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Effect of Self-Care Instructional Program on Patients knowledge in Burn Unit

A Dissertation by

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To

Submitted to the Council of College of Nursing University of Babylon in Partial Fulfillment of the Requirements for the Degree of Philosophy of Doctorate in Nursing

Supervisor

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بسم الله الرحمن الرحيم

يَا أَيُّهَا النَّاسُ قَدْ جَاءَتْكُم مَّوْعِظَةٌ
مِّن رَّبِّكُمْ وَشِفَاءٌ لِّمَا فِي
الصُّدُورِ وَهُدًى وَرَحْمَةٌ لِّلْمُؤْمِنِينَ

صدق الله العلي العظيم

﴿سورة يونس الآية ٥٧﴾

Supervisor Certification

I certify that this dissertation, which is entitled: (**Effect of Self-Care Instructional Program on Patients knowledge in Burn Unit)** was prepared under my supervision at College of Nursing, University of Babylon, in partial fulfillment of the requirements for the **Degree of Doctorate Philosophy in Nursing.**

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Date: / / 2023

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We, the examining committee, certify that we have read this dissertation entitled **(Effect of Self-Care Instructional Program on Patients Knowledge in Burn Unit)** submitted by **Wisam Hadi Mahdi,** from the Department of Adult Nursing, and we have examined the student in its contents, and what is related to it and we decide that it is adequate for awarding the **Doctorate of Philosophy in Nursing** with specialty of **Adult Nursing**.

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Dedication

I dedicate this effort to whom taught me success and

patience my dear father

To the fountain of patience and optimism and hope my

beloved mother

To my beloved wife who encourage and support me

To my brothers and my sister whom their love inspired

my

To my friends whom help my during this work

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Abstract

Background: Burns injuries are one of the most distressful trauma and worst aspects of the tragedies a persons and their family can go through for both physically and psychologically as well as a globally fourth most prevalent health issue. Severe burns are accompanied by many complications that may be effect for long time or forever, the patients need be rehabilitated them by instructional programs and follow up from medical team after discharge from burn unit for long time to become able to do the independence self-care. **Objective:** The main objective of study to evaluate the effective of self-care instructional program on knowledge of patients with Burns. **Methodology**: Quasi-experimental design carried to evaluate the effect of the self-care instructional program on patients knowledge in burn unit. The instructional program has been constructed pre and post-test for the study sample carried out. The study has been established from 19th October 2021 to 9th August 2023. Non-probability (purposive) sample of (60) patients is selected from burn unit, they divided into two groups: (30) patients have been exposed to the instructional program assigned as study group and (30) patients receive routine care who assigned as control group. The data are collected through use of designed questionnaire, which consists of (3) major parts (Demographic characteristics, clinical information of patients and self-care activities) obtained from the patients by interview method.The validity of the questionnaire is determined through an experts panel of (10) specialists. Reliability is determined through a pilot study. Descriptive and inferential statistical analysis is applied to the results. **Results:** Most of study samples are males, age group (18-27) years, married, graduated from primary schools, rural residents, free work, length of hospital stay (12-15) days, third degree burn, burn by

flame, and total body surface area (21-30%) and suffer from upper limbs burns. As well as the study findings indicate there are highly differences between pre-test (Mean=1.7795) and post-tests (Mean= 2.5832) in the study group in overall main domains regarding patients knowledge concerning self-care after burns. **Conclusion:** The study concluded the instructional program is effective and knowledge of patients regarding self-care has been improved after applying the instructional program to the study group. **Recommendation**s: Self-care instructional program may established in burn unit or out patients, which may improve patients education to maintain their health and enhance their quality of life.

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List of Abbreviations

Term	Details
&	And
TBSA	Total Body Surface Area
WHO	World Health Organization
m^2	Square Meters
mm	Millimeter
ABA	American Burn Association
USA	United States Of America
CO	Carbon Monoxide
VAP	Ventilator-Associated Pneumonia
MODS	Multiple Organ Failure Syndrome

bpm	Beats Per Minute
mEq/L	Milliequivalents Per Liter
mm Hg	Millimeters Of Mercury
mg/dL	Milligrams Per Deciliter
GI	Gastrointestinal
AKI	Acute Non-Inflammatory Kidney Injuries
QOL	Quality of Life
CNP	Chronic Neuropathic Pain
T3	Triiodothyronine
T4	Thyroxine
FSH	Follicle-Stimulating Hormone
ADH	Antidiuretic Hormone
ANP	Acute Neuropathic Pain
LR	lactated Ringers
V. A	Vitamin A
V. C	Vitamin C
V. E	Vitamin E
NSAIDs	Non-Steroidal Anti-Inflammatory Drugs
Freq	Frequency
Assess	Assessment
SD	Standard Deviation
L	Low
M	Moderate
H	High
N	Number
Sig	Significant
NS	Non-Significant
DF	Degree Of Freedom
P. value	Probability value
HS	High Significant
ID	Iraqi Dinar
L	Low

List of Symbols

≤	Less than or equal
%	Percentage
>	More than

CHAPTER ONE

INTRODUCTION

1.1. Introduction

Burn is an injury to the skin or other tissues and an unique trauma leads to high morbidity with life-threatening events. Burn injury has been identified as an important public health problem (Taheri *et al.*,2018). Also is a main cause of admission to hospital, in low-income countries and many cases lead to secondary complications such as disfigurements, contractures, and scar formations (Mudawarima 2021).

The burn is a main cause of mortality and disability of worldwide whereas it is considered as a traumatic experience, so it has a negative impact on quality of life for physical, emotional, and social aspects also can effect patients mental process (Abd Elalem *et al.,* 2018). Everyone in any age and socioeconomic groups can be affected by burn. Between (20 to 30) years old them most frequent to suffer from burn (Liliane *et al.*,2016).

Flames and solids, are most caused of burns incidences, the pathophysiological response as affected by differences of causes of these burns also the level of burn severity selected by the depth and total body surface area (Hinkle & Cheever 2018).

The characteristics of burn depend on depth of burn. Pain last for two or three days, followed by peeling of the skin for next few days and typically red in color cause by the superficial burns (first degree), while suffering from discomfort or complain of feeling pressure more than pain for patients with burns and more severe from superficial burns (second degree), whereas may be completely painless to light touch or puncture and may be pink, white or black when Full-thickness of burn (third degree). Numbness or tingling may persist for a long duration after an electrical injury, also emotional and psychological distress may produce from these (Hadi & Mohammad 2021).

Initial assessment of second, third also forth degree of burn, the percentage of the Total Body Surface Area (TBSA) that has been burned and depth of the burn are essential for an assessment and dependent on it in clinical situation, the patient can experience many potentials of fatal complications such as respiratory distress, shock, infection and multiple organs failure. These can happen through the acute phase of the burn, after that the rehabilitation and integration back to the society are hard task for both patients and families also burn survivor as well as another family members may have uncomfortable psychological effects (Academic Senate 2011).

Burns can lead to a lot of health problems such as physical problems that result from deformities or scar contractures, changes in skin and his color and body contour, and loss of body parts may limit the patient's return to previous activities, also scars of visible burn might become the patient social isolation because these interfere with an usually social activities of individuals (Stavrou *et al.,* 2014).

There are multiple surgical interventions, extensive pain control, rehabilitation, and prolonged intravenous medication regimens, particularly with antibiotics and opioids, these require for many patients with burn and also prolonged hospital lengths of stay (Liliane *et al.,* 2016).

One of basic part of rehabilitation and care programs for burn patients are range of motion exercises. It easy to apply and do not require any special equipment and space, the patient and his family can do it and they are done to maintain flexibility and mobility of the joints. These exercises cause joints mobility in their range and don't prevent joint stiffness and contracture only but also these can reduce the edema by increasing intravenous and lymphatic flow in addition to decrease the pain and depression symptoms of patient (Najafi *et al.,* 2019).

The nurse is a part of rehabilitation team and essential links between them and also between patients and their families. The he/she has coordinator role in this team and between other team of rehabilitation members, involve training and improving rehabilitation knowledge, providing instruction and training to patients to perform daily self-care and helping patients to accomplish their goals of rehabilitation in a perfect time (Najafi *et al.*, 2019).

Nurses are helping patients and have a key role to adept and cope with their new situation as (new body image) and giving the information to patients about their treatment and complications that can be occur after burn. Training and involvement in instructional program on self-care for burn patient were helpful as health care would be costly and lead to weakness in the quality of life. When development the self-care of patients and become have more control and ability to deal with the social performance and therefore get better the daily lives. The strategies of self-care use to improve the self-management and decreased pain and other injuries through training and empowering the patients by exercise. The patients will educate and develop the knowledge which enough to decisions making as well as their skills for solving the self-related problems (Hinkle & Cheever 2018).

There are many purposes of self-care: the studied units for self-care about the principles of suitable nutrition and diet, use of medications, management of pain by pharmacological and non-pharmacological, dressing of wound for burns methods to compensate for the disability to adjust for temperature, therapeutic programs of exercise and physical, verbal changes about feelings of self-image, adapt to changes by encouraging them to use different methods, strengthening the ability and promoting of self-esteem, application of techniques for relaxation, mental

health care and sexual relationship (wedded patients) (Hashemi *et al.*, 2014).

1.2. Important of the study

The WHO estimates about (11) million burn injuries of all types occur annually worldwide, (180,000) of which are fatal (Magbool *et al.*, 2021).

