining during bowel movements, which raise ICP. The incidence and fatality rates of strokes rise as a result of elevated ICP (Nieh, et al.,2023).

2.7. Management of constipation:

2.7.1. Pharmacological management of constipation:

2.7.1.a. Laxatives:

Daniali, et al., (2020) reported that for individuals who do not react to non-pharmacological treatment, such as dietary modifications and physical activity, laxatives are the next line of treatment. The majority of laxatives can be purchased over-the-counter without a prescription. The four primary types of laxatives are stimulants, bulk-forming, osmotic and softener. Non-stimulant laxatives include bulk-forming and osmotic

laxatives. When laxatives are taken improperly, electrolyte imbalance and weight loss might result. Bishop, et al., (2024) conducted a study to develop guidelines to support clinicians with their decision-making when prescribing laxatives to people with intellectual disabilities, reported that the consequences of using laxatives include cramping, diarrhea, bloating, flatulence, and nausea.

2.7.1.b. Bulk-forming laxatives.

Bishop, et al., (2024) reported that Bulk-forming laxatives cause the stool to become heavier or more "bulky," which stimulates the bowel. Balekuduru, et al. (2023) conducted a study to explore the habit-forming properties of laxatives for chronic constipation, reported that laxatives operate by absorbing water from the colon to increase the volume and softness of feces, which in turn promotes intestinal wall dilatation and improves propulsive motor performance. Polysaccharides, whether natural or artificial, make up this group. The main worry is obstruction of the esophagus, stomach, small intestine, or colon when consumed without fluids. These agents show no systemic effects.

2.7.1. c. Osmotic laxatives:

Bishop, et al., (2024) reported that the osmotic laxatives soften and facilitate the passage of stool by drawing water from the body's outside into the colon. Pont, et al., (2019) conducted a study to discover the appropriate use of laxatives in the older person, reported that osmotic laxatives are hyperosmolar, they cause water to be secreted into the intestinal lumen through the gut membrane, which thickens stool and speeds up the transit time between the intestines. Balekuduru, et al., (2023) reported that laxatives for chronic constipation act by attracting water to the intestinal lumen as a result of the presence of chemicals that are poorly absorbed. The two most widely used osmotic laxatives are lactulose and

"milk of magnesia," or magnesium hydroxide. It has been demonstrated that saline laxatives such citrate salts and magnesium preparations release cholecystokinin, which leads to an accumulation of fluid and electrolytes in the gut lumen and may facilitate small intestine and colonic transit.

2.7.1.d. Stimulant laxatives:

Bishop, et al., (2024) reported that the use of laxatives causes the muscles lining of the stomach to contract, which facilitates the passage of feces. Daniali, et al., (2020) exposed that the stimulant laxatives activate electrolyte and fluid transfer across the intestinal mucosa, colonic motility and transport may improve. The two stimulant laxatives that are most frequently used are bisacodyl and senna. Bisacodyl's superiority over a placebo. Senna's effectiveness and superiority are demonstrated by the fact that fiber greatly reduced constipation as compared to a placebo. Abdominal cramps, diarrhea, nausea, vomiting, electrolyte imbalance (metabolic acidosis or alkalosis, hypocalcemia), and vertigo are among the side effects of stimulant laxatives.

2.7.1.e. Softeners/lubricants:

Bishop, et al., (2024) revealed that water is added to the stool by softeners, which makes it softer and easier to pass. Pont, et al., (2019) reported that stool softeners and emollients work by altering the stool's consistency to make defecation easier. Docusate sodium and mineral oil are the two main softeners used to treat constipation; however, there is little data to determine if softeners are beneficial for older and general populations.

2.7.1.f. Enemas and suppositories:

Hojo, et al., (2024) conducted a study emphasized on management of chronic constipation, reported that enemas, suppositories, and digital evacuation may be effective in people with the "difficult

defecation". Enemas are composed of commonly used components including glycerin, phosphate, and sodium citrate. Caffrey and Pensa, (2019) reported that rectal suppositories with glycerin and bisacodyl are frequently used. Colonic smooth muscle is directly stimulated by enemas. Acute care clinicians use a variety of enemas, such as phosphate, soap suds, saline, milk and molasses, gastrografin, and mineral oil.

Hojo, et al., (2024) reported that in order to prevent harming the rectal mucosa, glycerin must be injected carefully. Bisacodaaayl and sodium dihydrogen phosphate suppositories are used, as they both stimulate the colon and rectum and aid in defecation. Glycerin may also cause hemolysis and acute kidney injury if it gets into blood vessels. Suppositories and enemas are frequently utilized as rescue therapy; however, they shouldn't be used continuously.

2.7 .1. g. Probiotics therapy:

Dimidi, et al., (2020) in a study to investigate the using of probiotics in constipation: mechanisms of action, evidence for effectiveness and utilization by patients and healthcare professionals, stated that probiotics are live bacteria that give the host health benefits when given in sufficient doses. Probiotics have a number of actions that are related to constipation, such as immune system, neurological system, and gut microbiota and fermentation modulation. Gomes and Morais, (2020) conducted a systematic review to determine gut microbiota and the use of probiotics in constipation, reported that patients who experience extended fecal stasis in their colons may have altered gut flora, which may have an effect on motility among other intestinal processes. It was discovered that the fecal microbiota of constipated adults differed from that of healthy controls. Zhong, et al., (2021) exposed that gastric retention, bloating, constipation, diarrhea, esophageal reflux, and gastrointestinal hemorrhage were all dramatically decreased by probiotics. Probiotics decreased lung,

gastrointestinal, and urinary tract infection incidence while also relieving intestinal stress and lowering stroke sequelae. Additionally, it decreased the chances of death and gut flora imbalance.

2.7.2. Non-pharmacological management of constipation:

2.7.2.a. Lifestyle modification and dietary therapy:

Hojo, et al., (2024) conducted a comprehensive review to determine the management of chronic constipation, reported that improving the patient's nutrition and way of life is the first step in treating constipation. Constipation has been linked to poor dietary intake of fiber, fluids, and exercise. Bellini, et al., (2021) stated that the dietary fiber is a class of non-digestible carbohydrates that are resistant to stomach acids and digestion enzyme hydrolysis. It is defined as "the remnant of plant components that are resistant to hydrolysis by human alimentary enzymes." On the other hand, "functional" fiber is a class of non-digestible carbohydrates that are isolated and have advantageous physiological effects in humans. Although the diverse types of fiber are sometimes regarded as a single category with similar properties, their solubility, ferment ability, and viscosity vary greatly, and their effects on the gastrointestinal tract are also distinct. Lai, et al., (2024) conducted a study to determine the effect of diet on constipation, indicated that numerous modifiable behaviors, including dietary modifications, pharmacotherapy, and physical therapy, have been investigated in relation to the risk and management of constipation. Dietary factors, particularly fiber intake and fruit and vegetable consumption, play crucial roles in promoting regular bowel movements and preventing constipation.

Schoot, et al., (2024) conducted a randomized controlled trials to determine the effect foods, drinks and diets on chronic constipation in adults, stated that because fiber has a great capacity to hold water, it can either make stools bulkier or softer, or it can produce fermentation-derived byproducts

that control the contractions of the gut's muscles and shorten the time it takes for the feces to pass through the gut. High-mineral water contains a lot of magnesium sulfate, which causes the gut lumen to osmotically encourage digestion and perhaps cause softer stools and an increased gastric transit time. Baride, et al., (2020) performed a study to investigate the benefits of warm water, reported that's when consumed on an empty stomach first thing in the morning, drinking a lot of warm water will help ease constipation and facilitate the breakdown of food as it moves easily through the intestines. Activating the bowels will assist in getting the body back to normal.

Gao, et al., (2019) conducted a systematic review and meta-analysis study to determine the effect of exercise therapy in patients with constipation, described that patients' complaints of constipation may be reduced by exercise regimens or increases in regular physical activity. Fecal impaction seemed to be largely influenced by low levels of physical exercise. In relation to a lower risk of constipation, moderate physical exercise was found. Yet, for individuals who suffer from constipation, exercise can enhance their quality of life.

2.7.2.b. Massage therapy:

Wang, et al., (2020b) conducted a meta-analysis study to evaluate the efficacy of massage intervention for the treatment of post stroke constipation, reported that one of the most typical post-stroke symptoms is constipation. This study has verified that massage therapy is efficacious in mitigating muscular strain, diminishing discomfort, promoting the most efficient operation of the circulatory and neurological systems, and alleviating constipation in pediatric and adult populations. Kurnia, et al., (2024) conducted a case report design to determine the effect of abdominal massage and fecal elimination exercises in treating constipation in stroke patients, reported that constipation in patient with stroke brought on by limited movement can result in hemorrhoids, rectal prolapse, and even

elevated intracranial pressure in stroke patients, stomach massage therapy and feces expulsion exercises are examples of non-pharmacological approaches to address constipation.

A randomized controlled study was carried out by Durmuş İskender and Çalışkan, (2021) to investigate the impact of acupressure and abdominal massage on constipation, stated that to encourage bowel movements, apply a clockwise massage on the abdominal wall around the intestines using rubbing, kneading, and vibrating motions. Abdominal massage reduces pain and discomfort in people by altering intra-abdominal pressure and applying pressure to the rectum, which has a mechanical and reactive effect on the intestines. Kurnia, et al., (2024) reported that patients who have had strokes can effectively manage their constipation with fecal expulsion exercises and abdominal massage therapy. By directly massaging the abdomen wall, abdominal massage (Figure 2-1) helps to strengthen abdominal muscles, promote intestinal peristalsis, and facilitate a smoother digestive tract.

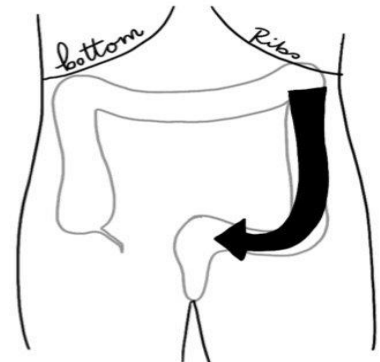
The "ILU" Massage

step one



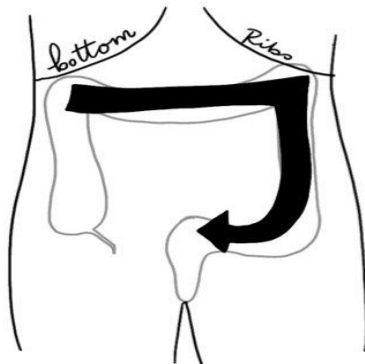
Beginning on the LEFT side just inside the LEFT hip bone, with comfortable, but firm pressure and hands lapped over one another as shown, follow the arrow. Repeat 5 times.

step two : I



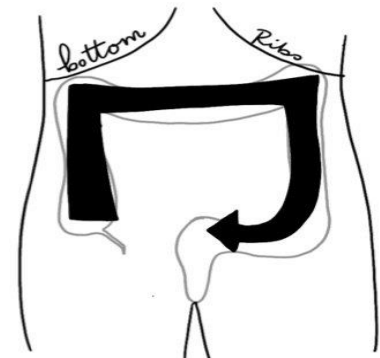
For step two, the technique is the same with the hands, but now you are beginning just under the LEFT rib cage and following the arrow to include the arrow from step one. Repeat 5 times.

step three : L



For step three, the technique is the same with the hands, but now you are beginning just under the RIGHT rib cage and following the arrow shown to include the arrow from all previous steps. Repeat 5 times.

step four : U



For step four, the technique is the same with the hands, but now you are beginning just inside the RIGHT hip bone and following the arrow shown to include the arrow from all previous steps. Repeat 5 times.

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Figure (2-3): Massage therapy for constipation (Artale, et al., 2023)

2.7.2.c. Acupuncture therapy:

Sun, et al., (2023) conducted a systematic review and meta-analysis study to determine the efficacy and safety of acupuncture in post-stroke constipation, reported that the effective treatments are required for post-stroke constipation (PSC), a common consequence of strokes that negatively impacts patients' quality of life and ability to recover. Acupuncture is a therapeutic option, alternative, but there isn't enough data to support its safety and effectiveness at this time. Wang, et al., (2020c)

conducted a systematic review and meta-analysis study to determine the effectiveness of acupuncture in management of functional constipation, described that a traditional Chinese medicinal technique that involves manually stimulating skin acupuncture sites using needles. By controlling the neural system and the hormones in the peripheral gastrointestinal tract, acupuncture relieves constipation.

Han, et al., (2021) conducted a meta-analysis and systematic review study to determine acupuncture relieves opioid-induced constipation, reported that's in addition to conventional acupuncture, other forms of acupuncture treatments are also frequently utilized in clinical settings. These include electro-acupuncture, transcutaneous electrical acupoint stimulation, and acupressure. Acupuncture is indicated to be a safer, more effective treatment for constipation with fewer side effects than traditional drugs.

Li, et al., (2020) conducted a randomized controlled trials to determine the efficacy and safety of acupuncture for functional constipation, reported that acupuncture can be broadly classified into two types of needling: superficial needling usually causes no discomfort at all, whereas deep needling, which enters via the peritoneum, can cause considerable agony in patients. Typically, acupuncture is used in conjunction with a pulse electrotherapy device to enhance acupoint stimulation. Acupuncture treats constipation by balancing excitatory and inhibitory neurons in the enteric nervous system, enhancing gastrointestinal motility, and modulating peripheral gastrointestinal hormones.

2.7.2.d. Herbal therapy:

Jin, et al., (2021) conducted a systematic review and meta-analysis to determine traditional East Asian herbal medicines for the treatment of post stroke constipation, reported that Northeast Asian countries including Korea, China, Japan, and Taiwan continue to practice traditional medicine, which mostly involves herbs. In treating constipation following a stroke. The

most popular herb for treating constipation is dahuang. Yang, et al., (2021) conducted a systematic review with meta-analysis study to determine herbal formula MaZiRenWan (Hemp Seed Pill) for constipation, indicated the use of herbal medicine to treat constipation is expanding. MaZiRen Wan (Hemp Seed Pill {HSP}), an herbal remedy made of hemp seeds, is a popular over-the-counter medication for constipation in the Asian-Pacific region. It is particularly popular among elderly people and women. The use of HSP in the treatment of constipation has grown. In order to increase intestinal motility and relieve constipation, basic studies suggested that the bioactive ingredients of HSP, such as Semen Cannabis Sativae (MaZiRen), Semen Pruni Armeniacae (XingRen), and Fructus Immaturus Citri Aurantii (ZhiShi), may stimulate intestinal mucosa, decrease water absorption, soften stool, and restore gastrointestinal homeostasis.

2.7.2.e. Moxibustion therapy:

Shang, et al., (2021) conducted a systematic review and network meta-analysis study to determine comparison of therapeutic effects of different acupuncture and moxibustion therapies on constipation after stroke treatment reported through the heat effect of burning moxa sticks, moxibustion accomplishes the medicinal effect of stimulating acupoints. Moxibustion can decrease the severity of stool symptoms and enhance the frequency of defecations when compared to western medication. Evidence currently available indicates that various forms of moxibustion are more effective than western medication in treating constipation following a stroke. Yao, et al., (2020) conducted a systematic review and meta-analysis study to determine the effectiveness and Safety of Moxibustion on constipation, reported that moxibustion, which uses moxa as a moxibustion substance, is becoming more and more popular as a treatment for constipation. The moxa stick is lit and then hung or inserted into lesions or acupuncture points to

warm them. Both the medicine and the heat of moxibustion prevent disease and provide external treatment.

2.7.2.f. Acupressure therapy:

A randomized controlled trial was carried out by Durmuş İskender and Çalışkan, (2021) to investigate the impact of belly massage and acupressure on constipation, reported that's the individuals may define constipation differently, and it can result in physiological issues like nausea, tenseness, edema, and general discomfort in addition to stomach pain. Kirca and Gul, (2021) conducted a single-blind randomized controlled study to determine effects of self-acupressure on constipation, stated that using pressure on more than 365 and 2000 acupuncture sites along 14 major energy lines (meridians) on the skin, acupressure is a manipulative therapeutic technique that maintains the vital balance of life energy (Qi). Şahan, and Yildiz, (2020) conducted a systematical review study to determine the effect of acupressure on constipation, reported that acupressure is the use of pressure to target specific body parts along energy meridians identified and employed in traditional Chinese medicine. It is a simple, non-invasive procedure that doesn't require needles. Chinese medicine holds that all matter, living or inanimate, is in a state of constant flux.

Ho, et al., (2020) conducted quasi-experimental study to determine the effectiveness of acupoint preness of acupoint pressure on older people with constipation in older people with constipation in nursing homes, reported that it is also enhances intestinal motility and the digestive system's overall performance, applying pressure to particular body acupoints is said to facilitate the flow of Qi, the energy that helps the body regain equilibrium.

Şahan, and Yildiz, (2020) conducted a systematical review to determine the effect of acupressure on constipation indicated that according

to the idea of Eastern medicine, illnesses arise from disruptions in the flow of life energy, or Chi/Ki, which circulates via channels in the body called meridians. Chi regulates every organ's operation, and it enters the body through a few different channels.

2.7.2.g. Hot compress therapy:

Makino and Choe, (2017) conducted a study to investigate the impact of hot packs on subjective feelings and Doppler ultrasound measurements of small-intestinal motility in healthy adults, reported that in the therapeutic context, hot packs have also been utilized as a nursing intervention to treat constipation without the need for laxatives. When hot bag is applied to the lumbar and abdominal areas, normal adult constipation patients have an increase in bowel noises and frequency of defecation. Güngördük, et al., (2024) perform a study to examine the effect of abdominal hot pack application on gastrointestinal motility recovery after comprehensive gynecologic staging surgery reported using an abdominal bag water after gynecological oncology surgery enhances gastrointestinal motility.

Makino and Choe, (2017) conducted a study to investigate the impact of hot packs on subjective feelings and Doppler ultrasound measurements of small-intestinal motility in healthy adults reported that by activating somatic nerves through the spinal or supra-spinal pathways, heat packs may stimulate intestinal movement through a somatovisceral response. As a supra-spinal and/or spinal reflex, applying heat to stimulate warm receptors in the skin may reflexively suppress sympathetic nerves and increase parasympathetic nerve activity in the intestine. If such a reflex takes place at the same level of intestinal innervation, peristalsis would be accelerated.

2.8. Effect of hot water bag on constipation:

Makino and Choe, (2017) conducted a study to determine the impact of hot packs on subjective feelings and Doppler ultrasound measurements of small-intestinal motility in healthy adults, reported that's in the clinical context, non-pharmacological measures like hot packs have been employed as a nursing intervention to treat constipation without the need for laxatives. Güngördük, et al., (2024) performed a study to examine the effect of abdominal hot pack application on gastrointestinal motility, reported that the applying of a heated pack to the abdomen four time a day four 30 minute, enhances gastrointestinal motility. Sang, et al., (2019) conducted a meta-analysis study to determine the effect of heating infusion for gastrointestinal complications in patients with enteral nutrition, reported that's heated nutrition is better for intestinal absorption. It has the ability to significantly lower the risk of gastrointestinal problems.

Baride, et al., (2020) performed a study to investigate the benefits of warm water, reported that warm water drinking causes the intestines to constrict more, improving excretion. Güngördük, et al., (2024) reported that applying tap water (80°C) to the abdomen for 30 minutes at four time a day using a rubber water bag (Figure 2-4) with a fluffy cover are effective in management of constipation.



Figure (2-4): Hot water bag (Balta, et al., 2015)

2.9. Effect of acupressure therapy on of constipation:

Nieh, et al., (2023) conducted a randomized controlled trial to investigate the effect of acupressure on alleviating constipation among inpatients with stroke during the acute phase, reported that's acupressure, acupoints are stimulated by physically pressing on them with the fingers or elbows. Thus, in addition to Western medicine, acupressure may be a complimentary therapy for managing constipation.

Another randomized controlled trial was carried out by Durmuş İskender and Çalışkan, (2021) to examine the impact of belly massage and acupressure on constipation in patients undergoing total knee arthroplasty reported using techniques like pushing and rubbing, acupressure is applied to the body's acupuncture meridians and specific sites along these meridians. The life force, or Qi, travels along a course that is described by the meridian system. The intricate network that links the human body's viscera—such as the heart, kidney, and lung—with the rest of the body is this one. The meridians are represented by the superficial primo vessels that pass through the skin, and the acupoints are represented by the primo

novessels that pass through the skin, and the acupoints are represented by the primo no on these vessels; this theory has not yet been validated.

Zhang, et al., (2018) conducted a randomized controlled trial to determine the effect of acupuncture for constipation after ischemic stroke reported that hence, acupressure has a number of benefits over other forms of therapy and may be a useful treatment for constipation following a stroke. However, there isn't any solid clinical data to support the use of acupressure to alleviate constipation following a stroke. Shang, et al., (2021) conducted a systematic review and network meta-analysis study to determine comparison of therapeutic effects of different acupuncture and moxibustion therapies on constipation after stroke treatment, reported that acupoint stimulation for stroke patients can increase rectal pressure and regain the feeling of defecation by promoting intestinal peristalsis, stimulating the parasympathetic nervous system, and regulating nerves and bodily fluids.

Yuan, et al., (2022) conducted a protocol for systematic review and meta-analysis to determine the effectiveness of acupoint herbal patching for constipation after stroke, indicated that acupoint herbal patching (AHP), a Chinese medicine technique, involves physically stimulating acupuncture points (figure 2-3) on the skin with herbs. Patients who are able to prevent the drug's stimulation of the gastrointestinal tract find it easier to tolerate AHP. By controlling gastrointestinal motility, AHP helps stroke patients experience constipation with fewer negative side effects.

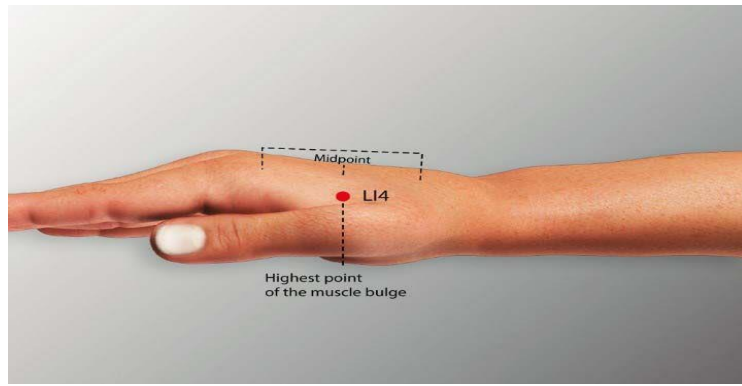


Figure (2-5): Acupressure point LI4(Khan -Mohammadi, et al 2023)



Figure (2-6): Acupressure point LI3(Zhou, et al 2020)

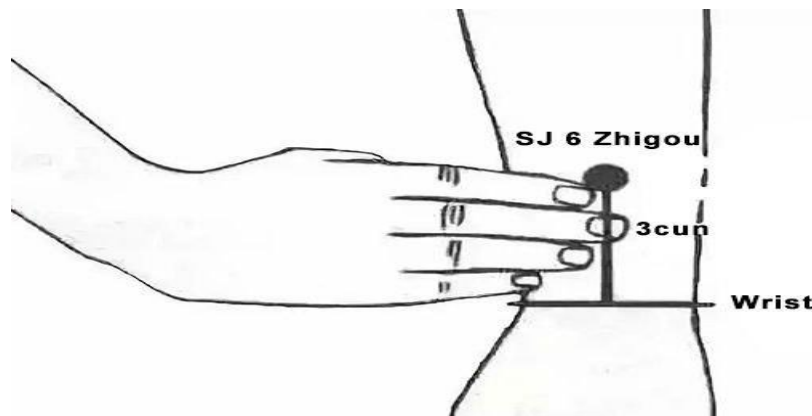


Figure (2-7): Acupressure point SJ6(Liu, et al 2022).

2.10. Previous related studies:

First study:

Güngördük, et al., (2024) conducted a randomized controlled trial, in turkey to assess how applying a hot pack to the abdomen enhances gastrointestinal motility after gynecological oncology surgery. The study involved 121 women who were randomly assigned (1:1) to either the hot water pack group (which consisted of standardized enhanced recovery protocols plus a rubber water bag with a fluffy cover filled with tap water [80°C] and placed on the abdomen four times a day postoperatively for 30 minutes each time) or the control group (which consisted of conventional enhanced recovery protocols). When compared to the control group, the use of an abdominal hot water pack significantly shortened the mean time to pass first flatus ($P < 0.0001$), the mean time to first bowel movements (HR = 4.9; $P < 0.0001$), the mean time to first defecation (HR = 4.3; $P < 0.0001$), and the mean time tolerating a solid diet (HR = 4.4 $P < 0.0001$). The incidence of postoperative ileus was found to be considerably lower in the hot water pack group (3.4%) compared to the control group (16.1%) ($P = 0.01$).

Second study:

Nieh, et al., (2023) conducted a randomized controlled trial at Taiwan Boulevard Sect to investigate the impact of acupressure on reducing constipation in patients with stroke receiving acute care. Random assignments were made to 128 acute inpatients diagnosed with stroke from neurology departments, with 64 patients placed in each of the experimental and control groups. The experimental group outperformed the control group in terms of constipation severity following intervention. Between the first seven days of the intervention, the experimental group had more bowel movements than the control group.

Third study:

Khan-Mohammadi, et al., (2023) applied a randomized clinical trial in Iran to examine the effects of acupressure on intestinal function in patients undergoing coronary artery bypass graft surgery were investigated in 90 patients undergoing Coronary Artery Bypass surgery. Patients in the intervention group received acupressure points LI4 and ST25 twice a day for three consecutive days 48 hours after surgery; patients in the sham group received acupressure at a distance of 1.5 cm from the LI4-ST25 points; patients in the control group received standard care; and all three groups did not defecate in the 24 hours prior to and 48 hours following surgery. After the intervention, the number of stools at 72, 96, and 120 hours showed a significant difference ($p < 0.001$) between the three intervention, sham, and control groups. Significant variations in stool consistency were noted between the three groups 96 hours and 120 hours after the intervention onset ($p = 0.032$ and $p < 0.001$, respectively).

Fourth study:

Kamali, et al., (2022) employed a randomized clinical trial in Iran to examine the effect of acupressure on preventing constipation in patients with acute myocardial infarction under primary percutaneous coronary intervention, ninety patients with acute myocardial infarction were assigned to one of three groups: control ($n = 30$), sham ($n = 30$), and intervention ($n = 30$). Acupressure points SJ6, LI4, ST25, and SP6 were applied twice daily for three days in a row to the intervention group based on the degree of constipation, during the study's first two days, none of the participants had a bowel movement; the first one happened on the third day. On the third trial day, 93.3%, 46.7%, and 50.0% of the intervention, sham, and control groups, respectively, had normal defecation.

Fifth study:

Hu, et al., (2021) implemented a randomized controlled trial in China, to examine self-treating severe functional constipation with acupressure. This experiment will comprise a 2-week run-in period, an 8-week intervention period, and an 8-week follow-up period. A total of 154 patients with functional constipation will be enrolled at a 1:1 ratio into the acupoint group and the sham acupoint group. The patients will perform the therapy twice daily at home, and they should log in to the Chat APP each day to confirm that they have completed the acupressure. The percentage of participation from week three to week ten will be the main result. The secondary outcome will be the proportion of participants between 2 groups in week 11 to 18, Spontaneous bowel movements, Bristol Stool Form Scale, Straining severity scores, Patient assessment of constipation quality of life, and medicine use. After intervention high-quality data will be collected from this randomized, 2-arm parallel, sham-controlled trial to determine whether acupressure is effective for severe chronic functional constipation.

Sixth study:

Durmuş İskender and Çalışkan, (2021) conducted a randomized control trial in Turkey, to investigate the impact of acupressure on constipation in patients undergoing total knee replacement surgery: The patients were divided randomly into three groups: the control group (n = 31), the acupressure group (n = 30), and the acupressure spots (TB6, at the back of the arm, and ST25 and CV12, on the belly). The groups that received acupressure had significantly better constipation severity and straining stool consistency than the control group ($p < .05$).

Seventh study:

Wang, et al., (2019b) conducted a non-randomized, pre-post study design in Taiwan to examine effect of acupressure on constipation in patients with advanced cancer, patients in the intervention group received an

8-minute daily acupressure treatment for three consecutive days in addition to routine care. Zhongwan (CV12), Guanyuan (CV4), and Tianshu (ST25) were the three acupoints used in this study. Depending on the severity of constipation, patients receiving acupressure intervention showed significantly better scores on the Bristol stool form scale ($p < 0.001$), comfort levels during defecation ($p < 0.001$), and colonic motility ($p < 0.001$).

Eighth study:

Abbasi, et al., (2019) conducted a randomized, double-blind, controlled clinical experiment to investigate the impact of acupressure on constipation in hemodialysis patients. A convenient sample of seventy patients, thirty-five in each group. Points liv3, cv6, st36, acupressure, and SP15 are used to induce bowel movement. Acupressure offers alternate strategies for reducing constipation in these people, and it can enhance their quality of life and reduce poor health consequences, depending on the severity of constipation following intervention .

Ninth study:

Makino and Choe, (2017) implemented a quasi-experimental study in Japan to examine the impact of hot packs on motility in the small intestine. An experimental group ($n = 18$) or a control group ($n = 16$) was allocated to thirty-four normal adults. Doppler ultrasonography was used to quantify small-intestinal motility prior to, during, and following the application of hot and normal packs to the lumbar areas of the experimental and control groups. The packs were applied for ten minutes. Following the removal of the packs, subjective sensations were also assessed. Twenty individuals' subjective perceptions of anechoic patches in the small intestine lumen were evaluated, along with the quantity of small-intestinal peristalses.

Tenth study:

Kira, (2016) implemented a randomized controlled study was conducted in the School of Nursing, Faculty of Medicine, Oita University, Oita, Japan, to investigate the effects of hot compresses on the severity of constipation and the quality of life of sixty women who had taken over-the-counter laxatives for the same condition. Thirty women were randomized to be in the control group (n = 30) or the intervention group (n = 30). Four weeks were allotted for the study: two weeks at baseline, when no intervention was used, and two weeks at the end, when heat stimulus was applied using a commercially available thermic sheet at 40°C. During the intervention period, women were told to remove the sheet after five hours each day. The sheet was applied to the lumbar area with the Jacoby line in the middle as soon as they woke up. Women filled up the Constipation Assessment Scale and reported their daily defecation during the intervention. For the intervention group, there was a noticeable improvement in the number of defecation days and weekly defecation days. There was also a noticeable improvement in the psychological and physical domains.

2.11. Summary of literature:

Reviewing earlier studies has demonstrated that managing constipation with pharmaceutical therapy in conjunction with nonpharmacological intervention produces beneficial results. It has been shown that acupressure applied to acupoints can control the negative forces of yin and yang and balance and restore health to the body's energy channels. The li3 acupoint, which is shared by the left and right hands, is situated in the radial side of the index finger's depression, li4 close to the head of the second metacarpal bone. Locate sj6 in the back of the arm and in the delicate skin between the thumb and index finger on the upper hand. Acupressure applied to this area can aid in the relief of constipation. However, using a hot water bag to relieve constipation is beneficial. Using a

hot water bag every day can improve defecation and promote bowel movement. Thus, by increasing intestinal motility and lowering tension, this procedure effectively lowers the degree of constipation.

Chapter Three

Method and procedure

Chapter Three

Methods and Procedures

This chapter will discuss each methodological approach taken in this study to achieve the particular objectives. This approach includes the study's design, administrative agreements, ethical concerns, study settings, sampling selection technique, inclusion and exclusion criteria, the study instruments, and data collection and analysis techniques.

3.1. Design of the study:

A quasi-experimental design was used in the current study, to compare the effect of using hot water-bag and acupressure technique on constipation among patient with stroke. This study design was chosen because the researcher does not randomly assign participants to the interventions and control group. This study was initiated from 1st October, 2023 to 30th July 2024.

3.2. Administrative agreements:

A formal administrative approval was obtained from the following institutions before any data were collected, in order to conduct this study:

1. Agreement from “University of Kerbala / Collage of Nursing”, at 5 /11/2023 with number of 357(Appendix A).
2. Agreement from “Ministry of Health/Kerbala Health Directorate/Center of Training and Human Development” at 21 /11/2023 with number of 3303 (Appendix B1).

3.3. Ethical consideration:

The researcher has been obtained an ethical approval from the Research Ethical Committee at the University of Kerbala/College of Nursing (Appendix B2). The study was recorded in the Iranian Registry of Clinical Trials (code: IRCT 20240204060859N1) in (Appendix O).

Furthermore, every participant gave their informed consent (Appendix N) to be enrolled in this study. Additionally, each participant is given the freedom to withdraw from the study at any time.

3.4. Settings of the study:

The current study was carried out at the neurological medical wards at Imam Al-Hussein Medical City in Holy Kerbala, Iraq. In Kerbala, Imam Al-Hussein Medical City is the biggest health care institution. It initially opened in 1972 and offers medical services to patients from both inside and outside the government of Kerbala. Which contain surgical, and medical department, and contain more than six handed beds for inpatients. More than 164 beds are available in the medical unit for both males and females' wards with neurologic, cardiac, and other diseases. Patients are admitted with a variety of conditions, particularly stroke. This study also conducted at the medical wards of Imam Al-Hassan Al-Mujtaba Teaching Hospital in Kerbala Governorate, which formally opened in 2020.