In some Arab countries bordering Iraq, burn injuries are (5.75%) in Kuwait, (2.3%) in Jordan, and (2.8%) in the Kingdom of Saudi Arabia (Al-Shamsi & Othman 2017).

In Iran, (150,000) burns occurred each year, with an annual death of (3,000) individuals. Burns comprise (5%) of the total number of accidents in Iran and account for (6%) of all deaths from accidents in this country (Khajehgoodari *et al.*, 2020).

In Iraq the common type of injuries are burns based on the latest report of WHO. Annually the total number of burn patients has reached (92.734) patients, and side effects as the bacterial and viral infections, ulcers and other diseases, are one of causes of death after burn which included about (37%) of the total number of patients deaths related to burn (Abbas et al., 2018). Deaths related to burns about (6.000) and disability (18.000) occurred in 2015 (WHO 2016). In addition reports of WHO that (3.390) deaths related to burns occurred in 2004, which is corresponding to a death rate of (12.3) per (100.000) per year higher than the global average (AL-Sudani & Ali 2017).

The researchers (Al-Shamsi &Othman 2017) have stated that the flame, scalds, electrical, and chemical burns, respectively, are among the commonest mechanisms of burns in their study in Basra 2017.

Burns not only represent a very danger diseases with a possible lethal complication, but as well heavy a traumatic events with a important potential for development of complicated problems, also needs patients to

cope-with their new body appearance and the situation that lead to some of modifications in their lives because the burns, as well after burn recovery they needs to providing many health services that include of physical, psychological and social problems and prevent the side effects that will be more costly and the quality of life become impairment because the burns (Hinkle & Cheever 2018).

1.3. Research problem

Effect of Self-Care Instructional Program on Patients knowledge in Burn Unit.

When participant the burn patients and training them on the self-care instructional programs by the health care providers must be more effectiveness and beneficial as it helps the patient to have more control over his daily lives and be more able to deal with the social performance, thereby improving his self-care, self-management, self-esteem and quality of life, also decrease the pain, stress and other injuries. There are indications as needs for carrying out many researches to fill the shortfall in this field to development self-care during carry out the program of self-care, so the researchers intended to implementation a study in order to examine the effect of self-care nursing intervention model on enhancement of the self-care (Hinkle & Cheever 2018).

As aim is to investigate self-care education improve patient health condition, continuity of care, and most importantly optimizing self-care dependence. This could allow the patient to return to normal lifestyle, and perform a productive activity

Design and implement self-care instructional program for patient with burn and to evaluate their effect on patients knowledge in burn unit.

1.4. Research hypothesis

It is hypothesized that:

H1: There are significant differences between knowledge of patients who attend the instructional program and those who did not attend the program.

1.5. Objectives of study

1. To assess the need of patients with burn to self-care instructional program.
2. To construct and demonstrate of self-care instructional program for patients with burns.
3. To evaluate effect of self-care instructional program on knowledge.
4. To identify the demographic characteristics of the study sample.
5. To find out association between selected variables (age, sex, marital status, level of education, residence, occupation, length of hospital stay, degree of burn, cause of burn and total body surface area) with their self-care knowledge of the study group.

1.6. Definition of terms:

1.6.1. Effect

A. Theoretical Definition:

Output of any force or action (Al-Reda, & Rajha 2020).

B. Operational Definition:

Is improve patients knowledge about self-care through instructional program.

1.6.2. Instructional program

A. Theoretical Definition:

Is defined as a specialty and a systematic sequence or many of courses directing to a defined objective such as a major, degree, certificate, license, the acquisition of selected information or skills, or transfer to another institution of higher education (Academic Senate 2011).

B. Operational Definition:

Sequence of courses about the knowledge of self-care for patients with burns according to their needs.

1.6.3. Self-care

A. Theoretical Definition:

Is a capacity to promote health, prevent disease, and maintain health of individuals, families and communities and to cope with illness and disability with the support of a health-care provider or without it (WHO 2021).

B. Operational Definition:

Is capacity of patients with burns to promote health, prevent diseases, maintain health and to cope with effect of burn injury without support from medical team or with some help.

1.6.4. Burn

A. Theoretical Definition:

Is an injury caused by heat, electricity, radiation, friction, and chemicals to the skin or other tissues (WHO 2018).

B. Operational Definition:

The skin or organic tissue injury through which the patient needs to optimal care to return these organs and skin to normal condition or near from that as possible.

1.6.5.knewledge

A. Theoretical Definition:

Acquired through education or experience, knowledge is the theoretical or practical comprehension of a subject (Alkhafaji, & Dawood 2022).

B. Operational Definition:

It indicates to information that patient obtained after the application of specific program designed to enhanced self-care.

CHAPTER TWO

REVIEW OF LITRATURE

2. Review of Literatures

2.1. Theoretical framework

Theorists are continuous for develop theories in nursing field as well filled the space between theory and practice. Orem's Self Care Model is utilized as a framework to guide the programs of self-care and also a proper clinical direction for the principles of self-care, in addition planning and implementing them. Also based on patient's needs and conditions in health -the role of nurse, the Orem Self Care Model designed in three types of care systems: completely compensatory nursing system, partial compensatory nursing system, and supportive-educative nursing system (Abd Elalem *et al.,* 2018).

So in this study the proper type of care systems and the role of nurse more suitable for patients is a supportive-educative nursing system which contributes to decision making, behavior management and addition the information's and skills for patient which he cannot do self-care independent alone but he ready to acquire the knowledge and implement these the behavior (Najafi *et al.,* 2019).

Given the importance of maintaining and improving the health of patients suffering from burns and since no study done in Babylon government on the effect of Orem self-care program of these patients had been done, the present study was designed with the aim of considering these issues.

2.2. Prevalence and epidemiology of the burn injury

The epidemiology information for injuries of burns are important for distribution of resources and prevention of it. Unfortunately the available data are changeable and inconsistent. There is deferent between the data which comes from high-income countries and countries with low income where access to health- care references, cost limit data collection, variance

in environments and resources of the health care systems. Additionally, cultural factors such as cooking in open- air areas and loose clothing, domestic violence all of these variances lead to regional variation. Also the most common data are provide by countries with high-income (Jeschke *et al.*, 2020).

To address the significant gap in information, the WHO is piloting an online, checkbox- based Global Burn Registry that aims to standardize reporting. Although burn injuries are decreasing in high income countries, the prevalence of burn injuries remains high elsewhere, with (90%) of burns occurring in low- and middle- income areas. The WHO estimates that (11) million burn injuries of all types occur annually worldwide, (180,000) of which are fatal (Magbool *et al.*, 2021).

There is a wide variability in the incidence of burn injury. For example, the number of burn- related deaths per (100,000) population ranges from (14.53) in Cote D'Ivoire to (0.02) in Malta. Burn- related deaths of children are (7 to 11) times higher in low- income than in high-income countries. In the USA, a bimodal age distribution of all burn injuries is evident, with the majority of injuries occurring in young children (1–15.9) years of age and in those of working age (20–59) years of age.

Regardless of country, burns in children are more equally distributed between boys and girls, especially in toddlers, However, this ratio changes as age increases; in most countries, nearly twice as many men are injured as women. An exception to this trend has been noted in Ghana and India, where up to three times more women are injured and die from burn injuries than men. The American Burn Association (ABA) National Burn Repository (2019) reports that, overall, flame burns are still the majority of injuries in the USA (41%), with scalds second at (31%). Electrical burn injuries (3.6%) and Chemical (3.5%) occur much less commonly.

Burns in children less than five years of age tend to be scald injuries, with increasing flame- related burns as age increases. Around the world, burns in the elderly copulation are increasing, and are predominantly flame- related. However, scald injuries are increasing substantially as well. Finally, depending on the environment, burn injuries are more frequent in some vulnerable populations, such as those with epilepsy (Jeschke *et al.*, 2020).

2.3. Classification of the burn injury:

2.3.1. Classification according to cause of burn

2.3.1.1. Thermal burns

There are three different methods to develop the thermal burns by contact, hot liquid and flame burns. These are skin injuries caused by excessive heat, usually from contact with hot surfaces, hot liquids, steam or flame (Yin 2017).

2.3.1.1. A. Flame and flash burns

Flame burns are usually most common cause of admission to burn centers as well as correlated with high percentage of complications and could lead to death (Greenhalgh 2016). It is common in both gender in developed countries within working-age. While in developing countries the these type of burns happen most commonly within women age group (16 - 35) years, for take long time in kitchen to prepare and cooking the foods so them close contact with flame (Kadhim & Hamza 2020).

2.3.1.1.B. Scald

Scalding is a form of a thermal burn resulting from heated fluids such as boiling water, steam or hot oil. It can be seen in the 2nd or 3rd-degree of burns, so affects the superficial layers of the skin and led to blisters as a basic sign of this type of burns (Sonone *et al.*, 2020). Also it as a second most common cause of burns in adults group, in children under (4

years) in the United States of America they account for around (70%) of burns in children, also common in elderly people. The severity of burns depend on the temperature of the liquid or vapor, the period of the contact with it and the skin thickness (BURNS 2014; Romanowski 2016).

2.3.1.1.C. Contact

The contact burn is caused by physical contact with a hot object. There are common causes of this type of burns such as stoves, cigarettes, iron, heaters, ovens, exhaust pipes, welding equipment, industrial equipment and hot coal. It is commonly a small space however can be full-thickness (Greenhalgh 2016).