3.5. Sample and sampling procedure:

3.5.1. Sample size:

It is necessary to compute an estimated effect size and power analysis in order to choose the sample size (Schmidt, 2018). The G*Power calculator was used to determine the total number of participants (Faul, et al., 2009) was used to establish the suitable sample size for multiple regression analysis, a statistical power of 0.80, a confidence level of 95%, and a probability level of 0.05. The number of patients with stroke admitted to the Imam Al-Hussian Medical City and Imam Al-Hassan Al-Mujtaba Teaching hospital during December (2021), January (2022), and February (2022) was 134. A minimum sample of 100 participants was needed for a confidence level of 95%, power of 80% and a p (degree of

variability) = 0.05. Therefore, the final number of 100 participants was sufficient and additional participants were not recruited.

3.5.2. Study sample:

One hundred patients with acute stroke were included in the sample that was chosen, and they were purposefully divided into three groups: two intervention groups (hot water-bag group and acupressure technique group) and another is control group. seven patient exclude from study, two patient not meet inclusion criteria, three patient refuse to participate in study and two patient is don't have communication application, ninety five patient include the study , acupressure group has 33 patient and hot water bag has 32 patient and control group is 28, five patient from acupressure technique and hot water bag is dropout . Each intervention groups have thirty patients while the control group included a total of 28, patients, as shown in Figure (3-1). When compared to the control group, every patient of the intervention groups had been subjected to an interventional strategy. Sample had been chosen using a nonprobability (purposive) sampling method, in which the researcher selects research participants from the population by using their own judgment.

The selection criteria were designed as follows:

3.5.2.1. Inclusion criteria:

All patients admitted to Imam Al-Hussein Medical City's and Imam Al-Hassan Al-Majtaba hospital neurological wards who has had an acute stroke.

- ❖ Those who experiencing constipation.
- ❖ Patients who have consented to engage in the study.
- ❖ More than eighteen years old.

3.5.2.2. Exclusion Criteria:

The researcher excluded the patients if they failed to meet any of the requirements for enrollment or when they had one of the following:

- ❖ Individuals with cognitive disorders because need take right assessment while patient with cognitive disorder have impaired in cognitive awareness.
- ❖ Individuals experiencing bowel incontinence because the study is related to decrease bowel movement while bowel incontinence is increasing bowel movement.
- ❖ Those who have altered level of consciousness because patient with decrease level of consciousness don't able to apply intervention protocol.

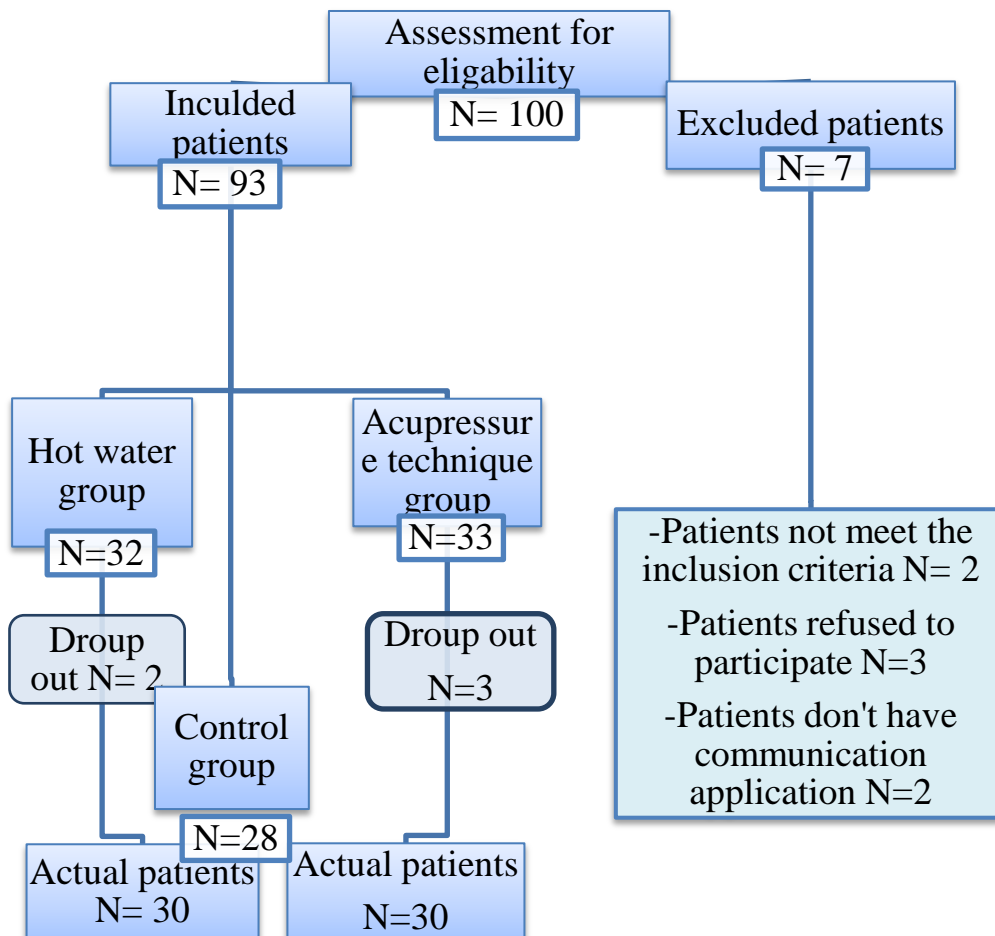


Figure (3-1): Flowchart of eligibility criteria.

3.6. Steps of the study:

There are many steps performed in study as follow:

3.6.1. Interventional protocol:

The interventional protocol was established by the researcher after look over scientific literature and previous studies, as well as the researcher's experience. The goal of this interventional technique is to enhance bowel movements for patients with stroke through the application of acupressure technique on the LI4, LI3, and SJ6 acupressure points, and on the other hand by applying hot-water bag on the abdomen. Consequently, all patients were given written informed consent and an explanation of the intervention's method (using a hot-water bag and an acupressure technique) as part of this interventional protocol.

3.6.1.1. Acupressure technique: This technique is intended to offer instructions on how to improve bowel movement and treatment of constipation for patients with stroke. All patients in this intervention group were given an explanation about how to perform acupressure technique on LI4, LI3, and SJ6 acupressure points to improves gastrointestinal motility. The LI4 acupressure point is located in the right and left hands in the soft skin between thumb and index finger on the top of hand, the LI3 acupressure point is located on the radial side of the second finger, close to the head of the second metacarpal bone, and The SJ6 point is located in the center of the forearm, close to the width of four fingers. Acupressure technique at these points were applied for nine minutes on average, three minutes on each acupressure points, twice a day for three days' duration. The patient was placed in the sitting position while performing this technique. Acupressure points were located using

the patient's fingers and then marked with a pencil. All participants continued to obtain their conventional therapy.

3.6.1.2. Hot-water bag technique:

This interventional regimen is intended to offer instructions on how to improve bowel movement and treatment of constipation for patients with stroke. Therefore, this interventional protocol includes using hot water-bag. All patients in this intervention group were given an explanation about how to apply hot water-bag to improve gastrointestinal motility, a rubber water bag with a fluffy cover filled with hot tap water [80°C] are placed on the abdomen, four times a day, for 30 minutes each time for three days' duration.

3.6.2. The study instruments:

The researcher selected a suitable instrument with three separated components to accomplish the study's objectives (Appendix C,D,E):

3.6.2.1. First section: Socio-demographic and clinical information:

This section contains the patient's socio-demographic and clinical information, including age, sex, marital status, educational level, occupation, chronic diseases, type of stroke, location of stroke, previous history of stroke, height and weight {Body Mass Index (BMI)}, method used for defecation, nutritional status, current medication use, and mobility status.

3.6.2.2. Second part: Wexner constipation questionnaire:

This questionnaire was designed firstly by Agachan, et al., (1996), from Cleveland Clinic Florida's Department of Colorectal Surgery in Fort Lauderdale, this scale was designed to assess patient condition related to constipation, it consists of seven items, like how often opening bowel, painful or difficult to open bowels, feeling not completely empty bowels when go to the toilet, unsuccessful attempts to

empty bowel have in 24 hours, feeling pain in abdomen, time to take open bowels, need assistance to open bowel.

3.6.2.3. Third part: Modified constipation assessment scale:

This scale design by Isenring et al., (2005), department of Nutrition and Dietetics, Flinders University, Australia, this scale consists from eight options, each question have from (1-3) alternative responses, one (no problem), two (mild problem), three (sever problem).

3.7. Testing of instrument validity and reliability:

3.7.1. Validity of study instrument:

The instrument verification shows how well the tool can identify the phenomenon being studied. The validation procedure took research findings into account. Verification of research pertains to the extent to which a study investigates the hypothesis and offers substantiation for its conceptual framework (Bhandari, 2022). The study instrument and interventional protocol were revised by a committee of seventeen experts who had at least four years of professional experience in the relevant field. Each expert participant was asked to rate the application, simplicity, relevance, design, and substance of the research instrument.

3.7.1.1. The content validation:

Defined as how the components of the questionnaire relate to and articulate the desired notion for the sake of a specific evaluation (Bhandari, 2022). The researcher performed content validation and the content validity index. Both the Wexner constipation questionnaire and the constipation assessment scale were translated into Arabic language, utilizing a Brisilin's back translation approach. The following steps were taken to put the content validity method into practice:

1. Creating the validation based on the assessment of specialists who were well-versed in the process and goals.
2. The investigator distributed questionnaires to three specialists who have a minimum of four years of professional experience in the domains they investigated. These specialists included (1) from the nursing college at the University of Babylon, (1) from the nursing colleges at the University of Al Ameer and one expert from university of warth ALAnbeaa /college of nursing (3) from Imam Al-Hussain Medical City, and (4) from the University of Baghdad's nursing college.
3. Face-to-face examination of content validity was made possible by an expert meeting with researcher.
4. To determine the content validity of the scale, the review items were presented to the experts in an uncomplicated way; they were given a score for each one and were asked to comment on a few of them, which the researcher took into consideration. Appropriate scales were used to calculate the expert ratings on each independent component. Each scale item scored as follow:
 - 1= The paragraph is not relevant to the phenomenon under study.
 - 2= The paragraph is somewhat relevant to the phenomenon under study.
 - 3= The paragraph is relevant to the phenomenon under study.
 - 4= the paragraph closely related to the phenomenon under study.
5. Finally, content validity index (CVI) is computed by the researcher.

3.7.1.2. Content validity of Wexner constipation questionnaire:

There were nine qualified professionals in all, and the specialists who agreed on all of the queries were (9,9,9,9,9, 9,9, 9,9). Each item had universal agreement (UA), and it was (1,1,1,1,1,1, 1 and 1). Every item's I-CVR (Item Level Content Validity Index) was (1,1,1,1,1,1, 1 and 1). Levels of Content Validation Index (CVI) Based

on an Average Method) score for the rating scale had been (1), and the CVI identified the number to be satisfactory. The scale-level content validity index based on the universal agreement method, or S-C.VI.UA, has a value of (1). Nine experts were consulted, and the average percentage of all elements deemed significant was (1) (Appendix H).

3.7.1.3. Modified constipation Assessment Scale: nine specialists were present, and they all approved on each question. (9,9,9,9,8,9,8,9 and 9). Every item's UA were (1,1,1,1,0,1,0,1 and 1). I-CVR for each item was (1,1,1,1,0.88,1,0.88,1 and 1). S-CVI-Ave was (0.97), and CVI considered this result acceptable. It was revealed that the value of S-CVI\UA was (0.75). nine experts were consulted, and the average percentage of all elements deemed significant was (0.97) (Appendix I).

3.7.2. Face validity:

The test's face validity refers to how well it appears to measure the target construct. This is a simple, fast, and direct method for determining if a new statistic is initially thought to be valuable. If an assessor finds that the measure appears to be assessing the intended things, they will infer that it has strong face validity (Bhandari, 2022). According to Yusoff, (2019), face validity raters include the test-taker, non-professional users, and the general public. The process for ascertaining the authenticity of an answer comprises the subsequent six steps:

1. The first step involved gathering the validity form's completed responses so that raters who were familiar with the process and had clear expectations could utilize them.
2. The researcher gave questionnaires to eight experts who have ten or more years of experience in the fields in which they specialize. These experts included four faculty members from the college of nursing of the

University of Kerbela, two experts from Kufaa University, one authorized representative from the Al-Safwa university college, and one expert from the Imam Al-Hussain Medical City.

3. A face-to-face or online evaluation guide was used to test the respondent validity.

4. The review panel was furnished with the domain of the goods under evaluation during this stage. Reviewers were requested to fill out this form prior to provide their assessment of these items. To help make everything more comprehensible and transparent, reviewers are encouraged to provide a written material critique.

5. Following a thorough assessment of every item, the reviewers were asked to submit the scores for every item. The researchers then received evaluations from the reviewers for their responses.

6. Item Level Face Validity Index (I-FVI) was the original form of the Face Validity Index (FVI), whereas Scales Levels of FVI (S-FVI) was the form used for the scale and items. % of the scale that each reviewer gives a three or four on the clarity scale (S-FVI/UA). In this last phase, the Face Validity Index (FVI) was determined.

3.7.2.1. Wexner constipation questionnaire: Out of the eight experts, the following experts agreed to answer each question: (8,8,8,8,8,8,8). Every item had (1,1,1,1,1,1, and 1) universal agreement (UA). For every item, the I-FVI was (1,1,1,1,1,1 and 1). Based on the Average Method, the scale's S-FVI-Ave result for the Face Validation Index (FVI) was (1), which is deemed appropriate for the FVI. The "Scale-Level Face Validity Index Based on the Universal Agreement) Method" was known as S-CVI-UA, and it had a score of (1). On average, eight experts agreed that (1) was the relevant percentage of all items (Appendix J).

gather pertinent data as precisely and consistently as feasible. An instrument's reliability is defined as its ability to reliably reproduce a result from various observers or over a broad range of time and space. Since replies contain measurement error, effective ways to assess dependability include internal consistency, test-retest reliability (stability test), and inter-rater reliability (de Sá-Caputo, et al., 2020). The process through which an analysis of a phenomenon yields a consistent and unbroken result is known as reliability. Because dependability refers to the pieces of a diagnostic tool conforming to one another, reliability research is important (Taherdoost, 2016). The study instrument exhibited a high degree of reliability across all scales, as evidenced by table (3-1) displaying its Cronbach's alpha coefficient. The results of the calculation process indicated that the questionnaire was effective, significant, and legitimate in relation to the research phenomenon concerning the effect of hot-water bags and acupressure techniques on constipation in patients with stroke.

Table (3-1): Testing the reliability of scale using alpha Cronbach.

No.	Scales	Actual value alpha Cronbach	Acceptable value	Assessment
1.	Wexner constipation questionare	0.85	0.70	Accepted
2.	Modifying constipation severity scale	0.82	0.70	Accepted

3.10. Data collection and follow up method:

The data collection process was carried out through the use of the question-and-answer format. The researcher created the interventional procedure for this investigation after looking over similar earlier research. All members of the both intervention groups received

instruction on how to apply the hot-water bag or acupressure technique during their hospital stay, and afterward, twice a day for three days at home, lasting 15 to 20 minutes each session. The investigator took fifteen to twenty minutes to complete each questionnaire accurately and to gather information. The period of data collecting was from January 17th, 2024, to March 16th, 2024.

The researcher follows up with the patients by instructing them on the program and reminding them twice a day to apply the hot-water bag or acupressure technique. A follow-up strategy was implemented in the hospital, including the establishment of chat rooms on social media sites like WhatsApp and by calling patients (using a SIM card). The researcher of the subsequent study monitored the patients' adherence to the intervention and their reactions to it. The standard treatment given to all patients in the study setting was all that was given to those in the control group. All patients in the control and intervention groups had their levels of constipation measured prior to the intervention and within three days of its conclusion; all participants received their regular post-stroke treatment during this time (Figure 3-2).