2.3.1.2. Electrical burns

The body is considered perfect conductor electrical and sever burn can occur because it. Usually so difficult in select the effect of the burn on body which it carries the current to different parts of body. Also difficult to select the organs which could damage by passage of current from entry point to exit. Other form of electrical burn is lightning can lead to severe burns on skin (Sonone *et al.*,2020). In generally the severity of burn depends on power of current and period of exposure (Dries & Marini 2017).

2.3.1.3. Chemical burns

Chemical burns are caused by strong alkali or acids. Burns that result from alkali more harm than acid burns also it can be deeper penetration into the tissue, in addition the pain from it occurs late. Usually it occur accidently by using the cleaning materials in daily life at home and work or by inhalation or ingestion of the chemical material which lead to systemic symptoms and injuries in the gastrointestinal tract (Picchio *et al.,* 2020).

2.3.1.4. Radiation burns

In this type of burns, the degree of severity depends on the dose and leads to various symptoms as redness, infection ,ulceration of skin and other tissues or even shedding of hair & pigmentation. As well as radiological burns can occur by use heavy x-rays for diagnosis or treatment (Sonone *et al.,* 2020).

2.3.1.5. Traumatic burns

Traumatic burns also are known as road rashes result from friction the skin or a rough surface rubbed in speedily, causing damage it. As well as can occur by falling on rocks, asphalt or cement, in addition may be traumatic burns occur by an exercise treadmill when the skin touching the fast-moving mechanical belt. So this type of burn in generally painful accompanied with abrasions, or tearing the skin (Huckfeldt *et al.*, 2015).

2.3.2. Classification by the degree or depth of the burn

Burns are classified according to the depth of tissue destruction as following :-

First-degree of burns are superficial injuries that involve just the external layer of skin. These burns are erythematous, but the damage tissues as result of burn does not separate from the underlying dermis when rubbed it and remain epidermis intact (Huckfeldt *et al.,* 2017). Sunburn or superficial scald is a typical for first degree of burn, usually it cure within few days without leave scar or dysfunction (Noorbakhsh *et al.,* 2021).

Second-degree of burns include the total epidermis and some of parts of the dermis. The patients in this degree of burn suffer from painful and formation the blister. The cure of this type of burn dependent on depth, usually within three weeks also both hair follicles and skin appendages stay intact and without leave scar or dysfunction (Noorbakhsh *et al.,* 2021).

Third-degree of burns (full-thickness) include entire destruction for both layers the epidermis and dermis, and also in some patients destruction of underlying tissue. Vary ranges widely the color of burns from pale white to red, brown, or may be charred. Nerve fibers for burned area are damaged which lead to painless also the area appears leathery and dry because of damage the microcirculation; hair of follicles and sweat glands. The severity of this burn is many a times cheating to patients because burn areas are painless for them (Hinkle & Cheever 2018).

Fourth-degree of burns (deep burn necrosis) are types of burns which involve the layers of dermal as fascia, muscles, and/or bones, also including other organs which under the skin, such brain (Jeschke 2013).

2.3.3. Classification by body surface area that is burned.

Different methods are used to calculate the (TBSA) affected by burns; among them are the rule of nines, Lund and Browder, and palmer. These tools assist the treatment team in making decisions about the plan of care, which may include transfer the patient to a burn center. Burn centers are hospital based and specially equipped with the resources and personnel to treat patients with burns from the time of injury through their rehabilitation. Burn center designation is jointly conferred by the (ABA) and the American College of Surgeons (Hinkle & Cheever 2018).

Three methods are commonly used:

- Wallace's 'rule of nines'.
- Lund and Browder chart.
- Palmar surface.

Wallace's rule of nines

The rule of nines is the method which more common used to calculate the distance of burns for adults, this method dependent on anatomy of regions, each region represent about nine percentage, which

quickly method to obtain percentage of size of burn. If a portion of an anatomic area is burned, the (TBSA) is calculated accordingly for example, if approximately half of one arm were burned, the (TBSA) burned would be (4.5%) (Hinkle & Cheever 2018).

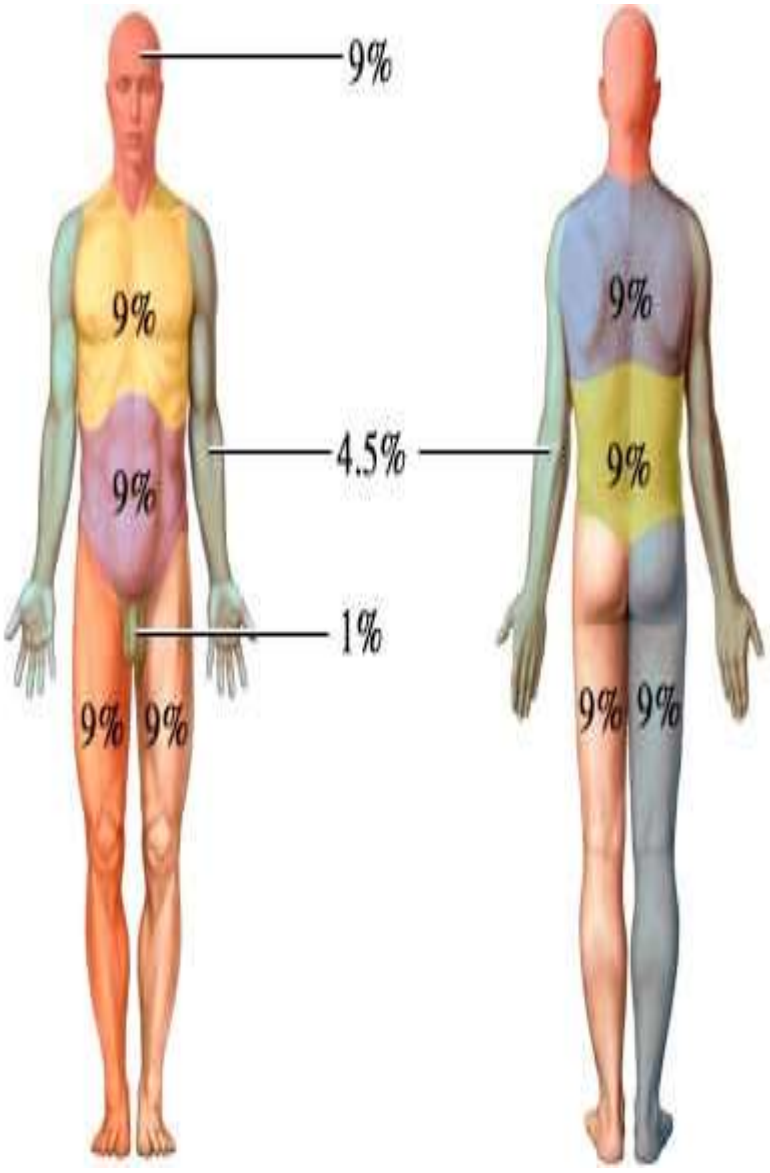
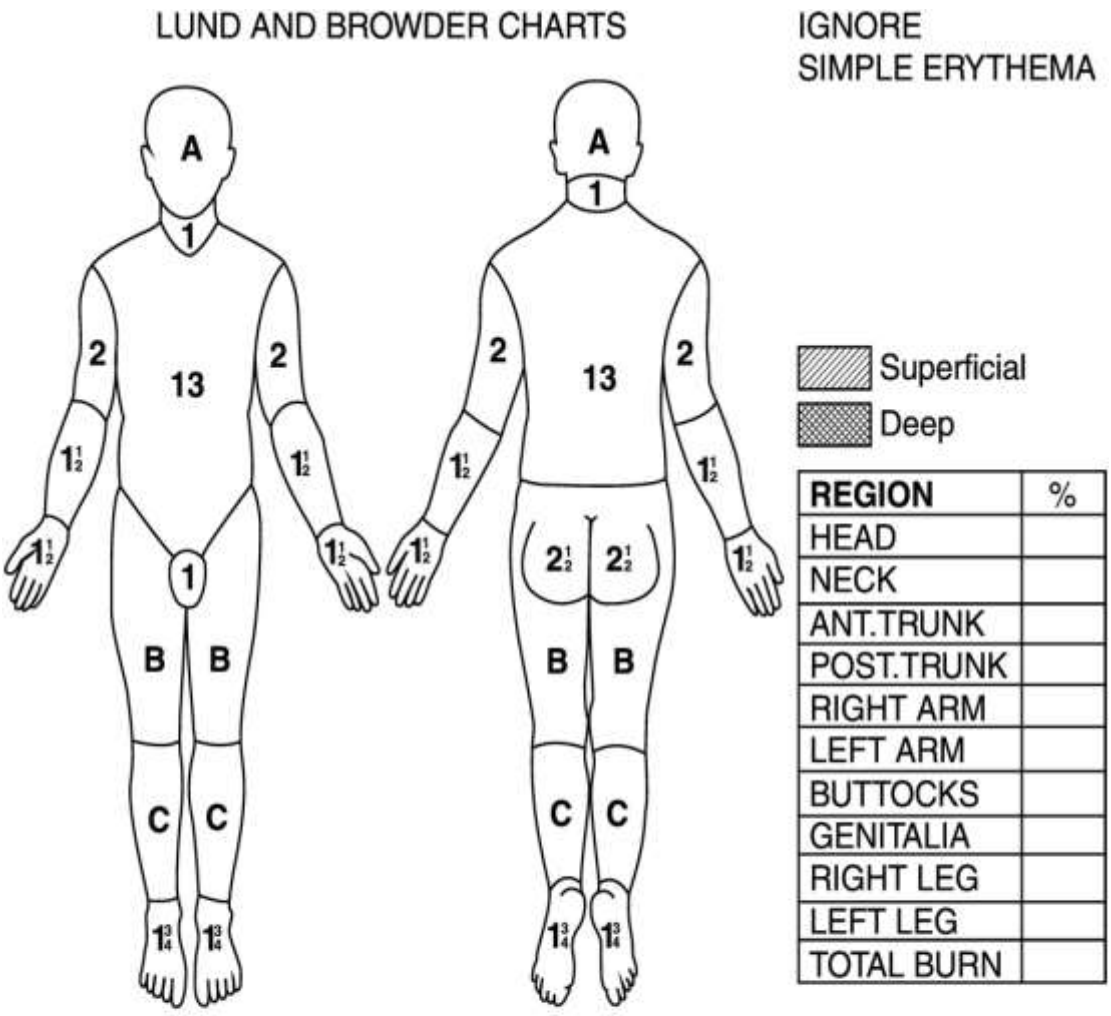


Figure 2.1. Wallace's rule of nines (Hinkle & Cheever 2018).

Lund and Browder chart

The Lund and Browder chart is one of the most commonly used methods for assessing burn area. It takes into account the variation of body surface area with growth and can be used for both adults and children (Murari and Singh 2019).



RELATIVE PERCENTAGE OF BODY SURFACE AREA AFFECTED BY GROWTH

AREA	AGE 0	1	5	10	15	ADULT
A = ½ OF HEAD	9½	8½	6½	5½	4½	3½
B = ½ OF ONE THIGH	2¾	3¼	4	4½	4½	4¾
C = ½ OF ONE LEG	2½	2½	2¾	3	3¼	3½

Figure 2.2. Lund and Browder chart (Murari and Singh 2019)

Palmar surface

A simple method to estimate burn area is to consider the palm of the patient's hand with closed fingers as representing approximately (1%) of the body surface area. It is effective for estimating the area of small burns (<15%) or large burns (>85%). In large burns, the burnt area can be quickly calculated by estimating the area of uninjured skin and subtracting it from total percentage of body, but not always we can apply this method to

calculate the total body surface area because some factors effect on this the mothed as obese patients (Borhani *et al.*, 2017).

Figure 2.3. Palmar surface (Stiles 2018).

2.4.Clinical manifestations of burn injury:

The depth burn determines the characteristics of a burn. Superficial burns cause pain for (2-3) days, and then skin peels after few days. Patients with severe burns may feel discomfort or complain pressure more than pain. Full-thickness burns may be entirely insensitive to light touch or puncture. While superficial burns are typically red in color, severe burns may be pink, white or black. Numbness or tingling may persist for a prolonged period of time after an electrical injury. Burns may also produce emotional and psychological distress.

Seeing a patient with major burns can be overwhelming due to the burns and the smell of burned tissue and hair. The patient is normally alert and able to answer questions during admission or until intubated (if there is respiratory compromise). Unconsciousness or altered mental status usually results from hypoxia due to inhalation injury. Other possibilities include

head trauma, substance use, or the side effects of sedation or pain medication. Often patients will shiver from heat loss, anxiety, or pain. Full thickness burns are painless since nerves in the dermis are destroyed. Partial-thickness burns are very painful (Lewis *et al.*, 2023).

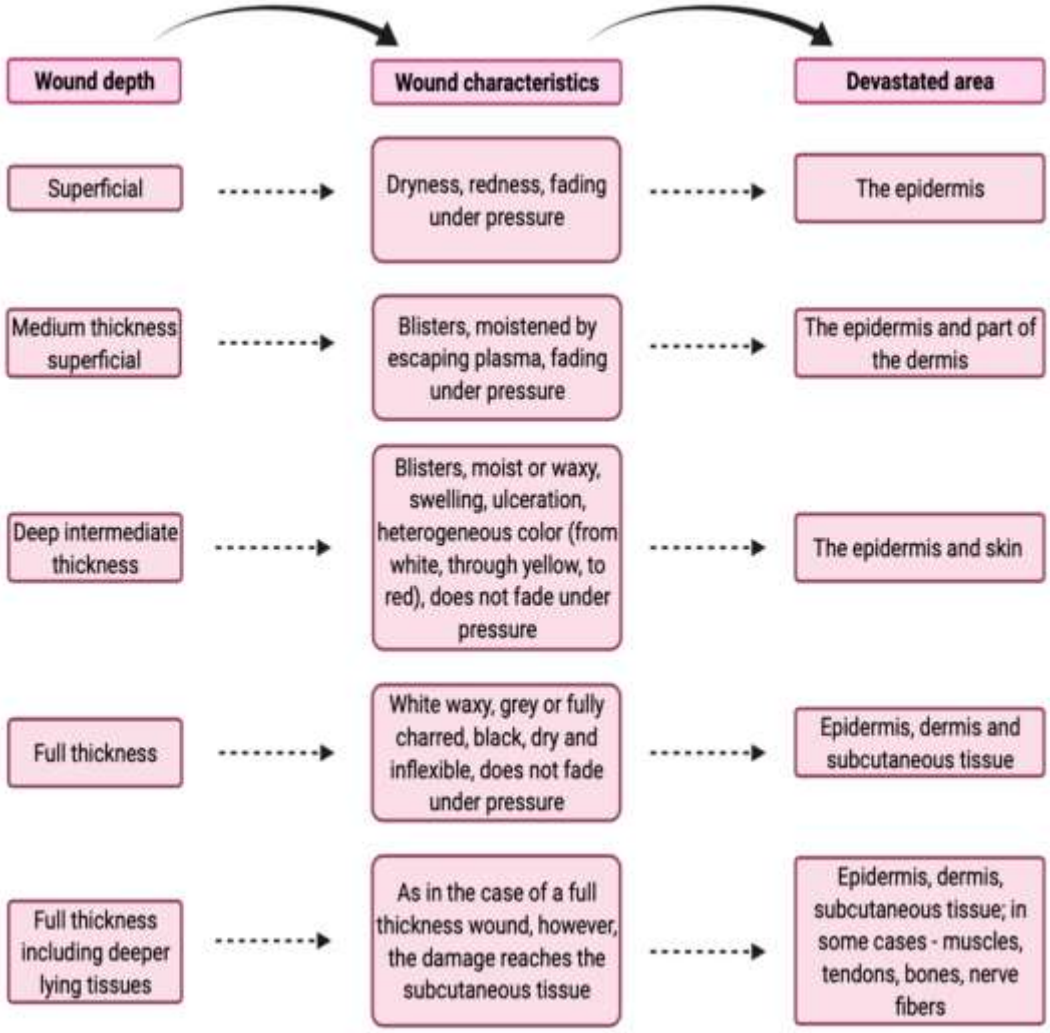


Figure 2.4. (Markiewicz *et al.*, 2022).

2.5.Pathophysiology of the burn injury.

Burn injuries are very traumatic injuries as the initial injury can evolve and worsen over time. Burn injury results from a chemical injury or heat transfer from one site to another, causing tissue destruction through coagulation, protein denaturation, or ionization of cellular contents. The burn wound is not homogenous; rather, tissue necrosis occurs at the center of the injury with regions of tissue viability toward the periphery. The

center of wound area is called as the zone of coagulation because occurs coagulation of necrosis cells which characteristic by it in this area. Also the surrounding of it and the zone of stasis could remain viable but with poor blood supply for this area of injured which continues necrosis during first day and second day from burn while the outermost zone with hyperemia keep the area with minimal effect and help to continues recover with time (Hinkle &Cheever 2018).

The skin and the mucosa of the upper airways are the most common sites of tissue destruction, although deep tissues, including the viscera, can be damaged by electrical burns or by prolonged contact with a heat or chemical source. The release of local mediators and changes in blood flow, tissue edema, and infection can cause progression of the burn injury.

Radiation exposure other potential mechanism of burn injury, also because the threats of terrorism and recent world events make the radiation exposure has received increased attention. And two detrimental effects produced by radiation injuries, the first is a thermal effect, which results in cutaneous burn injuries and the second effect is damage to the cellular deoxyribonucleic acid (DNA), which may be affected localized or systemic on body. So Morbidity and mortality rates depend on the dose of radiation exposure.

The temperature and the duration of contact with the agent which select the depth and effect of burn injury. In adults, burn injury occur when exposure to heat (54 C°) for thirty seconds or exposure to heat (60 C°) for five seconds this time enough to destruction the tissue while full thickness burn occurs instantaneously at (71C°) (ABA 2011).

More than thirty percentage of TBSA considered as major burn injuries, also both local and systemic effects characterized by burn wound edema, generalized edema formation in non-injured tissue, increased

metabolic rate (hypermetabolism), hyperdynamic circulation, increased oxygen and glucose consumption, catabolism of muscle and bone, immune dysfunction, insulin resistance, and impaired organ perfusion (Flores *et al.*, 2015). Severe injuries ultimately encompass changes in pathophysiology of all body systems, these compensatory adaptive responses to the burn injury, but quickly become counterproductive events negatively impacting recovery (Abdullahi & Jeschke, 2014).