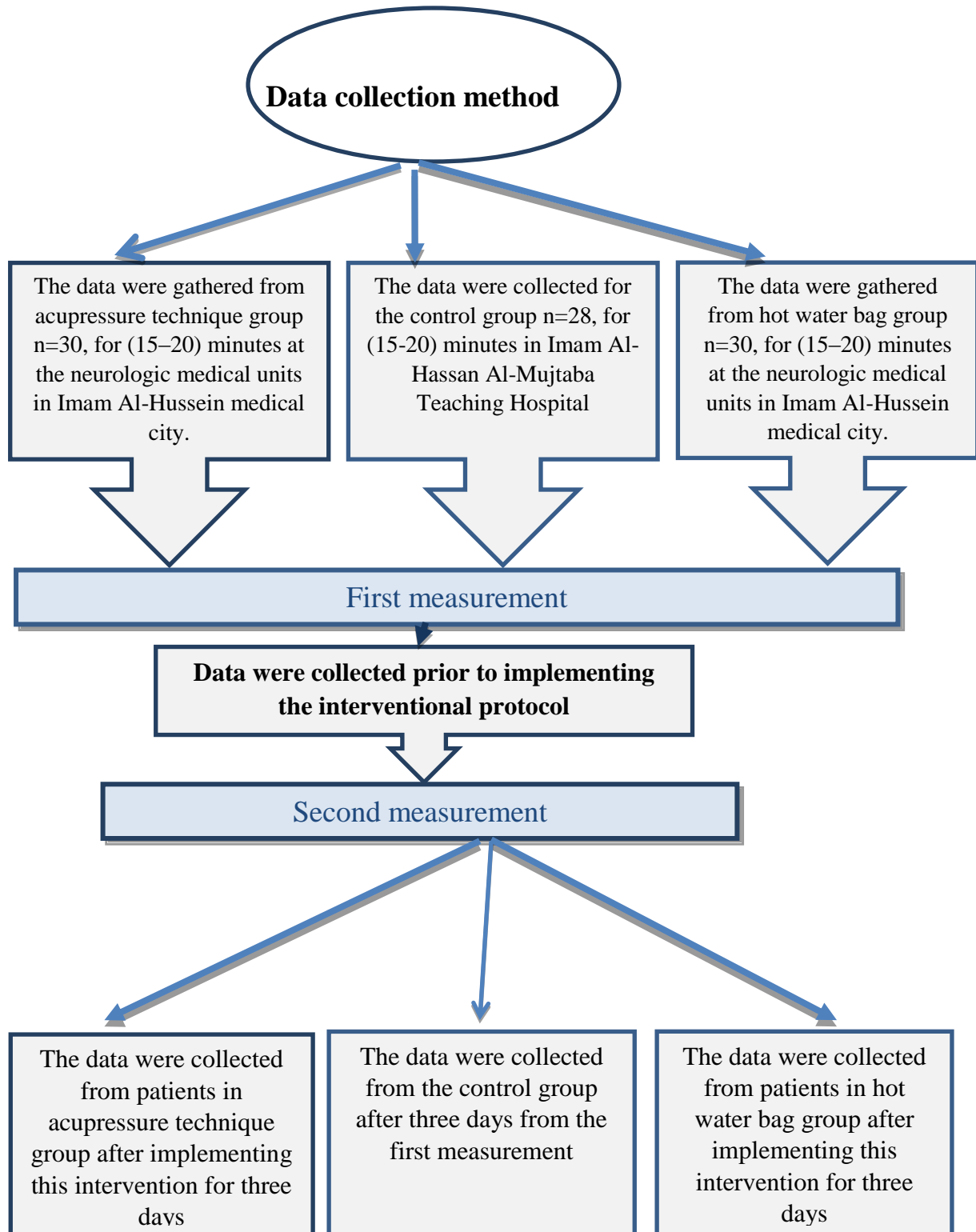


Figure (3-2): Flowchart for the process of data collection.

3.11. Rating and scoring: The items have been examined and graded using the following directions:

3.11.1. Rating and scoring for body mass index (BMI): Body mass index was measured by measuring weight and height and applying the following formula:

$BMI = \text{weight in kilograms} / (\text{height in meters})^2$. According to Hughes, et al., (2022), BMI was categorized as follow:

- ❖ “Underweight= less than 18.5”.
- ❖ “Normal weight =between 18.5–24.9”.
- ❖ “Overweight =about 25.0–29.9”.
- ❖ “Obese class I =between 30.0–34.9”.
- ❖ “Obese class II =about 35.0–39.9”.
- ❖ “Class III => 40”.

3.11.2. Rating and scoring for constipation severity:

The degree of constipation was assessed using nine questions, the sum of which determined the degree of constipation as follows. Each question contained three constipation-related elements that were categorized according to how they were structured. Total scores range from 0 to 2, where 0 denotes no bowel movement problem, 1 denotes a minor problem, and 2 denotes severe constipation. As to Isenring, et al., (2005), the subsequent categories for constipation severity as follow:

- ❖ 0 mean no bowel movement problem.
- ❖ 1-6 = Mild constipation.
- ❖ 7-12 = Moderate constipation.
- ❖ 13-18 = Sever constipation.

3.12. Statistical Data Analysis:

The data analytic process used in the current investigation will assess the following research's findings and conclusions by using the

most recent version 26 of the Statistical Package of Social Sciences Program (SPSS ver. 26), which are as follows:

3.12.1. Descriptive statistical data analysis: Standard deviation, percentage (%), frequency (f), and mean of score (MS) have been utilized through tables to obtain the overall findings of the study's participants and compare the variables.

$$\% = \frac{\text{frequencies}}{\text{sample size}} \times 100 = \% = \text{Percentage}$$

3.12.2. Inferential statistical analysis:

- Use the Chi square test (χ^2) for looking into variations in demographic data on patients among the various research groups.
- Paired sample t-test used in order to investigate the distinctions across the mean degree of constipation within the same group before and after applying the intervention protocol.
- Independent sample t-test for comparing the levels of constipation between the three distinct groups before and after the procedure.
- To determine if the mean varied between groups, the analysis of variance (ANOVA) statistic was implemented.
- “A p-value of 0.05 or less was regarded as statistically significant”.

3.13. Limitations:

There are a few essential limitations to take into account:

1. One of the primary limitations of this study was that the patients self-administered the hot-water bag and acupressure technique at home. This may have led to possible lack of adherence to the intervention closely due to medical or psychological conditions.
2. Patients with stroke are included in this study, which is conducted in two hospitals using purposive sampling selection. therefore, extrapolating research results from a variety of stroke patients to other settings is challenging.

3. Lack of hospital facilities that enable the use of intervention protocols, such as location and privacy.

Chapter Four

Results

of study

Chapter Four

Study Results

This chapter presents the results of the data analysis that are corresponding with the early stated objectives. These results were organized as follows:

Table 4-1: Distribution of patients in acupressure technique, hot water bag and control groups by their socio-demographic characteristics:

Socio-demographic Characteristics		Groups						X ² P-value
		Acupressure		Hot water bag		Control		
		F	%	f	%	f	%	
Age groups	40-59	6	20.0	8	26.7	5	17.9	0.8 8 NS
	60-80	19	63.3	19	63.3	19	67.9	
	81>	5	16.7	3	10.0	4	14.3	
	MS ± SD	69.1+9.30		66.6+12.0		70.4+11.6		
	Total	30	100	30	100	28	100	
sex	Male	13	43.3	24	80.0	9	32.1	0.6 7 NS
	Female	17	56.7	6	20.0	19	67.9	
	Total	30	100	30	100.	28	100	
Marital status	Single	1	3.3	0	0	0	0	0.5 2 NS
	Married	23	76.7	24	80.0	25	89.3	
	Widow/ Widower	6	20.0	6	20.0	3	10.7	
	Total	30	100	30	100.0	28	100.0	
Educational level	No Read and write	15	50.0	17	56.7	17	60.7	0.2 3 NS
	Read and write	7	23.3	7	23.3	7	25.0	
	Elementary school	3	10.0	3	10.0	2	7.1	
	Secondary school	0	0	1	3.3	1	3.6	
	Diploma	2	6.7	2	6.7	0	0	
	Bachelor and above	3	10.0	0	0	1	3.6	
	Total	30	100.0	30	100	28	100	

Table (4-1) continue.....

Socio-demographic Characteristics		Groups						X ² P-value
		Acupressure		Hot water bag		Control		
		f	%	f	%	f	%	
Occupation	Gainer	12	40.0	14	46.7	15	53.6	0.33 NS
	Retired	7	23.3	2	6.7	5	17.9	
	Housewife	11	36.7	14	46.7	8	28.6	
	Total	30	100.0	30	100.0	28	100.0	

f= frequency; %=Percentages; X²: chi square Test; NS=Non- significant (P value >0.05).

Table 4-1 indicates that most of patients in the acupressure technique, hot water bag and control groups were within the age group (60-80) years old and accounted 63.3%, 63.3%, and 67.9% respectively. Among patients in the hot water bag group 80% of patients were males, and 56.7%, 67.9% of patients in the acupressure technique, and control groups were females respectively. Regarding the marital status, the majority of the patients in the two experimental and control groups were married and accounted (76.7%), (80%) and (89.3%) for acupressure technique, hot water bag and control groups respectively. In concern to the education level 50% of patients in the acupressure group and 56.7% in the hot water bag group and 60.7% in control group have no read and write. This table also exposed that 40.0%, 46.7%, and 53.6% of patients enrolled in the acupressure technique, hot water bag and control groups respectively were gainer. Furthermore, this table revealed that anon significant difference was found between the sociodemographic characteristic by using chi-square are test.

Table 4-2: Distribution of patients in acupressure technique, hot water bag and control groups according to their clinical data:

Variables		Groups					
		Acupressure		Hot water bag		Control	
		f	%	f	%	f	%
Chronic diseases	Hypertension	6	20.0	7	23.3	10	35.7
	Diabetes mellitus	1	3.3	1	3.3	2	7.1
	Hypertension and diabetic	11	36.7	10	33.3	6	21.4
	Hypertension and CKD	6	20.0	1	3.3	3	10.7
	Hypertension and IHD	2	6.7	3	10.0	3	10.7
	Diabetic and IHD	1	3.3	0	0	2	7.1
	DM and CKD	0	0	1	3.3	0	0
	DM and HTN and CKD	2	6.7	5	16.7	2	7.1
	HTN, DM and IHD	1	3.3	2	6.7	0	0
	Total	30	100.0	30	100.	28	100
Previous stroke	Yes	12	40.0	13	43.3	9	32.1
	No	18	60.0	17	56.7	19	67.9
	Total	30	100.0	30	100.0	28	100.0
Type of stroke	Ischemic	29	96.7	26	86.7	25	89.3
	Hemorrhagic	1	3.3	4	13.3	3	10.7
	Total	30	100.0	30	100.0	28	100.0
Location of stroke	Left side	14	46.7	16	53.3	12	42.9
	Right side	12	40.0	14	46.7	12	42.9
	Both	4	13.3	0	0	4	14.3
	Total	30	100.0	30	100	28	100.0

f= frequency; %=Percentages; X²: chi square Test; NS=Non- significant (P value >0.05).

Table (4-2) continue.....

Variables		Groups					
		Acupressure		Hot water bag		Control	
		f	%	f	%	F	%
Number of previous stroke	Non	12	40.0	14	46.7	9	32.1
	1-2	14	46.7	12	40.0	14	50.0
	More than 2	4	13.3	4	13.3	5	17.9
	Total	30	100.0	30	100.0	28	100.0
Defecation before stroke	Daily	21	70.0	23	76.7	19	67.9
	Every 1-2 days	9	30.0	7	23.3	9	32.1
	Total	30	100.0	30	100.0	28	100.0
Method of defecation	Dipper	30	100	30	100	27	96.4
	Western toilet	0	0	0	0	1	3.6
	Total	30	100	30	100	28	100
Mobility	Need assistance with movement	21	70	20	66.7	13	46.4
	Immobility	5	16	4	13.3	14	50.0
	Wheelchair	4	13	6	20	1	3.6
	Total	30	100	30	100	28	100
Nutritional Intake	Dysphagia	20	66	20	66	10	35.7
	Need assist to eat	6	20	2	6.7	9	32.1
	IV fluid	2	6.7	1	3.3	1	3.6
	NG tube	2	6.7	7	23.3	8	28.6
	Total	30	100	30	100	28	100
Current medication	Calcium channel blockers	8	26.7	2	6.7	12	42.9
	Calcium supplements	2	6.7	0	0	4	14.3
	Diuretics	1	3.3	0	0	1	3.6
	Laxative	0	0	0	0	4	14.3
	Laxative and calcium channel blocker	19	63.3	27	90	7	25.0
	Tricyclic antidepressants	0	0	1	3.3	0	0
	Total	30	100	30	100	28	100

f= frequency; %=Percentages

Table 4-2 indicates that 36.7%, 33.3% of patients enrolled in the acupressure, hot water bag groups had hypertension and diabetic, and 35.7%, of patients in the control group had hypertension. 60.0%, 56.7%, 67.9 of patients in acupressure, hot water bag and control groups don't have previous stroke and 96.7%, 86.7% and 89.3% of patients in the acupressure, hot water bag and control groups respectively were have ischemic stroke. With regard to the location of stroke 46.7%, 53.3%, 42.9 % of patient in the acupressure, hot water bag and control groups have left side stroke. Concerning to the number of previous stroke 46.7%, 50% of patients in the acupressure and control groups respectively did have once to twice previous stroke, while 46.7% of patient in hot water bag group didn't exposed to stroke previously. According to defecation before stroke 70.0%, 76.7%, 67.9% of patient in acupressure, hot water bag and control groups have daily bowel movement. 100%, 100.0%, and 96.4% of patient in the acupressure, hot water bag and control group used dipper method of defecation. Concerning to mobility status, 70%, 66.7%, 46.4% of patient in acupressure, hot water bag and control groups were need to assistance for movement. According of nutritional status 66%, 66%, and 35.7% of patient in the acupressure, hot water bag and control groups have difficulty to swallowing. Concerning to current medication that used by patient in this study, 63.3%, 90% of patient in the acupressure, and hot water bag groups used laxative and calcium channel blocker and 42.9% of patient in the control group were used calcium channel blocker.

Table 4-3: Distribution of patients in three groups according to their body mass index (BMI):

BMI Categories	Groups						X ² P-value
	Acupressure		Hot water bag		Control		
	f	%	f	%	f	%	
Underweight	0	0	0	0	1	3.6	0.27 NS
Normal	7	23.3	14	46.7	6	21.4	
Overweight	20	66.7	13	43.3	18	64.3	
Obesity class I	2	6.7	3	10	3	10.7	
Obesity class II	1	3.3	0	0	0	0	
Total	30	100	30	100	28	100	

f= frequencies; %=Percentages; X²: chi square Test; NS=Non- significant (P value >0.05).

This table show that 66.7%, and 64.3% of patient in acupressure and control groups have overweight, while 46.7% of patient in the hot water bag group have normal weight.

Table 4-4: Comparison the statistical result of constipation for the control, acupressure technique, and hot water bag groups at pre-test and post-test period:

Items		Responses	Groups											
			Control				Acupressure technique				Hot water bag			
			Pre-test		Post-test		Pre-test		Post-test		Pre-test		Post-test	
			F	%	f	%	f	%	f	%	F	%	f	%
1.	How often do you open your bowels	More than once a day	0	0	0	0	0	0	13	43.3	0	0	20	66.7
		Once every two days	0	0	0	0	0	0	17	56.7	0	0	10	33.3
		2 times a week	1	3.6	1	3.6	0	0	0	0	0	0	0	0
		Once a week	22	78.6	22	78.6	18	60	0	0	13	43.3	0	0
		Never defecate in last week	5	17.9	5	17.9	12	40	0	0	17	56.7	0	0
		Total	28	100.0	28	100.0	30	100	30	100	30	100.0	30	100.0
2.	Is it difficult or painful to open your bowels?	Never	0	0	0	0	0	0	11	36.7	0	0	9	30.0
		Rarely	0	0	0	0	0	0	18	60.0	0	0	21	70.0
		Sometimes	2	7.1	3	10.7	2	6.7	1	3.3	0	0	0	0
		Usually,	19	67.9	18	64.3	18	60.0	0	0	12	40.0	0	0
		Always	7	25.0	7	25.0	10	33.3	0	0	18	60.0	0	0
		Total	28	100.0	28	100.0	30	100.0	30	100	30	100.0	30	100.0
3.	Do you feel that you do not completely empty your bowels when you go to the toilet?	Never	0	0	0	0	0	0	8	26.7	0	0	11	36.7
		Rarely	0	0	2	7.1	0	0	21	70.0	0	0	19	63.3
		Sometimes	2	7.1	3	10.7	3	10.0	1	3.3	0	0	0	0
		Usually	18	64.3	15	53.6	16	53.3	0	0	12	40.0	0	0
		Always	8	28.6	8	28.6	11	36.7	0	0	18	60.0	0	0
		Total	28	100.0	28	100.0	30	100.0	30	100	30	100.0	30	100.0

Table (4_4) this table show that 60%, and 78.6% of patient in the acupressure and control groups respectively and 43.3% of patient in the hot water bag group have one time a week defecation at pretest assessment, while 56.7% and 66.7% of patient in the acupressure and hot water bag groups have one-time to defecation every two days in post-test assessment. According to painful bowel movement, 67.9%, 60% and 40% of patient in the control, acupressure and hot water bag groups in pretest period and 60%, 70% of patient in acupressure and hot water bag groups don't have pain after bowel movement.

Moreover, during the pretest assessment, 36.7%, and 60% of patients in the acupressure and hot water bag groups have always fell not completely empty his/her bowel after defecation. While, 70%, and 63.3% of patients in the same groups have rarely fell not completely empty his/her bowel after defecation.

Table 4-5: Comparison the statistical result of severity of constipation for the control, acupressure, and hot water bag groups at pre-test and post-test period:

Items		Responses	Groups											
			Control				Acupressure technique				Hot water bag			
			Pre-test		Post-test		Pre-test		Post-test		Pre-test		Post-test	
			F	%	f	%	f	%	f	%	F	%	f	%
1	Abdominal distention or bloating?	No problem	1	3.6	1	3.6	1	3.3	28	93.3	1	3.3	28	93.3
		Moderate problem	0	0	0	0	2	6.7	2	6.7	2	6.7	2	6.7
		Severe problem	27	96.4	27	96.4	27	90.0	0	0	27	90.0	0	0
		Total	28	100	28	100	30	100.0	30	100.0	30	100.0	30	100.0
2	Change in amount of gas passed rectally?	No problem	1	3.6	1	3.6	2	6.7	28	93.3	0	0	29	96.7
		Moderate problem	1	3.6	3	10.7	2	6.7	2	6.7	2	6.7	1	3.3
		Severe problem	26	92.9	24	85.7	26	86.7	0	0	28	93.3	0	0
		Total	28	100.0	28	100.0	30	100.0	30	100.0	30	100.0	30	100.0
3	Less frequent bowel movements?	No problem	1	3.6	2	7.1	0	0	28	93.3	1	3.3	29	96.7
		Moderate problem	0	0	2	7.1	4	13.3	2	6.7	3	10.0	1	3.3
		Severe problem	27	96.4	24	85.7	26	86.7	0	0	26	86.7	0	0
		Total	28	100	28	100.0	30	100.0	30	100.0	30	100.0	30	100.0
4	More frequent bowel movement?	No problem	27	96.4	26	92.9	0	0	10	33.3	2	6.7	25	83.3
		Moderate problem	0	0	1	3.6	3	10.0	19	63.3	3	10.0	5	16.7
		Severe problem	1	3.6	1	3.6	27	90.0	1	3.3	25	83.3	0	0
		Total	28	100	28	100.0	30	100.0	30	100.0	30	100.0	30	100.0
5	Oozing liquid stool?	No problem	2	7.1	1	3.6	1	3.3	27	90.0	0	0	29	96.7
		Moderate problem	1	3.6	2	7.1	4	13.3	3	10.0	2	6.7	1	3.3
		Severe problem	25	89.3	25	89.3	25	83.3	0	0	28	93.3	0	0
		Total	28	100.0	28	100.0	30	100.0	30	100.0	30	100.0	30	100.0

Table (4-5) continue.....

Items	Responses	Groups												
		Control				Acupressure technique				Hot water bag				
		Pre-test		Post-test		Pre-test		Post-test		Pre-test		Post-test		
		F	%	f	%	f	%	f	%	f	%	f	%	
6	Rectal fullness or pressure?	No problem	0	0	1	3.6	0	0	28	93.3	0	0	30	100.0
		Moderate problem	1	3.6	1	3.6	4	13.3	2	6.7	2	6.7	0	0
		Severe problem	27	96.4	26	92.9	26	86.7	0	0	28	93.3	0	0
		Total	28	100.0	28	100.0	30	100.0	30	100.0	30	100.0	30	100.0
7	Small stool size	No problem	0	0	1	3.6	0	0	27	90.0	1	3.3	28	93.3
		Moderate problem	1	3.6	2	7.1	4	13.3	3	10.0	2	6.7	2	6.7
		Severe problem	27	96.4	25	89.3	26	86.7	0	0	27	90.0	0	0
		Total	28	100.0	28	100.0	30	100.0	30	100.0	30	100.0	30	100.0
8	Large stool size	No problem	0	0	0	0	1	3.3	8	26.7	2	6.7	25	83.3
		Moderate problem	0	0	0	0	3	10.0	22	73.3	3	10.0	4	13.3
		Severe problem	28	100	28	100	26	86.7	0	0	25	83.3	0	0
		Total	28	100.0	28	100.0	30	100.0	30	100.0	30	100.0	30	100.0
9	Urge but inability to pass stool	No problem	1	3.6	1	3.6	0	0	27	90.0	0	0	28	93.3
		Moderate problem	1	3.6	2	7.1	1	3.3	3	10.0	3	10.0	2	6.7
		Severe problem	26	92.9	25	89.3	29	96.7	0	0	27	90.0	0	0
		Total	28	100.0	28	100.0	30	100.0	30	100.0	30	100.0	30	100.0

f= frequency; %=Percentages

Table (4-5) this table show that most of patient in acupressure (90%), hot water bag (90%) and control (96.4%) groups have severe constipation in pretest period, while 93.3% of patient in acupressure and hot water bag groups have normal bowel movement in posttest period. 89.3%, 83.3%, and 93.3% of patient in the control, acupressure and hot water bag groups respectively have oozing liquid stool in pretest period, and 90%, 96.7% of patient in intervention groups don't have oozing in posttest period. According to amount of stool 96.4%, 86.7% and 90% of patient in the control, acupressure and hot water bag groups respectively have small amount of stool in pretest period while 90% and 93.3 of patient in acupressure and hot water bag groups have normal stool size in posttest period.

Table 4-6: Comparison the constipation between each control, acupressure, and hot water bag groups at pre-test and post-test period:

Groups	Test	MS	S.D.	t-value	df	p-value	Sig.
Control group	Pre-test	2.45	0.41	1.76	27	0.08	NS
	Post-test	2.37	0.45				
Acupressure technique Group	Pre-test	2.44	0.35	23.5	29	0.000	S
	Post-test	0.47	0.26				
Hot water group	Pre-test	2.67	0.30	45.4	29	0.000	S
	Post-test	0.38	0.20				

MS=Mean of score; SD=Standard deviation; df=Degree of Freedom; P-value= Probability value; S= Significant (p-value \leq 0.05); NS=Non-significant (P value $>$ 0.05).

Table 4-6 exposed the mean score of constipation in the control group it was 2.45 at pretest period and 2.37 at post-test period, there is no a statistically significant difference in the constipation level between the first and second measurement at $p\text{-value}=0.08$. While the mean score of constipation in the acupressure group was 2.44 before implementing the interventional protocol and 0.47 after implementing the interventions. The mean score of constipation in the hot water bag group was 2.67 before implementing the intervention and 0.38 after implementing the intervention. There is a statistically significant difference in the constipation level between the first and second measurement at $p\text{-value}=0.000$ for the acupressure, and hot water bag groups. Therefore, the implementing the intervention protocol were significantly reducing the constipation level in patients with stroke.

Table 4-7: Comparison the severity of constipation between control, acupressure, and hot water bag groups at pre-test and post-test period:

Groups	Pre-test						Post-test					
	MS	S.D.	t-value	df	P-value	Sig.	MS	S.D.	t-value	df	P-value	Sig.
Control group	2.45	0.41	.064	56	0.949	NS	2.37	0.45	19.62	56	0.000	S
Acupressure technique group	2.44	0.35					0.47	0.26				
Control group	2.45	0.41	-2.27	56	0.077	NS	2.37	0.45	21.704	56	0.000	S
Hot water bag group	2.67	0.30					0.38	0.2				
Acupressure technique group	2.44	0.35	-2.61	56	0.08	NS	0.47	0.26	1.41	56	0.163	NS
Hot water bag group	2.67	0.3					0.38	0.2				

MS=Mean of score; SD=Standard deviation; df=Degree of Freedom; P-value= Probability value; S= Significant (p-value ≤ 0.05).

Table 4-7 indicate that at pre-test period, there were no statistically significant difference in the constipation level between the control group and acupressure group at P=value of (0.949), and between the control and hot water bag group at P=value of (0.077). While at the post-test period there is a statistically significant difference in the constipation level between the control group and acupressure, hot water bag groups at P=value of 0.00. Furthermore, there is no statistically significant difference between the effect of acupressure technique and hot water bag in the constipation level at p-value 0.163.

Table 4-8: Comparison the statistical result of constipation severity for the control, acupressure, and hot water bag groups at pre-test and post-test period:

Constipation severity	Groups											
	Control				Acupressure				Hot water bag			
	Pre-test		Post-test		Pre-test		Post-test		Pre-test		Post-test	
	f	%	f	%	f	%	f	%	f	%	f	%
No problem	0	0	0	0	0	0	4	13.3	0	0	19	63.3
Mild	0	0	0	0	0	0	26	86.7	0	0	11	36.7
Moderate	2	7.1	2	7.1	1	3.3	0	0	0	0	0	0
Sever	26	92.9	26	92.9	29	96.7	0	0	30	100	0	0
Total	28	100.0	28	100.0	30	100.0	30	100.0	30	100.0	30	100.0

f= frequency; %=Percentages

Table 4-8 exposes the frequency and percentage of severity of constipation in the control, acupressure, hot water bag groups. It is evident that the acupressure, hot water bag has an effect on improving the bowel movement when compared to control group.

Table 4-9: The differences between the effect of acupressure technique, hot water bag on the severity of constipation with patient's socio-demographic data:

Socio-demographic data	Comparative patterns	Acupressure group				Hot water bag			
		df	F-value	P-value	Sig.	df	F-value	P-value	Sig.
Age	Between groups	6	0.826	0.562	NS	5	0.852	0.527	NS
	Within groups	23				24			
Marital status	Between groups	6	0.446	0.840	NS	5	0.517	0.761	NS
	Within groups	23				24			
Educational level	Between groups	6	0.605	0.724	NS	5	1.196	0.341	NS
	Within groups	23				24			
Occupation	Between groups	6	1.06	0.411	NS	5	0.271	0.925	NS
	Within groups	23				24			

df=Degree of Freedom; F=statistics P-value= Probability value; NS=Non-significant (p-value > 0.05).

Table 4-9 shows a non-significant statistical difference was found between the effect of acupressure, and hot water bag on constipation with patient's age, marital status, education level, and occupation at p-value >0.05.

Table 4-10: The differences between the effect of acupressure technique, hot water bag on the severity of constipation with patient's clinical data:

Clinical data	Comparative patterns	Acupressure group				hot water bag group			
		Df	F-value	p-value	Sig.	df	F-value	p-value	Sig.
Chronic diseases	Between groups	6	0.781	0.593	NS	5	0.658	0.659	NS
	Within groups	23				24			
Location of stroke	Between groups	6	1.116	0.384	NS	5	1.253	0.316	NS
	Within groups	23				24			
Number of previous stroke	Between groups	6	1.808	0.142	NS	5	0.282	0.918	NS
	Within groups	23				24			
Motility status	Between groups	6	1.467	0.233	NS	5	1.033	0.421	NS
	Within groups	23				24			
Nutrition status	Between groups	6	0.377	0.886	NS	5	1.746	0.162	NS
	Within groups	23				24			
BMI	Between groups	6	0.454	0.835	NS	5	0.588	0.709	NS
	Within groups	23				24			
Current medication	Between groups	6	0.367	0.893	NS	5	3.727	0.012	S
	Within groups	23				24			

df=Degree of Freedom; F=statistics P-value= Probability value; NS=Non-significant (p-value > 0.05); S=Significant (p-value <0.05).

Table 4-10 shows a non-significant statistical difference was found between the effect of acupressure and hot water bag on the constipation level with patient's clinical data such as chronic disease, location of stroke, number of previous strokes, motility status, nutrition status, and BMI. While a significant statistical difference was found between the effect of hot water bag with current medication at p-value 0.012.

Table 4-11: Association between the effect of the acupressure technique, hot water bag on the severity of constipation with patient's gender and clinical history:

Variables	Classes	Acupressure group						Hot water bag group					
		f	MS	SD	df.	P-value	Sig.	f	MS	SD	df.	P-value	Sig.
sex	Male	13	1.56	0.50	6	0.518	NS	14	1.5	0.50	5	0.884	NS
	Female	17						16					
Previous stroke	yes	12	1.6	0.49	6	0.141	NS	12	1.6	0.49	5	0.681	NS
	No	18						18					
Type of stroke	Ischemic	29	1.03	0.18	6	0.522	NS	26	1.13	0.34	5	0.826	NS
	Hemorrhagic	1						4					
Defecation before stroke	Daily	20	1.3	0.47	6	0.623	NS	26	1.13	.34	5	0.544	NS
	1-2 days	10						4					

f=Frequency; MS=Mean of score; SD=Standard deviation; df=Degree of Freedom; P-value= Probability value; NS=Non-Significant (P-value > 0.05).

Table 4-11 show a non-significant statistical association was found between the effect of acupressure, and hot water bag on the constipation level with patient's sexik, previous stroke, type of stroke, and defecation before stroke, at p-value >0.05 .

Chapter Five

Discussion &

Conclusion and

Recommendation

Chapter Five

Discussion the Result & Conclusion and Recommendation

Stroke is the second most prevalent cause of death. Hospitalized patients with early-stage of stroke have a markedly higher chance of death. Constipation is one of the most typical side effects of an acute stroke. Constipation is characterized by a decrease in the number of bowel movements each week, along with a variety of additional symptoms such as abdominal bloating, straining, elongated or unsuccessful bowel motions, hard stools, and the need for digital stimulation. Constipation can be controlled, and its severity reduced, to improve patients' general health and quality of life. The purpose of the current study was to examine the effects of acupressure and a hot water bag on the severity of constipation experienced by eighty –eight patients with stroke.

5-1: Discussion of socio-demographic characteristic of patients:

According to sociodemographic characteristic as shown in table 4-1. The majority of patients in the acupressure technique, hot water bag, and control groups were between the ages of 60 and 80, making up 63.3% ,63.3% and 63.7% of the patients in acupressure, hot water bag and control groups, respectively, according to the researcher, these findings were explained by the rising risk of stroke with advancing age. Based on a previous study conducted by Ding, et al., (2022) reported that ischemic stroke incidence rises with age globally. A quasi-experimental study was performed in the neurological department run by Mohamed, et al., (2023) at minia university hospital in Egypt. A purposive sample of sixty adult patients with stroke was randomly for the study group. While the control group's mean age was 56.2 ± 8.2 years, the study group's mean age was 55.4 ± 8.4 years.

Concerning to patient sex 80% of the patients in acupressure, hot water bag and control groups were men, and sixty-seven percent were women. The researcher hypothesizes that related to most men work in outside and they exposed to pressure related to work compering with women so job stress raises the chance of stroke occurrence. An earlier study by Yang, et al., (2023) found a link between lengthy work hours, working in high temperatures, workplace stress, and shift work and an increased risk of stroke.

In contrast to our findings, Silva, et al., (2023) conducted prospective study design in Catalonia revealed that women had higher rates, were older, and experienced more severe strokes than males. They also discovered that the etiology and features of stroke were similar. substantial occlusion and reduced extracranial carotid occlusion.

In both the experimental groups and the control group, married patients made up the majority of patient enrolled in this study. In neurological department of Minia University Hospital in Egypt, Mohamed, et al., (2023) used a quasi-experimental design. After the initial patient selection for the study group, sixty adult patients with stroke were randomly sample. The majority of participants in both groups were married, making up 80.0% of the study group and 66.7% of the control group, respectively .

In terms of education level in the acupressure technique, hot water bag, and control groups of our study, the patient percentages were 76.7%, 80%, and 89.3%, respectively., they lack literacy. The researcher hypothesizes that a person's educational attainment may increase their knowledge of stroke risk factors and symptoms. These findings extend the findings of a prospective cohort study by Jackson, et al., (2018) that looked

into the connection between education and stroke and found that higher education was linked to a decreased overall incidence of stroke.

Furthermore, worker accounted for 40.0%, 46.7%, and 53.6% of the patients enrolled in the acupressure technique, hot water bag, and control groups, respectively. Yang, et al., (2023) reported that long work hours, working in hot conditions, working shifts, and workplace stress are all linked to an increased risk of stroke, according to a comprehensive review study conducted in the department of occupational and environmental medicine at seoul. mary's hospital, college of medicine, the catholic university of korea, seoul, korea reported that extended work hours are associated with exposure to chemicals and noise at work.

5.2. Discussion of patient's clinical data:

Regarding the clinical data, table (4-2), demonstrates that 33.3% and 36.7% of patient that patients with acupressure and hot water bag groups approach had hypertension and diabetes mulitas, whereas 35.7% of patients in the control groups had hypertension. The researcher show that these results can be explained by the association between high blood pressure, raised hyperglycemia, and the risk of stroke incidence associated with multiple medication use. An earlier study done by Luo, et al., (2024) found that middle-aged people with hypertension had an increased risk of stroke. Additional study conducted by Kernan, et al., (2023) demonstrates that diabetes mellitus increases the risk of dementia and cerebral small vessel disease in addition to increasing the risk of stroke.

In A quasi-experimental study conducted by Ibrahim and Athbi, (2023b) exposed those sixty patients with acute stroke show that forty percent of the patients in the experimental group had hypertension, while fifty percent of the patients in the control groups had both diabetes and hypertension. The researcher option that patient with diabetes mellitus

related to metabolism disorder related to stroke. In previous study conducted by Mosenzon, et al (2023) reported When comparing individuals without diabetes to those with diabetes, the risk of stroke is almost doubled.

With regards to the history of stroke the study exposed that over half (56.7%), 60%), and 67.9%) of the patients in the hot water bag, acupressure technique, and control group do not have a history of stroke. The majority (86.7%, 96.7%, and 89.3%) of patients in the hot water bag, acupressure technique, and control groups, respectively, experience ischemic strokes. Regarding the stroke's location, 53.3% of patients in hot water bags, 46.7% of patients in acupressure techniques, and control groups had left-side strokes. According to Ibrahim & Athbi, (2023a), 63.3% of patients in the experimental group and 53.3% of patients in the control group suffered from hemorrhagic strokes; the damaged brain lobe was found in 63.3% of the experimental group and almost 50% of the control group.