2.6. Complications of the burn injury.

2.6.1. Respiratory complications:

Inhalation injury is one of the main complications that can occur with burn by the flame in an enclosed space. Also it could leading to mortality and morbidity related with burn injuries (Williams & Hopper 2015). In addition may involve upper respiratory tract, low respiratory tract, carbon monoxide poisoning, and restraining defects (circumferential third-degree burn surrounding the chest area) (Herndon, 2012). Inhalation of toxic gases, hot air, and associated molecules lead to damage to the pulmonary system and tracheal during a burn injury (ABA, 2013). Inhaling smoke can damage the lungs and hinder the body's ability to exchange carbon dioxide and oxygen, as well as cause respiratory failure (Huckfeldt *et al.*, 2015).

The recurrent cause of mortality and morbidity in patients with inhalation injuries is the toxicity of carbon monoxide (CO) it lead to reduce the ability to carry oxygen and deliver oxygen to tissues due to it has an attraction with hemoglobin (200– 250) times that of oxygen. Also, a common complications that often occurs after the primary fluid resuscitation stage is pulmonary edema (Greenhalgh 2016). Moreover, a common complications for burn patients with an inhalation injury is pneumonia. Ventilator-associated pneumonia (VAP) is an important

complication in burn-injured patients and high risk for developing has two main causes: direct contamination of the tracheobronchial tree by airborne or inhaled bacteria, and pneumonia spread through blood (Herndon 2012). It was found that patients with burns of all ages had higher acceptance rates for bacterial pneumonia, influenza, viral pneumonia, and other respiratory infections (Wallace *et al.,* 2017).

Intranasal intubation and the use of intestinal nasal tubes or nasoduodenal tubes for intestinal feeding recently were one of the causes of purulent sinusitis, another problem is the lower chest excursion can significantly decrease the tidal volume resulting from the increased amount of edema, which occurs in third-degree peripheral burns around the chest and neck, frequently causing restrictive defects (Herndon 2012). The development of intra-abdominal hypertension leads to atelectasis development. Consequently, it weakens gas exchange and reduces chest wall compliance and residual functional ability (Gaidukov *et al.,* 2013).

Usually burn patient with respiratory failure is characterized by hypoxemia with evolution to acute lung injury or acute respiratory distress syndrome to respiratory failure (Dries & Marini 2017).

2.6.2. Cardiovascular complications

Burn injuries have long-term systemic effects on the heart and blood circulation. More explicitly, adult burn patients have a greater risk of heart failure, ischemic heart disease, and cerebral vascular disease (Barrett *et al.,*2019).

Others complications as immediate decrease in the heart output (Hinkle and Cheever 2014) Hypovolemia develops and leads to a decrease in venous return as more time passes after a burn. This contributes to reducing cardiac output. As the cardiac output remains low even after adequate fluid treatment and normal arterial blood pressure are restored

(Greenhalgh 2016). There is a relative increase in hematocrit due to fluid loss inside the blood vessels. Extreme heat reduces platelet function. Thrombosis may occur as a result of the accumulation of leukocytes and platelets (Williams & Hopper 2015).

2.6.3. Sepsis

Sepsis is a significant problem for burns patients.It is a systemic infection that overwhelms the body's immune system, triggering an exaggerated inflammatory response. The infectious process may progress to septic shock, multiple organ failure syndrome (MODS), and ultimately to death. Infection has been demonstrated to precede multiple (Mann-Salinas *et al.*, 2013).

There is early signs of sepsis are need to high index of suspicion and focus on monitoring the condition of patients to diagnosis the sepsis, also there is many challenges one of them to diagnosis, the lack of definition of sepsis between the burns patients, because these patients have hyper-metabolic may be lead to many signs as (tachycardia, tachypnea and high fever) (Markiewicz *et al.*, 2022).

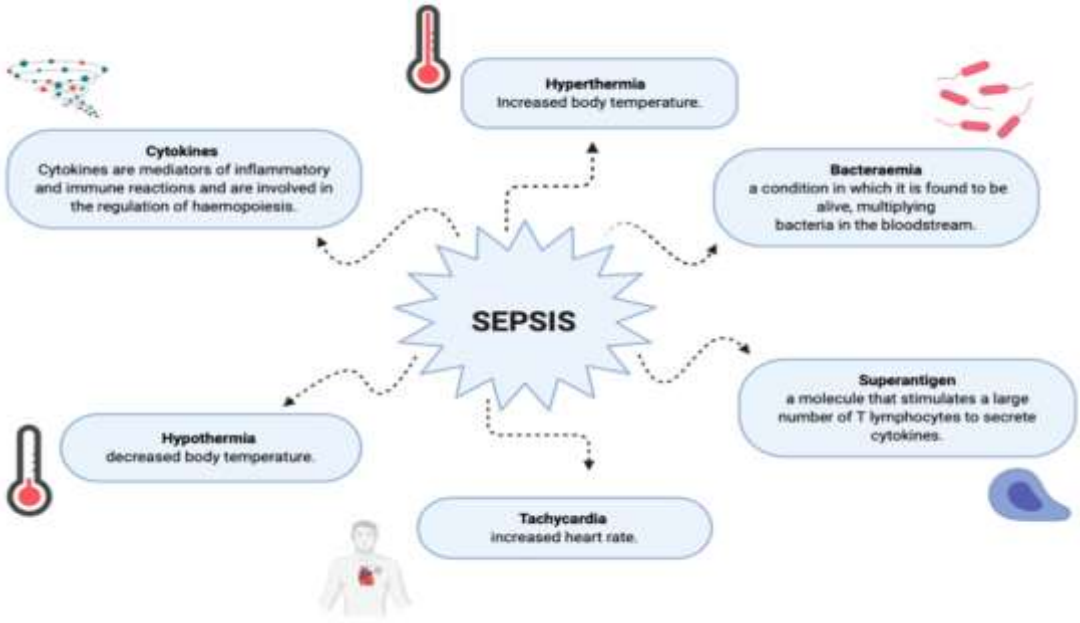


Figure 2.5. Signs of early sepsis (Markiewicz *et al.*, 2022)

These physiologic norms in patients with burns make the diagnosis of sepsis more challenging. A recent retrospective study of burn admissions over a (5-years) which mention hypothermia (< 36C°), tachycardia (>130) bpm, base deficit (< 6 mEq/L), a mean arterial pressure (<60)mm Hg, serum glucose (>150) mg/dL), and utilization of vasopressors were predictive of sepsis (Hinkle & Cheever 2018).

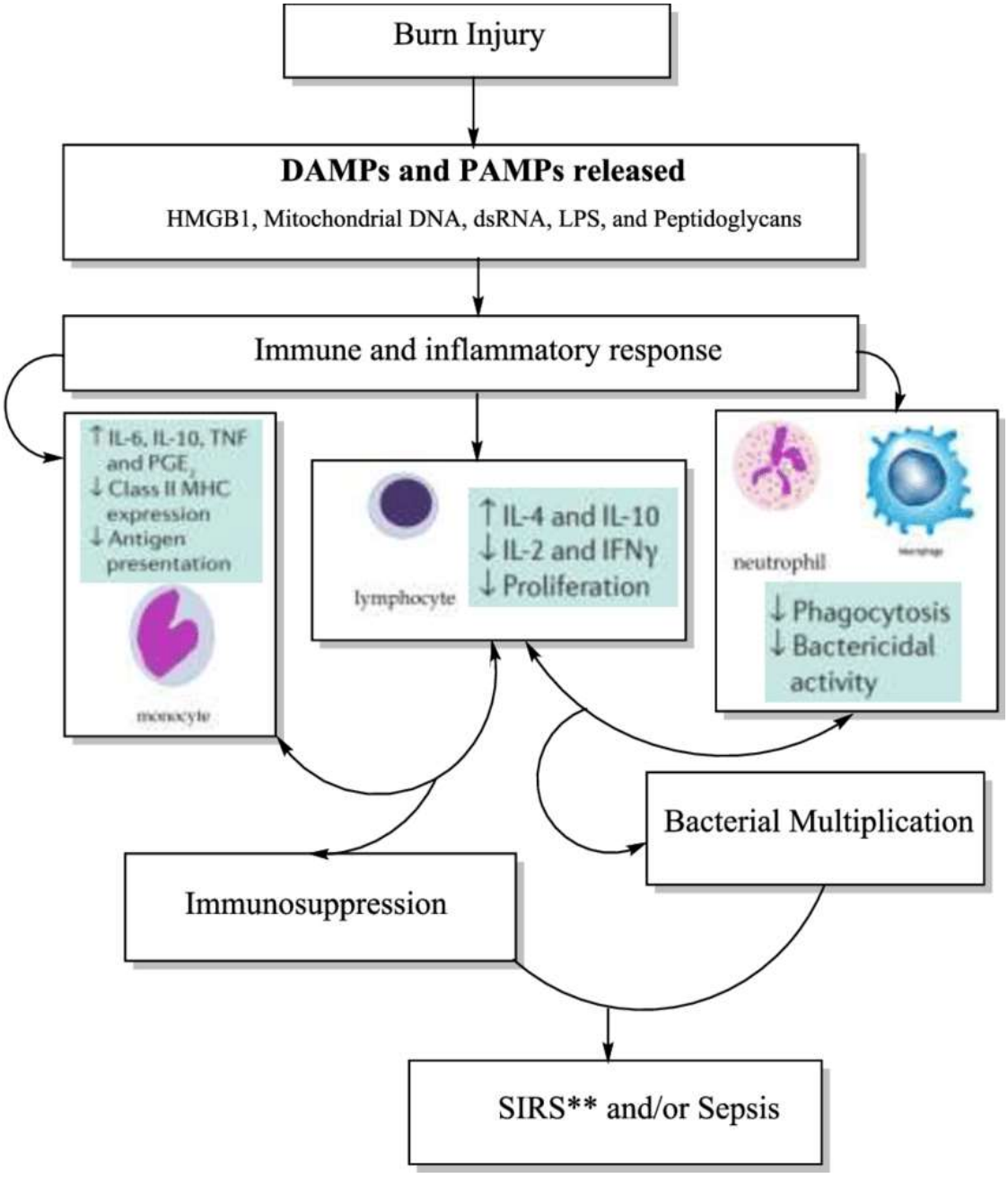


Figure 2.6. Sepsis (Beg *et al.*,2020).