In terms of the number of previous strokes, patients in the hot water bag, acupressure technique, and control groups had one to two previous strokes, respectively, 46.7 %, 40% and 50%. A quasi-experimental study conducted by Ibrahim & Athbi, (2023b), at imam al-hussein medical city, sixty acute patients with stroke were included in a non-probability purposive sample, which revealed that the majority of patients in the intervention group and control group had only had one previous stroke .

Approximately three quarters of patients (76.7%), (70.0%) and (67.9%) in the hot water bag, acupressure technique, and control groups had daily bowel movements, based on defecation before to stroke. 100%, 96.3% of patients in hot water bags and acupressure techniques group and control group defecated using a dipper. Ma, et al., (2024) performed meta-analysis and comprehensive review carried out in changchun, jilin province, china, at changchun university of chinese medicine's department of traditional

chinese medicine, reported that prolonged bed rest linked to hemiplegia, the influence of stroke lesion locations on the central nervous system during defecation, and dietary changes can all have an impact on one's habit of defecating.

Concerning to the mobility, 66.7%, 70% and 46.4% of patient in the hot water bags, acupressure techniques, and control group require assistance with movement. According to the researcher's assessment of these findings, a brain damage was linked to muscle weakness. A prior study by Qi, et al., (2024) found that stroke patients experienced varying degrees of muscle atrophy and decrease, weakness, and other functional abnormalities. After a stroke, the brain system is malleable; however, injury to the motor cortex and its descending corticospinal tract causes muscular weakness.

Wringers, et al., (2021) carried out a cohort longitudinal study which revealed that one of the main outcomes in stroke patients was dependency on others to perform daily living activities. Most stroke patients may complain of dependency in personal activities within two days of the stroke and this complaint may persist for three to twelve months in this patient group. Two-thirds (60%) of the 366 eligible patients in this study were dependent on activities of daily living in the 36–48 hours after a stroke. The results of uni-variable and multi-variable logistic regression analyses showed that patients who remained reliant within the first two days after stroke were more likely to do so three months and a year later.

The nutritional health of the patients 66% of patient in acupressure, hot water bag, and 35.7% the control group all reported trouble swallowing. According to a systematic review by D'Netto, et al., (2023) at the University of Queensland, St Lucia, Brisbane, Australia's School of Health and Rehabilitation Sciences, reported that 45% of stroke patients may have dysphagia.

Regarding to current medication, 90% of patients in the hot water bag group and acupressure technique 63.3% of patient in acupressure technique group used laxatives and calcium channel blockers, while patients in the control group (42.9%) used calcium channel blockers. Pont, et al., (2019) conducted descriptive study found that the primary line of treatment for constipation in the elderly was the use of bulking laxatives and fiber supplements.

Concerning to the body mass index as shown in table (4-3), shows that there was no significant difference in patient BMI between the intervention and control groups (P -value > 0.05). About 66.7% and 43.3% of patients in the acupressure and hot water bag groups were overweight, and 23.3% ,46.7% of patients were within normal; on the other hand, control group, 64.3% of patients were overweight and 21.4% were normal weight. According to a randomized clinical investigation by Silveira, et al., (2021) reported persons with obesity classes II and III had a high prevalence of constipation

5.3. Discussion of constipation level for patient in the control and acupressure technique and hot water bag groups in the pre-test and post-test periods:

Regarding the statistical analysis of constipation for patients in the intervention and control groups, as indicated in table (4-4),(4-5) it is suggested that patients in the intervention group experienced a significant improvement in their intestinal mobility after three days of applying the acupressure technique and hot water bag, as compared to patients in the control group. 60% ,78.6% of patient in acupressure and control group respectively and 43.3% of patient in hot water bag have one time a week defecation pretest while 56.7% and 66.7 of patient in acupressure and hot

water bag have one time defecation every two days in posttest period. According to painful bowel movement, 67.9 %, 60% and 40% of patient in control, acupressure and hot water bag group in pretest period and 60% ,70% of patient in acupressure and hot water bag don't have pain after intervention. According to severity of constipation most of patient in acupressure, hot water bag and control group have severe constipation level in pretest period while 93.3% of patient in acupressure and hot water bag group have normal bowel movement in posttest period. 89.3% ,83.3%, 93.3% of patient in control, acupressure and hot water bag group respectively have oozing liquid stool in pretest period and 90%, 96.7% of patient in intervention group don't have oozing in posttest period. According to amount of stool 96.4%, 86.7% and 90% of patient in control, acupressure and hot water bag group respectively have small amount of stool in pretest period while 90% and 93.3 of patient in acupressure and hot water bag group have normal stool size in posttest period. Nieh, et al., (2021) conducted a randomized controlled trial at Taiwan Boulevard Sect to investigate the impact of acupressure on reducing constipation in stroke patients receiving acute care. Random assignments were made to 128 acute stroke inpatients from neurology departments, with 64 patients placed in each of the experimental and control groups, The experimental group outperformed the control group in terms of constipation severity following intervention. Between the first seven days of the intervention, the experimental group had more bowel movements than the control group.

For the hot water bag and acupressure technique groups, the total $MS \pm SD$ of constipation is 2.67 ± 0.30 , 2.44 ± 0.35 for the pre-test and 0.38 ± 0.20 , 0.47 ± 0.26 post-test, respectively; in contrast, for the control group, for the pre-test it is 2.45 ± 0.41 and $MS \pm SD$ of constipation is for the post-test 2.37 ± 0.45 , respectively. The impact of acupressure on lowering

constipation in acute care stroke patients was investigated by Nieh, et al., (2023). In a randomized controlled experiment at Taiwan Boulevard Sect. 128 acute stroke patients from neurology departments were divided into two groups at randomly: the experimental group and control group had 64 patients, The degree of constipation in the experimental group was less severe than in the control group. For the first seven days of the intervention, the experimental group had more bowel movements than the control group. Cao, et al., (2018) conducted a randomized controlled clinical trial at the second affiliated hospital of guangzhou university of chinese medicine, b guangzhou university of chinese medicine, guangzhou, china, to find out how Yikou-Sizi powder hot compress affected patients' ability to regain their gastrointestinal function following abdominal surgery. The participants underwent laparoscopic total hysterectomy and colorectal cancer surgery, and the study found that using Yikou-Sizi powder hot compress sped up the recovery of gastrointestinal function following abdominal surgery.

5.4. Discussion of the effect of acupressure technique on the constipation levels for patient with stroke:

About the statistical analysis of constipation in the pre-test and post-test periods for the acupressure and control groups, with meaningful comparisons for each group as displayed in the table (4-6,4-7,4-8) Our findings showed that there was a statistically significant difference in the constipation between the pre-test and three days after the acupressure technique was applied for nine minutes twice a day in (LI3,LI4,SJ6), at P-value of 0.08 for the control group and 0.000 for the acupressure group, respectively. During three days (P=0.000). According to the researcher, these results can be explained by pushing on an acupressure point that releases a meridian that regulates the body's water channels, creates stagnation and heat, and helps stimulate the kidney, bladder, large and small

intestine. This outcome is consistent with a controlled, randomized experiment conducted by Nieh, et al., (2023), that took place in August 2021 and ended in September 2020. Overall, 128 acute stroke inpatients from neurological departments were assigned at random. Results indicate that after receiving acupressure for a week or so, patients with acute stroke who were constipated showed improved changes in their CAS scores, decreased use of stool softeners, increased frequency of bowel sounds, and improved stool forms.

Park and Shin, (2018) reported that Auricular acupressure is being used in a Randomized Control Trial in Korea to look into how it affects patients who are having chemotherapy, for breast cancer who are constipated. 52 patients with breast cancer are having chemotherapy. split into two groups of the same size. Dependencies between the experimental and control groups were substantially reduced ($p < .001$). The stool-form ratings of the experimental group were significantly higher than those of the control group ($p = .003$). Ear acupressure proved to be an excellent way to treat constipation in people receiving chemotherapy for breast cancer.

Wang, et al., (2019b) in Taiwan, examined the effect of acupressure on constipation in patients with advanced cancer using a non-randomized, pre-post study method. The study comprised thirty patients with advanced cancer have constipation. In addition to receiving normal care, patients in the intervention group received an 8-minute daily acupressure treatment for three days. The intensity of the constipation When compared to the controls, patients undergoing acupressure treatments demonstrated a significant reduction in their symptoms of constipation.

5.5. Discussion the effect of hot water bag on the constipation levels:

Table (4-6,4-7,4-8) presents the statistical analysis of constipation for the control and hot water bag groups during the pre-test and post-test periods, highlighting significant comparisons for each group. Our findings showed that, for the hot water bag group, there is a significant statistical difference in the degree of constipation between the pre-test and three days following the application of the hot water bag for thirty minutes on the abdomen, with a P-value of 0.000 and 0.027, respectively. for three days (P=0.000). while in control group at p value 0.08 after routine care. Point of view, these results could be explained by the possibility that a heated pack could increase intestinal motility by a somatovisceral reflex that is triggered by activating somatic nerves via the spinal or supraspinal pathway. As a supraspinal and/or spinal reflex, applying heat to stimulate warm receptors in the skin may reflexively suppress sympathetic nerves and increase parasympathetic nerve activity in the intestine. If such a reflex takes place at the same level of intestinal innervation, peristalsis would be enhanced.

Kira's, (2016), in intervention study to find out how hot compresses affect the severity of constipation for women who use laxatives. Sixty women were randomly assigned to receive heat stimulus for four weeks using a commercially available thermic sheet (40°C). During the intervention period, women were told to remove the sheet after five hours each day. The sheet was applied to the lumbar area with the Jacoby line in the middle as soon as they woke up. The quality of life and defecation circumstances of adult female constipation patients were enhanced by the lumbar application of 40°C heat compresses.

5.6. Discussion the comparison of the effect of acupressure technique and hot water bag on constipation severity in patient with stroke:

According to the result in table (4-8), reversed there was statistically significant difference constipation level between acupressure technique, hot water bag groups and the control group, 96.7% , 100% and 92.9% of patient in acupressure and hot water bag and control groups have sever constipation level pretest period and 86.7% and 63.3% of patient in acupressure and hot water bag groups have a statistically significant difference in the severity of constipation was observed in the post-test period between the patients in acupressure technique ,hot water bag. This suggests that hot water bags and acupressure techniques are both greatly reducing constipation patients with stroke. Kira's, (2016) intervention evaluation study to ascertain the effects of heat compresses on the severity of constipation and quality of life in women who took laxatives. for the four-week trial period, sixty women were randomized at random to receive heat stimulation using a commercially available thermic sheet at 40°C. The women were told to remove the sheet after five hours each day throughout the intervention phase. The women attached the sheet to the lumbar area with the Jacoby line in the middle as soon as they woke up. Female adults with constipation experienced improved defecation and decrease constipation level after intervention and improved quality of life after receiving lumbar administration of 40°C heat compresses.

5.7. Discussion of differences between the effect of hot water bag, acupressure technique on constipation level among patients with stroke and patient socio-demographic characteristics and clinical data:

Based on the difference between the intervention and socio-demographic data, Tables (4-9, 4-10) shows a non-significant statistical association at p-value >0.05 between the effectiveness of hot water bags and acupressure techniques on constipation and the patient's age, marital status, level of education, and occupation, researcher opinion about this result that no relationship between acupressure and sociodemographic data. Abbasi, et al., (2019) randomized double-blind placebo-controlled clinical trial reported that no statistically significant relationship between acupressure and age, gender, marital status, or educational level.

A non-randomized, pre-post study design was used by Wang, et al., (2019b), to evaluate the impact of an acupressure intervention. Thirty patients suffering from advanced cancer were selected from the hospice department of a southern Taiwanese medical facility. Patients in the intervention group received an 8-minute acupressure treatment every day for three days in addition to standard care; this study demonstrates a non-significant statistical association between acupressure and medication use, educational level, and marital status.

A randomized clinical trial, ninety patients with AMI underwent wherein they were treated twice a day (10 am and 6 pm) for three days in a row using acupressure points SJ6, LI4, ST25, and SP6. This study indicates that there is no statistically significant relationship between acupressure and age at p value of 0.619 (Kamali, et al.,2022).

According to table 4-10 shows that there is no statistically significant difference between the effectiveness of acupressure techniques and hot water bags on constipation and patient clinical data, including chronic disease, at a p-value >0.05 . A quasi-experimental design technique by Ibrahim and Athbi, (2023) included sixty acute stroke patients who were specially selected, according to the findings, 40% of the patients in the experimental group had high blood pressure, whereas 50% of the patients in the control groups had both high blood pressure and diabetes. Location of the stroke, total number of prior strokes, state of motility, state of nutrition, and BMI. In a randomized clinical trial conducted by Kamali, et al., (2022), ninety-nine patients with AMI were treated twice a day (10 am and 6 pm) for three consecutive days. Acupressure treatments were administered to the patients at the SJ6, LI4, ST25, and SP6 sites. This study demonstrates that there is no statistically significant between acupressure and mobility at $p = 0.77$. there is a statistically significant (p-value <0.05) relationship between the hot water bag's effectiveness and the medication being given at the time. According to the researcher, these results can be explained by pushing on an acupressure point that releases a meridian that regulates the body's water channels, creates stagnation and heat, and helps stimulate the kidney, bladder, large and small intestine. mixed-method study conducted by ydemir, et al., (2023) reported that statistically significant differences ($p<0.001$) in the number of defecations and laxative use between the two groups

According to table (4-11) shows that, with a p-value >0.05 , there is no statistically significant difference between the effectiveness hot water bag and the acupressure techniques on the patient's level of constipation and their gender, type of stroke, prior stroke, mode of defecation, and defecation technique. Kamali, et al., (2022) applying acupressure to the sites SJ6, LI4,

ST25, and SP6 twice a day (10 am and 6 pm) for three days in a row. This study demonstrates a non-significant statistical relationship between gender (p value = 0.275) and defecation pattern (p value = 0.579) . As the researcher's opinion, the observed results might be accounted for by the potential for a heated pack to enhance intestinal motility by a somatovisceral reflex, which is initiated by stimulating somatic nerves through the spinal or supraspinal pathway. Applying heat to stimulate warm skin receptors may decrease sympathetic nerves and promote parasympathetic nerve activity in the intestines as a reflexive action resulting from supraspinal and/or spinal involvement. The enhancement of peristalsis would occur if the response occurred at the same level of intestinal innervation. According to Lee, (2014) implemented study in College of Nursing Science, Kyung Hee University, Seoul, Korea, to examine Constipation in Community-Dwelling Older Adults: The Impact of Mugwort Abdominal Heat and Acupressure Therapy A non-equivalent control group pre-posttest design was employed. The study comprised 86 elderly individuals, The experimental group demonstrated a significant improvement in the number of defecations per week, stool strength, difficulty during defecation, and discomfort from constipation, which were the outcome variables. Defecation difficulties declined in the experimental group during the intervention.

5.8 .Conclusions:

The present study concludes that

1. Patients with stroke experience a severe level of constipation.
2. Using acupressure technique on Li3, LI4 and SJ6, nine minutes /twice a day for three days duration was beneficial in lowering the severity of constipation in patients with stroke, the researcher accepted alternative hypothesis.
3. Apply hot water bag filled with tab water at 80c four-time a day ,30 minute each time for three days duration effective non-invasive technique to lower the severity of constipation in patients with stroke, alternative hypothesis is applied.
4. Patient with stroke who have constipation respond similarity of hot water bag and acupressure technique
5. There is no discernible difference between the effect of acupressure techniques on constipation severity and the data from clinical and sociodemographic studies except with current medication, the researcher accepted null hypothesis.

5.9. Recommendations :

Based on the study result and conclusions, the researcher recommended:

1. In addition to standard care, the researcher suggested using the hot water bag and acupressure approach to treat constipation in patients with stroke.
2. To establish more precise generalization, a similar research effort with a larger sample size and probability sampling technique should be carried out.
3. Furthermore, studies should be conducted to evaluate the effectiveness of acupressure techniques with other acupressure points, such as the st36 point, which can improve bowel movement and lower constipation levels.

4. All nursing staff should engage in educational a course that explains how to use the hot water bags and acupressure points to promote bowel movement.
5. According to study result the researcher accepted alternative hypothesis and reject null hypothesis.

5 .11. Implications:

5.11.1 Implications for nursing practice:

Patients with Stroke often complain of numerous concerns, including constipation. As a result, the nurse must take an active role in giving stroke patients holistic treatment by empowering them to use different techniques to lessen or eliminate their symptoms and improve their quality of life. As a result, it's critical to incorporate hot water bags and the acupressure technique into ordinary hospital care in order to provide these patients a useful nursing role. Furthermore, these approaches could enhance the standard of nursing care. Acupressure and the use of a hot water bag can be taught to patients with stroke in order to lessen the severity of their constipation, which will improve their functional abilities. These methods are safe, affordable, effective, and simple to learn. They can also be used independently at anytime and anywhere.

5 . 11.2.Implications for nursing education:

The enhancement of nursing care for patients with stroke depends on the development of acupressure techniques as a type of nursing care or a supplemental therapy, based on a theoretical idea, evidence-based studies, and real nursing experience. As a result, the researcher suggests that the acupressure technique and applying of hot water bag should be taught at nursing institutions through the Ministry of Higher Education and Scientific Research in Iraq.

5.11.3. Implications for nursing research:

The current study examined the effects of a hot water bag and acupressure treatment on constipation in patients with stroke. Thus, this study was regarded as an evidence-based procedure so that future researchers might investigate the effects of these two therapies on constipation associated with different illnesses or ailments.

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Appendices

Republic of Iraq
Ministry of higher education & scientific research
University of Kerbala
College of Nursing
Graduate studies Division



جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة كربلاء
كلية التمريض
شعبة الدراسات العليا

التاريخ: 2023 / 11 / 15

العدد : د.ع / 357

الى / دائرة صحة كربلاء المقدسة – مركز التدريب و التنمية
البشرية

م/ تسهيل مهمة

تحية طيبة...

يرجى التفضل بالموافقة على تسهيل مهمة طالبة الدراسات العليا / الماجستير
(عقبلة محمد هاشم جواد) في كليتنا للعام الدراسي (2023-2024) لغرض جمع العينات
الخاصة برسالتها الموسومة :

"اثر استخدام كيس الماء الحار وتقنيه الضغط في الامساك لدى المرضى المصابين
بالجلطة الدماغية : دراسه مقارنة"

"Effect of Use Hot Water Bag and Acuprressure Technique in
Constipation among Patient With Stroke A Comparative Study"

** مع التقدير **



أ.م.د. سلمان حسين فارس الكريطي
معاون العميد للشؤون العلمية و الدراسات العليا
2023 / 11 / 15



نسخة منه الى :

- مكتب السيد معاون العمي المحترم .
- شعبة الدراسات العليا .



العنوان : العراق - محافظة كربلاء المقدسة - حي الموظفين - جامعة كربلاء
Mail: nursing@uokerbala.edu.iq website:



Official permission from Iraqi Ministry of Health/ Training and Human Development Center/ Kerbala Health directorate

Holy Karbala governorate
Karbala Health Department
Training and Human Development Center
Research and knowledge management division

جمهورية العراق



محافظة كربلاء المقدسة
دائرة صحة كربلاء المقدسة
مركز التدريب والتنمية البشرية
شعبة ادارة البحوث والمعرفة
العدد:
التاريخ: ٢٠٢٣ / ١١ / ٥

الى / جامعة كربلاء / كلية التمريض
الموضوع / تسهيل مهمة

تحية طبية ...

كتابكم المرقم د.ع / ٣٥٧ في ٢٠٢٣/١١/٥
نود إعلامكم بأنه لا مانع لدينا من تسهيل مهمة طالبة الماجستير (عقيلة محمد هاشم جواد) لإنجاز بحثها الموسوم:

((Effect of use hot water bag and acupressure technique in constipation among patient with stroke A comparative study))

في مؤسستنا الصحية / مدينة الامام الحسين (ع) الطبية/ وبإشراف الدكتور (بشار مسلم) على ان لا تتحمل دائرتنا اي نفقات مادية مع الاحترام .

الدكتورة

تقوى خضر عبد الكريم
مدير مركز التدريب والتنمية البشرية

٢٠٢٣/ ١١/ ٥

التدريب
اكوار، بشرية
١١/٥

نسخة منه الى

- مدينة الامام الحسين (ع) الطبية / لإجراء اللازم مع الاحترام.
- مستشفى الامام الحسن (ع) المجتبى/ لإجراء اللازم مع الاحترام.
- مركز التدريب والتنمية البشرية / شعبة ادارة البحوث والمعرفة مع الاوليات.

Ethical agreement from the ethics committee in Collage of
Nursing university of Kerbala

Ministry of Higher Education and
Scientific Research
University of Karbala / College of Nursing
Scientific Research Ethics Committee



UOK/CON/23.017

Ethical Committee Code:

Date: 15/11/2023

Research Ethical Approval Form

Title of the research project			
In the English language		In the Arabic language	
Effect of Hot Water Bag and Acupressure Technique on Constipation among Patient with Stroke: A comparative study		اثر استخدام كيس الماء الحار وتقنية الضغط في الامساك لدى المرضى المصابين بالجلطة الدماغية: دراسة مقارنة	
Data About the Main Researcher /Student:			
Full Name	Scientific Title	Mobile Number	Email
Aqilah Mohammed Hashem	Master student	07736428597	aqilamohammed952@gmail.com
Data About the Co-author /Supervisor:			
Full Name	Scientific Title	Mobile Number	Email
Dr. Hassan Abdullah Athbi	Ass. Professor	07721902514	hasan.abdallh@uokerbala.edu.iq
Study objectives			
<ul style="list-style-type: none"> To determine the effect of hot water bag on constipation among patient with stroke. To determine the effect of acupressure technique on constipation among patients with stroke. To compare the effect of hot water bag and acupressure technique on constipation among patient with stroke. 			
Time and Setting of the Study			
October 2023-Augest 2024 /Imam Al-Hussain Medical City.			
Study Design			
Quasi-experimental design.			
Sampling method and sample size			
Sampling method: Probability-randomize sampling/ Seventy-five patients will be participating in this study. the participants will be assigned randomly into three groups: 1) Acupressure technique group, 2) Hot water bag group 3) Control group (placebo therapy or traditional care).			
Statement of Ethical Commitment			
The study will be conducted in accordance with what was mentioned in the protocol above and to commitment that all rules set by the ethical committee are followed in present research process. The researcher also makes a commitment to abide by ethical principles, moral values, law and instruction of the institutions. There is no bias will be during collecting the data, gender, regional aspects and is totally impartial and objective. The researcher will have taken an informed consent from the participants, and provide clarifications and information about the study to the sample members. The researcher deals with the data of the sample members in complete confidentiality.			
Name and signature of the researcher			
Recommendation of the College's Research Ethical Committee			
<input checked="" type="checkbox"/>	Agreement to conduct the study	<input type="checkbox"/>	Disagreement to conduct the study
Instructor Dr. Sajidah Saadoon Oleiwi Member		Ass. Prof. Dr. Zeki Sabah Musihb Member	
Ass. Prof. Dr. Ghazwan Abdalhussein Member		Ass. Prof. Dr. Hassan Abdullah Athbi Chairman of the Committee	

Socio-demographic characteristics and clinical data

استيانه رقم (1)

البيانات الديموغرافية - الاجتماعية:

1. العمر: سنة

2. الجنس:

ذكر انثى

3. الحالة الاجتماعية:

أعزب/ باكر متزوج/ة أرمل/ة مطلق/ة منفصل/ة

4. المستوى التعليمي:

لا يقرأ ولا يكتب يقرأ ويكتب ابتدائية متوسطة اعدادية معهد كلية فما فوق

5. -المهنة:

البيانات الصحية:

1. الامراض المزمنة:	
هل تعرضت الى جلطة دماغية سابقة:	لا <input type="checkbox"/> نعم <input type="checkbox"/>
3. نوع الجلطة الدماغية:	جلطة ناقصة <input type="checkbox"/> جلطة نقص التروية <input type="checkbox"/>
4. موقع الجلطة الدماغية:	الفص الايسر <input type="checkbox"/> الفص الايمن <input type="checkbox"/> كلاهما <input type="checkbox"/>
5. عدد مرات الإصابة بالجلطة الدماغية:	
6. عدد مرات التغوط بالاسبوع قبل الإصابة بالجلطة الدماغية:	
7. الطريقة المستخدمة للتغوط:	
حوض/وعاء السرير (القصرية)	مرحاض بالسرير في المستشفى / البيت <input type="checkbox"/>
مقعد المرحاض المرتفع	مرحاض شرقي <input type="checkbox"/>

8. حالة الحركة:	
مستقل (يتحرك دون مساعدة)	يحتاج الى مساعدة عند الحركة <input type="checkbox"/>
يستخدم الكرسي المتحرك	لايستطيع الحركة على الاطلاق <input type="checkbox"/>
9. حالة التغذية:	
صعوبة في البلع / المضغ	يحتاج إلى المساعدة عند تناول الطعام <input type="checkbox"/>
يستخدم الأنبوب الأنفي المعدي	سوائل وريدية فقط <input type="checkbox"/>
10. الطول	سم
11. الوزن	كغم
12. الادوية المستخدمة حالياً: (وضع اشارة امام اسم الدواء)	
مضادات الحموضة المصنوعة من الالمنيوم	الادوية الملية <input type="checkbox"/>
الادوية المضادة للكولين	مكملات الحديد <input type="checkbox"/>
الادوية المضادة للذهان	مضادات الالتهابات غير الستيرويدية <input type="checkbox"/>
حاصرات قنوات الكالسيوم	العلاجات الاقيونية <input type="checkbox"/>
مكملات الكالسيوم	مضادات الاكتئاب <input type="checkbox"/>
الادوية المدررة	

Wexner constipation questionnaire

استبانته رقم (2):

الجزء الاول: مقياس ويكسندر للإمساك (Wexner constipation)
:(questionnaire)

1. كم مرة تتغوط (تفرغ أمعائك)؟	
	أكثر من مرة في اليوم
	مرة واحدة كل يومين
	مرتين في الاسبوع
	مرة في الاسبوع
	لم اتغوط خلال الاسبوع الماضي
2. هل هناك صعوبة أو ألم اثناء التغوط؟	
	أبدا
	نأدرا
	أحيانا
	عادة
	دائما
3. هل تشعر أنك لا تفرغ أمعائك بشكل كامل عند الذهاب إلى المرحاض؟	
	أبدا
	نأدرا
	أحيانا
	عادة
	دائما
4. كم عدد المحاولات الفاشلة لتفريغ أمعائك خلال 24 ساعة؟	

	لا يوجد
	1-3
	4-6
	7-9
	أكثر من 9
5. هل تشعر بال ألم في البطن؟	
	أبدا
	نأدرا
	أحيانا
	عادة
	دائما
6. كم من الوقت تستغرق لإفراغ أمعائك؟	
	أقل من 5 دقائق
	6- 10 دقائق
	11- 20 دقائق
	21- 30 دقائق
	أكثر من نصف ساعة
7. هل تحتاج إلى مساعدة لتفريغ أمعائك؟	
	لا توجد مساعدة (أي لا تستخدم الأدوية المليئة أو مساعدة باستخدام اليد)
	استخدم المليينات لتحفيز الامعاء
	المساعدة بالأصابع (أي استخدام أصابعك للمساعدة في التفريغ) أو الحقنة الشرجية

Constipation severity assessment scale

استبانة رقم (2):
الجزء الثاني: مقياس تقييم شدة الإمساك (Modified Constipation severity)
:(Assessment Scale)

ت	الغرض	لا توجد مشكلة	مشكلة قليلة	مشكلة شديدة
1	انتفاخ البطن أو (الانتفاخ)			
2	تغير في كمية الغازات التي تخرج من المستقيم			
3	قلة تكرار حركة الأمعاء			
4	زيادة تكرار حركة الأمعاء			
5	نضح البراز السائل			
7	امتلاء أو ضغط المستقيم			
8	حجم البراز صغير			
9	حجم البراز كبير			
10	عدم القدرة على إخراج البراز			

The Statistician's certificate

Republic of Iraq Ministry of higher education & scientific research University of Karbala College of Nursing Graduate studies Division		جمهورية العراق وزارة التعليم العالي والبحث العلمي جامعة كربلاء كلية التمريض شعبة الدراسات العليا
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إقرار الخبير الإحصائي

أشهد بأن الرسالة الموسومة :

" اثر استخدام كيس الماء الحار ونقته الضغط في الاساك لدى المرضى المصابين بالجلطة الدماغية
دراسة مقارنة "

" Effect of Use Hot Water Bag and Acuprressure Technique in Constipation
among Patient With Stroke A Comparative Study "

قد تم الإطلاع على الإسلوب الإحصائي المتبع في تحليل البيانات و اظهار النتائج الإحصائية
وفق مضمون الدراسة و لأجله وقعت .

توقيع الخبير الإحصائي :

الإسم و اللقب العلمي : د. ياسين عبد كاظم محمد

الإختصاص الدقيق : إحصاء طبي

مكان العمل : جامعة كربلاء كلية التمريض والأشعة والإشعاع

التاريخ : 2024 / 5 / 12

List of experts

ت	اسم الخبير	اللقب العلمي	التخصص	سنوات الخبرة	مكان العمل	الغرض
1.	د. هدى باقر حسن	استاذ	تمريض صحة البالغين	37 سنة	كلية التمريض / جامعة بغداد	Content validity
2.	د. سحر ادهم	استاذ	تمريض صحة البالغين	37 سنة	كلية التمريض / جامعة بابل	
3.	د. ضياء كريم عبد علي	استاذ مساعد	تمريض صحة البالغين	17 سنة	كلية التمريض / جامعة العميد	
4.	د. سيروان جعفر باقي	استاذ مساعد	تمريض صحة البالغين	16 سنة	كلية التمريض / جامعة بغداد	
5.	د. صادق عبد الحسين حسن	استاذ مساعد	تمريض صحة البالغين	14 سنة	كلية التمريض / جامعة بغداد	
6.	د. محمد باقر الجبوري	استاذ مساعد	تمريض صحة البالغين	13 سنة	كلية التمريض / جامعة بغداد	
7.	د. نسيم سمير علي	استاذ مساعد	تمريض صحة البالغين	13 سنة	كلية التمريض / جامعة وارث الانبياء	
8.	د. بشار مسلم دهش	استشاري	طب جملة عصبية	10 سنوات	مدينه الامام الحسين الطبيه	
9.	د. عمار كردي عبد الشهيد	طبيب	طب جملة عصبية	4 سنوات	دائرة صحة كربلاء	
10.	د. علي كريم خضير	استاذ	تمريض صحة نفسية وعقلية	32 سنة	كلية التمريض / جامعة كربلاء	Face validity (response process validity)
11.	د. فاطمة مكي محمود	استاذ	تمريض صحة البالغين	28 سنة	كلية التمريض / جامعة كربلاء	
12.	د. سلمان حسين فارس	استاذ مساعد	تمريض صحة مجتمع	32 سنة	كلية التمريض / جامعة كربلاء	
13.	د. حسام عباس داود	استاذ مساعد	تمريض صحة البالغين	22 سنة	كلية التمريض / جامعة كربلاء	
14.	د. ابراهيم علوان كاظم	استاذ مساعد	تمريض صحة البالغين	18 سنة	كلية التمريض / جامعة الكوفة	
15.	د. محمد عبد الكريم مصطفى	استاذ مساعد	تمريض صحة البالغين	16 سنة	كلية التمريض / جامعة الكوفة	
16.	د. حسين صالح عباس	استشاري	طب جملة عصبية	10 سنة	مدينة الامام الحسين ع الطبية	
17.	د. عامر محمد غبيش	مدرس	تمريض صحة البالغين	25 سنة	كلية التمريض / كلية الصفوة الجامعة	

Appendix(H)

Content validity of wexner constipation questionnaire

ITEM	EX1	EX2	EX3	EX4	EX5	EX6	Ex7	Ex8	Ex9	Ne	N	I-CVI	AU
Q1	1	1	1	1	1	1	1	1	1	9	9	1	1
Q2	1	1	1	1	1	1	1	1	1	9	9	1	1
Q3	1	1	1	1	1	1	1	1	1	9	9	1	1
Q4	1	1	1	1	1	1	1	1	1	9	9	1	1
Q5	1	1	1	1	1	1	1	1	1	9	9	1	1
Q6	1	1	1	1	1	1	1	1	1	9	9	1	1
Q7	1	1	1	1	1	1	1	1	1	9	9	1	1
Proportion relevance	1	1	1	1	1	1	1	1	1	1	1	1	1
S_CVI/UA													1
S-CVI/Ave													1
Average proportion of items judged as relevance across the eight experts													
<p>I-CVI = $CVR = (ne - N/2) / (N/2)$, S- CVI/Ave= $(\sum CVR / N)$, UA = Universal agreement, Content Validity Ratio CVR= I- CVI (item level content validity index), S- CVI\Ave =scale-level content validity index, ne= number of experts in agreement , ne = The number of experts who rated an item as “essential” , N = the total number of experts</p>													

Appendix(I)