2.6.4.Gastrointestinal complications

Complications of burns in the digestive system include increased gastric secretions, decreased nutrient absorption, increased intra-abdominal pressure, increased GI mucosal permeability, bacterial translocation, mucosal ulceration, reduced intestinal motility or GI hemorrhage. These consequences produce acute colonic pseudo-obstruction, constipation, abdominal compartment syndrome and sepsis (Ng *et al.,* 2016).

Constipation is a very common complication in burns with multiple causes, among the reasons that reduce the movement of the digestive system, electrolyte imbalances including hypokalemia, opioid sedation, abdominal trauma, prolonged immobility, surgery, and sepsis. Hyper-metabolic responses after burn injury persist for at least (2) years. Thus, the persistence of excessive metabolism leads to a continuous loss of muscle mass and bone density. Excess metabolism also leads to poor wound healing, impaired rehabilitation, and delayed reintegration of burn survivors into society (Kadhim & Hamza 2020).

2.6.5. Urinary system

Infections of the urinary tract are typically linked to the history of the catheter, where the specific source of urine with sepsis is predetermined in a burn patient (Herndon 2012). One of the most important complications that reduce the chances of survival is acute non-inflammatory kidney injuries (AKI) in patients with severe burns covering more than (15-20%) of (TBSA) (Siew & Davenport 2015). Sepsis, burning surface area, hospitalization duration, and kidney toxic drugs are among the most important factors preferred for the AKI occurrence. Likewise, accompanying diabetes, heart failure, and other kidney diseases (Noshad 2014). AKI can take two forms early and late, as early AKI occurs in the first few days to a week after injury and the cause of its occurrence is the

inadequate filling of the blood vessels and low blood pressure caused by rapid fluid loss through damaged skin and the respiratory system. While late AKI occurs in the weeks following the injury, the reason for this is due to complications from sepsis and the nephrotoxicity of the drugs used (Witkowski *et al.*, 2016). Renal failure has a major impact on mortality in any critical care unit population (Dries & Marini 2017).

2.6.6. Musculoskeletal:

Muscle strength for those with severe burns remains weak after the burn for (1-5) years (Barrett et al.,2019).The muscle wasting and lack of movement after a burn injury can lead to a change in the balance of bone synthesis and deterioration and thus lead to bone loss (Randall *et al.*, 2015).

Vitamin D deficiency is also a complication experienced by burn patients, which contributes to bone loss (Klein 2012). Avoiding prolonged exposure to sunlight during treatment, low cholesterol levels and hypothyroidism are among the factors that lead to a gradual vitamin D deficiency after a burn, and its results are bone loss and bone density changes for burn patients and thus an increased incidence of fractures and possibly to problems of extent life is associated with osteoporosis (Randall *et al.*, 2015).

Burn patients who suffer from severe injuries to the face, head, neck, upper back, or upper chest are more at risk of a significant decrease in the range of movement and this leads to a major problem that results in constant neck deformation. Additionally, mouth abnormalities, destroyed nasal passages, reduced compliance under the mandibular space, and reposition of the trachea (Greenhalgh 2016).

2.6.7.Nervous system:

Cases that may occur with increased prevalence of burn patients, episodic and paroxysmal disorders such as migraines, epilepsy, nerve roots,

nerves, and plexus disorders (Barrett *et al.*, 2019). In addition, Neurovascular compromise can occur with severe burns and their cause is the pressure resulting from the scar that contributes to reducing blood flow to the areas far from the burned area (Williams & Hopper 2015). Further, during the early fluid recovery phase, cerebral edema and high intracranial pressure can occur, especially in the case of high-voltage electrical injury or concomitant brain injury. The central nervous system may be adversely affected while inhaling nerve-toxic chemicals, carbon monoxide or hypoxia-induced encephalopathy (Jeschke 2013).

The chronic pain may not be developed related to burn itself, but could be following the burn wounds. The life of quality may be decreased by the pain and lead to increased time of morbidity, recovery of functional become limitation, the chronic neuropathic pain (CNP) following burns within the last (10 years) ranges from (7.3% to 18%). CNP develops after partial or complete peripheral nerve injury. These injuries may manifest as mononeuropathy (abnormality in a single peripheral nerve distribution), multiple mononeuropathies (mononeuropathy multiplex, simultaneous abnormalities of two or more peripheral nerves in separate areas of the body) and/or polyneuropathy (abnormality in many nerves in a distal symmetrical pattern) (Klifto *et al.*, 2020).

Mononeuropathy results from localized traumas that include the direct burn injury, surgical injury from debridement, escharotomies, fasciotomies, compression from tight dressings, edema, eschars, heterotopic ossification, incorrect splinting and forceful physical therapy. Mononeuropathy multiplex results from combinations of localized and generalized trauma, and crush injuries to multiple areas. Polyneuropathy can be categorized as generalized polyneuropathy or polyneuropathy of critical care illness. Polyneuropathy results from combinations of

generalized trauma these include drugs, sepsis, neurotoxins and metabolic factors. Polyneuropathy of critical care illness results from sepsis, multi-organ failure and prolonged mechanical ventilation (Klifto *et al.,* 2020).

2.6.8. Integumentary system:

Protection against microorganisms in the exterior environment is one of the main functions of the skin and due to burning injuries this protective barrier deteriorates so making it easier for microbes to enter the body (Güldoğan 2017). The risk of sepsis will increase with continues loss of barrier (Hinkle & Cheever 2014). Also, the remains of dead tissues act as a good medium for the reproduction of microorganisms. Moreover, the longer period of hospital stay, the greater possibility of exposure to hospital infections, which complicates patient treatment (Guldogan *et al.,* 2017).

Infection is a complications that can influence any burn injury. Pathogens include bacterial spores, bacteria, fungi and viruses. Once there is a rag layer on the skin, this openness to the underlying tissues makes a chance for pathogens to come in the body. Deterioration to the body's immune response gives these pathogens to multiply within the human body, causing disease (Huckfeldt 2015).

About (75%) of deaths are believed to be due to infectious complications that occur after the initial resuscitation period (Greenhalgh 2016). Seven out of ten complications in burn patients are related to infection according to the American Burn Association (American Burn Association 2016).

2.6.9.Endocrine complications:

Following burn there is a rapid release of inflammatory cytokines, catecholamines and cortisol, initiating the hypermetabolic response and catabolic state (Barrett, et al., 2019) Other study on sever burn within

children refer to increase level of urinary norepinephrine and cortisol for three years after burn (Jeschke *et al.*, 2011).

Hormonal changes include: decrease of serum osteocalcin, Triiodothyronine (T3) Thyroxine (T4), FSH, Testosterone, parathyroid, insulin growth factor, human growth hormone. While increase of ADH, Cortisol, Insulin, Epinephrine, Norepinephrine, ANP, Glucose hemostasis, Glucagone, Renin and angiotensin II, Aldosterone (D'Asta *et al.*, 2014; Barrett et al., 2019).

2.6.10. Immune system

The burn lead to tissue damage so an immune response in body is occur also inflammation response to lesion for disappear and initiate tissue repair (Septin *et al.*, 2021). In severe burns cases, the inflammatory response is very strong and systemic or known as systemic inflammatory response syndrome (SIRS) which can lead to organ failure.

When comparing between trauma from burn and other, inflammatory response for the burn injury a greater and more sustained (Mace *et al.*, 2012). Also within other results that may be occur in other locations faraway burn and have negative effects as decrease blood pressure, ischemia, and large edema (Cromer *et al.*, 2018).

There are evidence showing an increased risk of cancer in burn patients, especially in women, may be indicative of a unique impact on the immune system, leading to significant acute and long-term consequences (Duke *et al.*, 2014).

2.6.11. Psychological disturbance:

Many patients survive from the acute phase of recovery and left to deal with the long-term psychological effects of burns, which are complex and vary from patient to patient. The most common psychological problems faced by burn injury patients are pain, anxiety, depression, post-

traumatic stress disorder, concern about bodily disfigurement, social isolation and financial burden due to the prolonged duration of hospitalization and treatment required (Jain *et al.*, 2017).

2.7. Treatments of the burn injury

The treatment of patients with extensive burns remains a major challenge, even with advance in burn care over recent decades. Some studies refer to the survival rates reach (50%) in young adults sustaining a total body surface area burned (80%) without inhalation injury. Recent U.S. data indicate a (69%) mortality rate among patients with more than (70%) of TBSA. Burn patients are an heterogeneous population, with wide variation in age, mechanism of injury, depth and site of burn and a different co-morbidity. A number of factors outside the control of the burn service may also influence outcome, including motivation of the patient, pre-burn psychological morbidity, family support and socio-economic background (Pavoni *et al.*, 2010).

Among the burn wound management, there is an important role of first aid provided immediately to the clients after burn injury. Quality assessment of burn patients and effective management are considered as the effective tools to minimize or eliminate the post burn infections. The first aid care starts as the initial care and treatment of burn at the point or site of burn. The initial 48 hours are very crucial because if the burn is kept untreated, the inflammation will progress and the wound will become deeper, therefore the first aid has a very important role in the prevention of secondary burn injuries.

2.7.1. Fluid Resuscitation

Patients with less than ten percentage of TBSA burn don't need fluid resuscitation. However, burn encompassing more than (15 %)TBSA will require fluid resuscitation (Jeschke 2013). TBSA is calculated and fluid

resuscitation with lactated Ringers (LR) should be initiated using fluid resuscitation formulas. LR is the crystalloid of choice because its pH and osmolality most closely resemble human plasma. The fluid resuscitation formula for adults within first day after thermal or chemical burn is as follows: (2) mL (LR) × patients weight in kilograms × %TBSA second-, third-, and fourth-degree burns.

For adults with electrical burns: (4) mL (LR) × patients weight in kilograms ×% TBSA second-, third-, and fourth-degree burns.

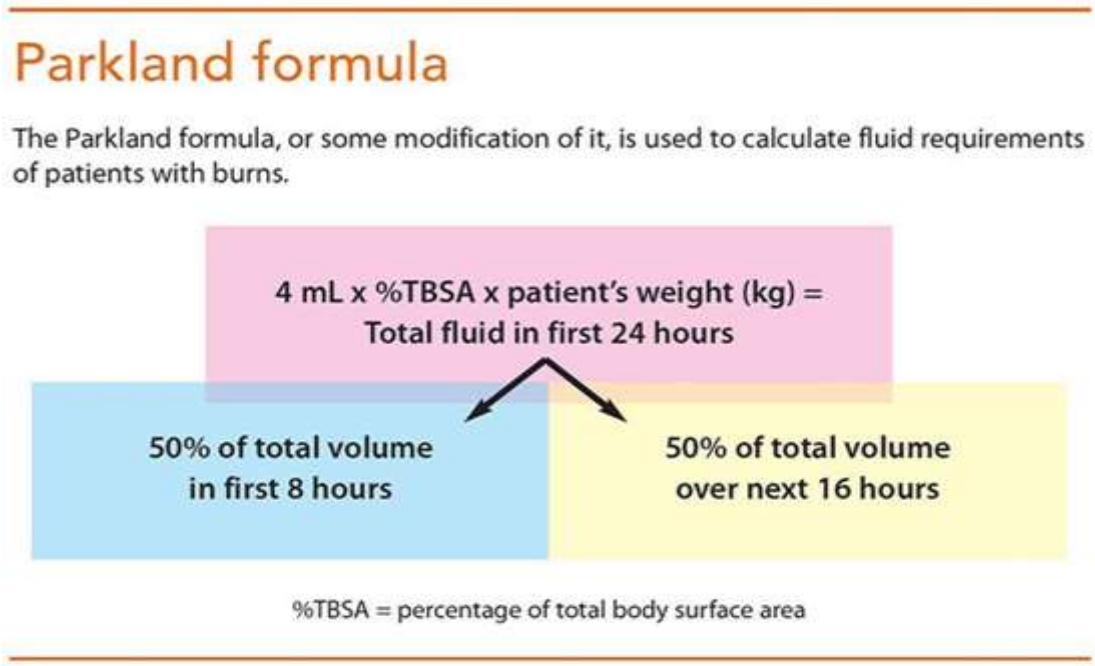


Figure 2.7. Fluid resuscitation formula for adults (American Burn Association 2017).

Timing is one of the most important considerations in calculating fluid needs in the first 24 hours post burn. The starting point is the time of injury not the time of arrival to the treating facility. The infusion is regulated so that one half of the total calculated volume is given in the first 8 hours post-burn injury. The second half of the calculated volume is given over the next 16 hours. These formulas are only a guideline. It is imperative that the rate of infusion be titrated hourly as indicated by physiologic monitoring of the patients response. For adults, a urine output of (0.5 to 1) mL/kg/h is used as an indication of appropriate resuscitation in thermal and

chemical injuries, whereas in electrical injuries a urine output of (75 to 100) mL/h is the goal. Other indicators such as blood pressure and heart rate are useful in assessing adequate intravascular volume in patients with major burns (Hinkle & Cheever 2018).

2.7.2 Topical antibiotic

Silver-impregnated dressings or silver-based antimicrobial creams/gels should be applied to partial thickness burns greater than (10%) TBSA, or to all full-thickness burns (excluding the face) (Leopoldo *et al.*, 2017).

Topical ointments such as silver sulfadiazine (1%) (Sulfadene) and mafenide acetate (11 %) (Sulfamylon) provide broad-spectrum coverage and are often used on burn wounds, as well as formulations of mupirocin (2%) (Bactroban) and bacitracin/neomycin/polymyxin B (Neosporin) (Greenhalgh 2016).

Silver sulfadiazine is an important treatment in topical treatment for burns as a result of its success in fighting infection and reducing side effects as silver compounds or salts play a major role in treating local burns and reduce sepsis rates, burn wounds, and death (Hyland *et al.*, 2015).

Mafenide acetate, been used as an alternative to silver compound solutions though providing good coverage for Pseudomonas and Enterococcus, can cause electrolyte imbalances and is less effective against fungal infection. It should not be used to cover more than (20 %) TBSA due to risk of systemic metabolic acidosis. The biggest drawback to use it is cause significant pain on application on partial thickness burns (Greenhalgh 2016).

Now clear that the use of dressings and gels usually have antimicrobial properties responsible for angiogenesis and fibroblast proliferation, which may lead to the healing of burn wounds as these

dressings consist of minoglycans, glycose, and chitin. As this prevents the early extension of a burn injury. The use of carbon fibers in dressings increases the carrying capacity of dressing that reduces bacterial growth, inflammation and promotes healing (Lee *et al.,* 2015).

2.7.3. Systemic antibiotic

Broad-spectrum antimicrobial therapy should be initiated until blood culture and sensitivity results specify in which direction to narrow the scope of therapy.

Carbapenems (Meropenem) are considered first-line agents for Acinetobacter infections and also provide good broad-spectrum coverage; however, resistant cinetobacter strains may be more susceptible to aminoglycosides or polymyxins. While there are many options as demonstrated above, we would like to reiterate that there is no substitute for carefully chosen empiric coverage based on the most prevalent organisms in a particular burn unit, and based on susceptibilities from the local antibiogram. Many units use antibiotics on a rotational schedule, whereby single antimicrobial coverage is maintained while periodically varying the drug of choice. This has been shown to slow the evolution of drugresistant mutations in microbial species while avoiding toxicities associated with prolonged use of a single agent (Greenhalgh 2016).

Vancomycin alone or in combination with other antibiotics has been considered as the treatment of choice for infections caused by methicillin-resistant staphylococci. Vancomycin should only be administered by slow intravenous infusions as this drug can cause an anaphylactic reaction known as “Red Man’s Syndrome”(Jeschke *et al.*, 2011).

Ceftriaxone was the most prescribed antibiotic are the key drugs used for the treatment of burn patients.

Systemic antibiotic prophylaxis in the management of the majority of burn patients may come into existence if it's used in patients with severe burns who require mechanical ventilation, and in selected split-thickness skin grafting procedures (Thapa *et al.*, 2022).

2.7.4. Other medications

Some common medications use for burn patient like Ranitidine or Omeprazole to decrease incidence of gastric ulcer, medication as Nystatin to avoid growth of fungi in oral mucosa, multivitamins and Vitamins A, C, E to enhance wound healing also immune function and use some medications to haemoglobin formation and cellular integrity as selenium, zinc sulphate, iron, vitamin (B1) and folic acid (Jeschke 2013).

2.7.5. Pain Management

Pain control is basic for overall burn care from since of burn until to cure so this take long time, it could be still challenging for medical team. Perfect pain control contributed to good healing and rehabilitation. Mechanisms of pathophysiological of pain can assorted as neuropathic, nociceptive as well as pain result from psychosocial distress (Clarey *et al.*, 2017).

Mild pain can use acetaminophen and NSAIDs to control on it while for severe pain use Ketamine (Griggs *et al.*, 2017), in adults use lorazepam for reduce anxiety and avert hallucinations from ketamine. Also use Morphine for twenty percentage of (TBSA) of (70mg) daily while (150 mg) for equal or more than thirty percentage of (TBSA). Gabapentin to pain control also to reduce itching for adults. Anti-anxiolytics can use and clear effect to reduce pain and anxiety, and amitryptline could enhance a sleep in addition to pain relief or reduce it (Young *et al.*, 2017).

There are more evidences for using non-pharmacological techniques to reduce pain and anxiety, like cognitive behavioral therapy, hypnosis and distraction techniques (Jayarajah *et al.*, 2020).