Content validity of modifying Constipation severity Assessment scale

ITEM	EX1	EX2	EX3	EX4	EX5	EX6	EX7	EX8	EX9	NE	N	I-cv I	UA
Q1	1	1	1	1	1	1	1	1	1	9	1	1	1
Q2	1	1	1	1	1	1	1	1	1	9	1	1	1
Q3	1	1	1	1	1	1	1	1	1	9	1	1	1
Q4	1	1	1	1	1	1	1	1	1	9	1	1	1
Q5	1	1	1	1	0	1	1	1	1	8	0.88	1	0
Q6	1	1	1	1	1	1	1	1	1	9	1	1	1
Q7	1	1	1	1	0	1	1	1	1	8	0.88	1	0
Q8	1	1	1	1	1	1	1	1	1	9	1	1	1
Q9	1	1	1	1	1	1	1	1	1	9	1	1	1
Proportion Relevance	1	1	1	1	0.75	1	1	1	1	1	1	1	1
S_ CVI/UA													0.75
S-CVI/Ave													0.97
I-CVI = $CVR = (ne - N/2) / (N/2)$, S- CVI/Ave= $(\sum CVR / N)$, UA = Universal agreement, Content Validity Ratio CVR= I- CVI (item level content validity index), S- CVI\Ave =scale-level content validity index, ne= number of experts in agreement , ne = The number of experts who rated an item as “essential” , N = the total number of experts													

Appendix(J)

Face validity of wexner constipation questionnaire

ITEM	EX1	EX2	EX3	EX4	EX5	EX6	Ex7	Ex8	NE	N	I-cv I	UA
Q1	1	1	1	1	1	1	1	1	8	8	1	1
Q2	1	1	1	1	1	1	1	1	8	8	1	1
Q3	1	1	1	1	1	1	1	1	8	8	1	1
Q4	1	1	1	1	1	1	1	1	8	8	1	1
Q5	1	1	1	1	1	1	1	1	8	8	1	1
Q6	1	1	1	1	1	1	1	1	8	8	1	1
Q7	1	1	1	1	1	1	1	1	8	8	1	1
Proportion Relevance	1	1	1	1	1	1	1	1	1	1	1	1
S_fVI/UA												1
S-fVI/Ave												1
Average proportion of items judged as clarity and comprehension across the eight experts												
<p>I-FVI = (agreed item)/ (number of rater), S-FVI/Ave = (sum of I-FVI scores)/(number of item), S-FVI/Ave = (sum of I-FVI scores)/(number of item), S-FVI/UA = (sum of UA scores)/(number of item), UA = Universal agreement = raters in agreement, I-FVI = item face validity, S-FVI =scale face validity.</p>												

Appendix(K)

Face validity of modifying Constipation severity Assessment scale

ITEM	EX1	EX2	EX3	EX4	EX5	EX6	Ex7	Ex8	NE	N	I-cv I	UA
Q1	1	1	1	1	1	1	1	1	8	8	1	1
Q2	1	1	1	1	1	1	1	1	8	8	1	1
Q3	1	1	1	1	1	1	1	1	8	8	1	1
Q4	1	1	1	1	1	1	1	1	8	8	1	1
Q5	1	1	1	1	1	1	1	1	8	8	1	1
Q6	1	1	1	1	1	1	1	1	8	8	1	1
Q7	1	1	1	1	1	1	1	1	8	8	1	1
Q8	1	1	1	1	1	1	1	1	8	8	1	1
Q9	1	1	1	1	1	1	1	1	8	8	1	1
Proportion Relevance	1	1	1	1	1	1	1	1	1	1	1	1
S_fVI/UA												1
S-fVI/Ave												1
Average proportion of items judged as clarity and comprehension across the eight experts												
I-FVI = (agreed item)/ (number of rater), S-FVI/Ave = (sum of I-FVI scores)/(number of item), S-FVI/Ave = (sum of I-FVI scores)/(number of item), S-FVI/UA = (sum of UA scores)/(number of item), UA = Universal agreement = raters in agreement, I-FVI = item face validity, S-FVI =scale face validity.												

Appendix(L)

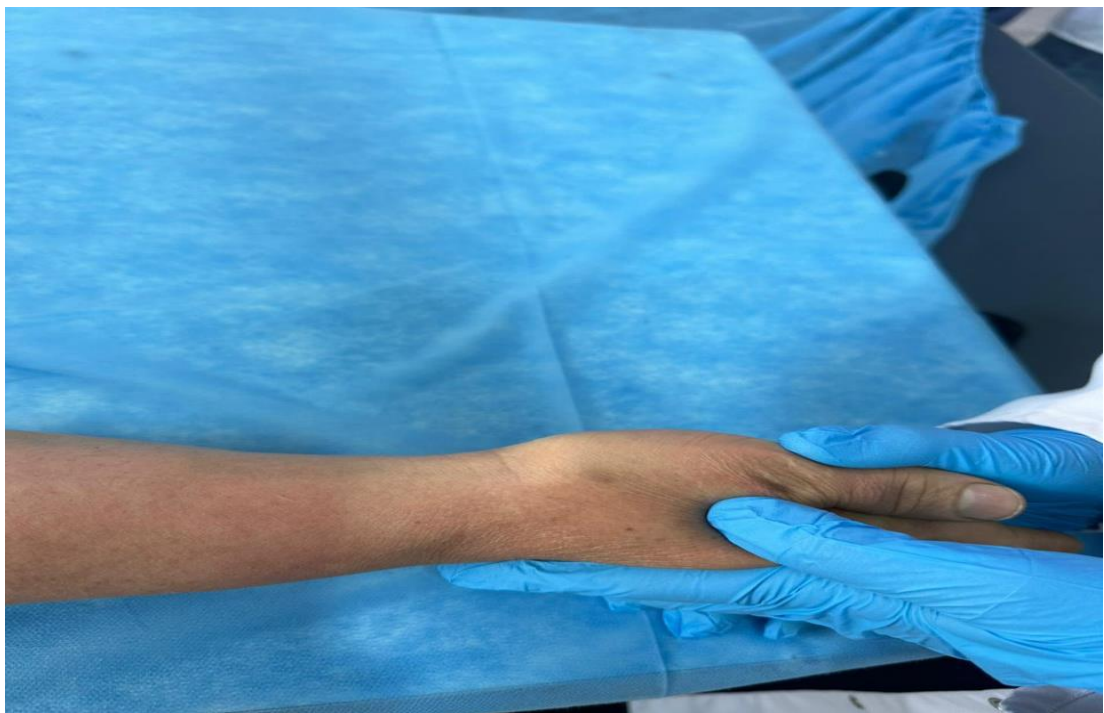
Application intervention protocol

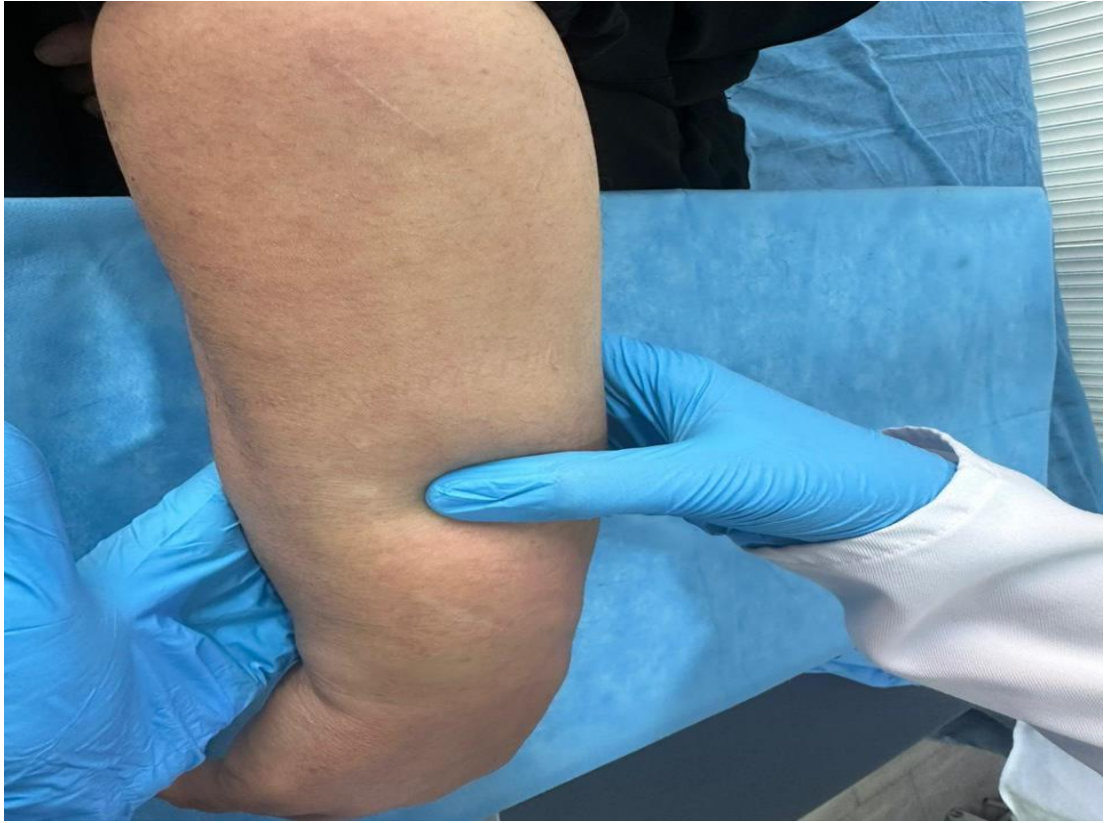


Acupressure point (LI4)



Acupressure point (LI3)





Acupressure point (SJ6)

استمارة الموافقة الخطية على البحث

الرجاء التوقيع اسفل الصفحة كي تشهد ان:

بعد ان قامت طالبة الماجستير (عقيلة محمد هاشم جواد) بشرح وتوضيح جميع التساؤلات حول بحثها الموسوم (اثر استخدام كيس الماء الحار وتقنية الضغط في الامساك لدى مرضى المصابين بالجلطة الدماغية. دراسة مقارنة) حيث اطلعني صاحب البحث على اهمية فائدته العلمية كما واطلعني ان هذه مشاركتي تطوع مني و بمحض ارادتي وان بإمكانني رفض المشاركة وسحبها متى شئت ولاي كان او ان ارفض الاجابة على أي سؤال كما وان مشاركتي بالبحث لن تحملني أي نفقات او مسائلة من شأنها الضرر بمهنتي او بشخصيتي كما ان المعلومات الناتجة عن مشاركتي سوف تعامل بسرية تامة ولن يطلع عليها أي شخص وان هذه المعلومات ونتائجها هي للاغراض العلمية فقط ولن تكون هناك أي اشارة الى شخصي او عائلتي في أي منشور عن هذه الدراسة.

ولاجل هذا فاني اوقع على المشاركة في هذا البحث :

يرجى كتابة التاريخ بجانب التوقيع

توقيع المشارك: التاريخ: ٢٠٢٠ / ١١ / ٢٠٢٠

توقيع الباحث: التاريخ: ٢٠٢٠ / ١١ / ٢٠٢٠

IRCT

Iranian Registry of Clinical Trials

Dear Aqila Almosaway,

Your trial information under the scientific name of
Effect of Hot Water Bag and Acupressure Technique in
Constipation among Patients with Stroke

has been submitted in Iranian Registry of Clinical Trials at 2024-02-28.

We will review your submission within 10 working days in order to register your trial in IRCT and we will let you know if it requires any amendments.

Best Regards

Iranian Registry of Clinical Trials (IRCT)

عزیز،

با سلام

اطلاعات مطالعه کارآزمایی بالینی شما تحت عنوان

در تاریخ ۱۴۰۲/۱۲/۰۹ به مرکز ثبت کارآزمایی بالینی ایران ارسال شد.

اطلاعات مطالعه شما ظرف 10 روز آینده بمنظور ثبت در مرکز مورد داوری
قرارخواهد گرفت و در صورتیکه نیاز به اعمال اصلاحات داشته باشد به شما اطلاع
رسانی خواهد شد.

با تشکر

مرکز ثبت کارآزمایی بالینی ایران IRCT

Republic of Iraq
Ministry of higher education & scientific research
University of Karbala
College of Nursing
Graduate studies Division

جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة كربلاء
كلية التمريض
شعبة الدراسات العليا

إقرار الخبير اللغوي

أشهد بأن الرسالة الموسومة :

" اثر استخدام كيس الماء الحار وتقنية الضغط في الامساك لدى المرضى المصابين بالجلطة الدماغية.
دراسة مقارنة "

using
" Effect of ~~Hot~~ Hot Water Bag and Acupressure Technique in Constipation among
Patient With Stroke A Comparative Study. "

قد جرى مراجعتها من الناحية اللغوية بحيث أصبحت بلسلوب علمي سليم خالي من
الأخطاء اللغوية و لأجله وقعت .

توقيع الخبير اللغوي :
الإسم و اللقب العلمي : د. غانم جواد السعيد
الإختصاص الدقيق : لغة إنجليزية - لغة -
مكان العمل : جامعة كربلاء كلية التربية للعلوم الإنسانية

التاريخ : 2024 / 7 / 29

العنوان : العراق - محافظة كربلاء المقدسة - حي الموفقين - جامعة كربلاء
Mail: nursing@uokerbala.edu.iq website: nursing.uokerbala.edu.iq



جامعة كربلاء

كلية التمريض

اثر استخدام كيس الماء الحار وتقنية الضغط في الامساك لدى المرضى
المصابين بالجلطة الدماغية: دراسة مقارنة

رسالة تقدم بها

عقيلة محمد هاشم

الى

مجلس كلية التمريض / جامعة كربلاء

كجزء من متطلبات نيل درجة الماجستير في علوم التمريض

إشراف

أ.م.د. حسن عبد الله عذبي

الخلاصة

خلفية البحث: الإمساك هو مصدر قلق شائع بعد الجلطة الدماغية. عادة ما يجهد المرضى المصابين بالإمساك لإخراج البراز، مما يزيد من خطر الإصابة بجلطة دماغية أخرى. تهدف هذه الدراسة إلى اثر استخدام كيس الماء الحار على الامساك و مقارنة تأثير كيس الماء الساخن وتقنية الضغط في الإمساك بين مرضى الجلطة الدماغية.

منهجية البحث: أجريت دراسة شبه تجريبية في مدينة الإمام الحسين (ع) الطبية، للمدة من الأول من تشرين الأول 2023 إلى 30 حزيران 2024. تم شمول عينة غرضية تتالف من 88 مريضاً بالجلطة الدماغية مقسمين إلى ثلاث مجموعات: كيس الماء الساخن (30)، تقنية الضغط (30)، والمجموعة الضابطة (28). طبقت مجموعة كيس الماء الساخن كيس ماء ساخن على البطن أربع مرات يومياً لمدة ثلاثة أيام، بينما تلقت مجموعة تقنية الضغط تعليمات حول تطبيق الضغط على نقاط معينة (LI4، LI3، SJ6) لمدة ثلاث دقائق لكل نقطة، مرتين في اليوم، لمدة ثلاثة أيام. بينما تلقت المجموعة الضابطة الرعاية الاعتيادية. شملت أدوات الدراسة على اداة جمع البيانات الديموغرافية والسريرية، واستبيان ويكسنر للإمساك، ومقياس تقييم الإمساك. تم فحص وقياس نتائج الدراسة باستخدام طريقة التحليل الوصفي بالإضافة إلى طريقة التحليل الاستنتاجي (اختبار المتوسطات لعينتين مستقلتين، اختبار المتوسطات لعينة واحدة، وتحليل التباين احادي الاتجاه)؛ تم تحديد قيمة الدلالة الاحصائية بمستوى معنوية اقل من 0.05.

النتائج: أظهرت نتائج الدراسة قبل التداخل، ان 92.9% من المرضى في المجموعة الضابطة، و 96.7% في مجموعة كيس الماء الساخن، و 100% في مجموعة تقنية الضغط يعانون من إمساك شديد. وبعد التداخل، تغيرت هذه النتائج إلى 0.0% لمجموعتي كيس الماء الساخن وتقنية الضغط و 92.9% للمجموعة الضابطة. ولوحظت فروق كبيرة في حالة الإمساك للمرضى قبل وبعد التداخل في مجموعة كيس الماء الساخن ومجموعة تقنية الضغط بمستوى معنوية (0.000). ومع ذلك، لم يكن هناك فرق كبير بين مجموعتي كيس الماء الساخن وتقنية الضغط في تقليل الإمساك بمستوى معنوية (0.136).

الاستنتاجات: إن كلاً من العلاج بتقنية الضغط واستخدام كيس الماء الساخن فعال في تحسين حركة الأمعاء لدى مرضى الجلطة الدماغية الذين يعانون من الإمساك. ويمكن اعتبار هذه التقنيات غير المؤذية تداخلات تكميلية للعناية بهذه المضاعفات الشائعة بعد الجلطة الدماغية.

وعلاوة على ذلك، فإن مرضى الجلطة الدماغية الذين يعانون من الإمساك يستجيبون بشكل مماثل لتقنية كيس الماء الساخن والعلاج بتقنية الضغط.

التوصيات: بالإضافة الى الرعاية الروتينية نوصي باستخدام كيس الماء الحار وتقنية الضغط لمعالجة الامساك لدى المرضى المصابين بالجلطة الدماغية.