2.7.6 Surgical Treatment

Surgical procedure aims to remove the damage tissues and replace it during this procedure many challenges, one of them and consider as the main when burn area more than sixty percentage of (TBSA), where there is not enough healthy skin can use to skin grafts. Superficial dermal burns will heal without any surgical intervention within (2–3)weeks, but deep dermal and full-thickness burn will require operation. It is widely accepted that if skin does not regenerate within (3) weeks, morbidity and scarring will be severe, so the trend in treatment of deep dermal and full-thickness burns leans toward very early excision and grafting in order to reduce the risk of infection, decrease scar formation, shorten hospital stay and thereby reduce costs (Jeschke 2013).

Skin injury can trigger imperfect tissue repair, leading to scar formation. In plastic surgery, the goal of most surgical interventions is improving quality-of-life rather than improving mortality, with outcomes research often measuring patient satisfaction (Hsieh *et al.*, 2021).

2.7.6.1 Excision wound

Excision of as much of the necrotic tissue as possible should be carried out whenever a patient is hemodynamic stable and the risks of the operation would not increase the mortality that would be expected from the traditional treatment. Some limitations to do this procedure in different patients as in inhalation injury, old age and cardiac patients, the decision of time of surgery and how much to excision (Jeschke 2013).

2.7.6.2 Escharotomy

The burns of extremities lead to increase circumferential pressure which could press on arteries and veins and lead to inefficiency blood supply or necrosis. When the neck is burned, affected the airway and blood supply to the brain, while in burn chest may impair movement of chest wall and impair gases exchange because circumferential press. As above perform escharotomy to decrease circumferential pressure and improve blood supply to far tissues (Noorbakhsh *et al.*, 2021).

2.7.6.3 Fasciotomy

Method use by surgeon to treatments or decompression of edema by surgical incision through fascia which called this procedure as fasciotomy.

2.7.6.4 Wound Grafting

Skin grafting is a closure procedure broadly used in plastic surgery for the burnt wounds that fail to heal (Almutlaq *et al.,* 2020).

The patient with deep partial- or full-thickness burns may be a candidate for skin grafting to decrease the risk of infection; prevent further loss of protein, fluid, and electrolytes through the wound; and minimize evaporative heat loss. Special attention is warranted when grafting the face (for cosmetic, functional, and psychological reasons) functional areas; such as the hands, feet and areas that involve joints. Grafting permits earlier functional ability and reduces scar contractures (shrinkage of burn scar through collagen maturation). When burns are very extensive, the order in which areas are grafted is chosen based on the ability to achieve wound closure as soon as possible; therefore, the chest and abdomen or back may be grafted first to reduce the total body burn surface area (Hinkle & Cheever 2018).

There are three types of grafting, autograft, allograft, and xenograft. Autograft requires skin to be taken from somewhere else on the body, the

donor site, and placed on the debrided burn wound. If the burn is large it may take multiple surgeries to cover the entire burned area with autograft. Since this graft if from the patient's body, with proper care, rejection of the tissue does not occur. An allograft is a donor skin from another individual. Until rejection, the allograft acts as a temporary skin and promotes tissue healing. Xenografts are skin taken from animals and used as a temporary cover until more definitive care can be provided (Huckfeldt *et al.,* 2017).

2.7.7. Nutrition

Large burn injuries lead to hyper-metabolic so require higher calorie, protein, and other nutrient ingestion to improve wound healing. More than (20 % TBSA) need for supplementation food. When the patient on mechanical ventilation or has severe oral or facial burns, need to nutrition by enteral or parenteral (Young *et al.,* 2017).

One of complex issue is nutritional support after burn. Which short period in hospital, enhance wound recovery also limit risk of infection all of these occur when good nutritional support start early. Also must observe some nutritional factors lead to hyperglycemia by a lot of consumption of carbohydrate which may be increase systemic inflammation as well as muscle degradation. overdo fat consumption also increase risk of systemic infections, so both of them must closely monitored (Rowan *et al.,* 2015).

2.7.8. Psychosocial Support

The researchers confirm important of psychosocial support and effect it for patient with burn and their family members, which could be more hard time to adapt, than physical effect as itching, pain, scars and low physical functions. In addition the needs of psychosocial support during burn center and rehabilitation period out center also in some patients continues counseling and psychosocial support with their families for long time (Guest *et al.,* 2018).

As well as important of support for coping with difficulties or stressful matters like money concerns, hospital insurance coverage or some problems may be face it in work or home, for patients have history of psychologically problems or abuse of drug or alcohol, necessary provide consult of psychiatrist with special attention to provide support and coping abilities (Greenhalgh 2016).

Sexual activities also need to psychologically support after a burn injury, the skin may look and feel very different as well as some changes in appearance may result, according to where in recovery journey, the way look and the things are able to do might also have changed. Occasionally a burn affects how sex organs or other erotic zones work or feel. So it can lead to frustration, anger, and disappointment, all of which often place pressure and strain on a relationship. Sexuality spans the biological, psychological, emotional, spiritual, and social dimensions of lives (Ruth & Cindy 2019).

Feeling good for patient and his body is the first step towards a healthy body image so little things like proper grooming can help feel positive about self. Exercise and staying active can increase energy levels and increase self-esteem.

The communication is most important thing in an intimate relationship, thus patients need to discuss with a partners about feelings or disclose that have scars from a burn injury. Be open about how the burn has affected sexual desire, function and how it makes feel. Be sure that people who have sustained burn injuries can and do have romantic relationships, marry, active sex lives, and babies.

Instruct the patient about don't try to put more pressure on self, especially after a recent injury or reconstructive surgery. Discuss with patient what can and cannot do (Ruth & Cindy 2019).

Resuming intimate relationships comes at a different time for everyone – some do so soon after they leave the hospital and some not for years after their burn injury.

Rubbing the skin with moisturizing lotion/oil improves the condition and sensitivity of the skin and helps bring closeness and acceptance in addition to can promote acceptance and positive feelings towards skin. Stiff or painful skin and joints may effect on comfort during sexual activity, so take pain medication about haft hour to one hour before to ensure in a pain free state. Making sure the skin is well moisturized may improve the mobility. Take time to stretch before or as a part of sex. Avoid positions which put pressure on newly healed grafts. Be creative and experiment with which positions are most comfortable and can accommodate for stiff joints, fragile skin and amputations (Ruth & Cindy 2019).

When suspect the medications are affecting on sexual function, discuss this issue with the doctor. Sometimes different dosing or an alternate medication may be prescribed. Usually the menstruation to be interrupted after a burn injury, but most women find it starts again spontaneously. Pregnancy can occur during this time, so use appropriate birth control. Recovering from a burn injury can be stressful, and stress can interfere with feelings of sexuality and intimacy. Exercise, meditation, music, and relaxation techniques are examples of ways to cope with stress in a positive way. Increase the knowledge by exchanging information and experience with other burn survivors and Burn Support Group Meetings (Ruth & Cindy 2019).

2.7.9.Rehabilitation

Rehabilitation plays a key role and must start as soon as possible so early begin is important and has positive impact in care to achieve goal of it to restore independence patients self-care but mostly patients don't care it or

do it late until the joint deformities or contractures appear (Najafi *et al.*, 2019).

Patients must understand and their families the care of burn continue and not stop when the patients are discharge from hospital as well as sometime need to call or comeback to burn center and rehabilitation department for long time (Greenhalgh 2016).

There are three phases of rehabilitation for burns, the first one is acute rehabilitation which begin when patient admission to medical services and go on until to wounds of patients become half close or skin graft. The second phase continues until close the wound completely is assurance to restore function and ROM as well as avoid the trauma to new tissues. Third phase is long-term rehabilitation which start after completely wound until patients have achieve best useful from rehabilitation, sometime patients receive these services in rehabilitation department or outpatient therapy setting (Greenhalgh 2016).

The nurses work within rehabilitation team also as coordinator between them include increase and enhance the knowledge of patients around rehabilitation and prepare directions and train them to apply activities daily living and targets of rehabilitation within schedule plan (Xia *et al.*, 2014).

2.8. Self-case

Self-care is challenging for reasons that can be grouped into the general categories of behavior change and illness related factors. Six specific knowledge gaps that may help to address these challenges include the influence of habit formation on behavior change, resilience in the face of stressful life events that interfere with self-care, the influence of culture on self-care behavioral choices, the difficulty performing self-care with multiple chronic conditions, self-care in persons with severe mental illness,

and the influence of others (care partners, family, peer supporters, and healthcare professionals) on self-care (Riegel *et al.*, 2021).

There is growing recognition of need for people with chronic conditions to assume responsibility for their own health and to be actively involved in self-care. Out of (525,600) min in a year, patients spend only on average (66) min or (0.01%) of the time with healthcare professionals. All other health maintenance, illness prevention, monitoring and management activities are done by persons with chronic conditions and their care partners as self-care activities (Riegel *et al.*, 2021).

2.8.1.Wound care

A. Instruct the patient about important of hand washing before and after care of wound (Lanham *et al.*, 2020).

B. Prior to beginning any dressing change, pain medication should be administered (30) min prior to wound care to achieve maximum effectiveness (Lanham *et al.*, 2020).

C. Change the dressings must be done daily or as instructed also topical medications and damage tissue should be completely removed before apply new dressing (Cancio *et al.*, 2017).

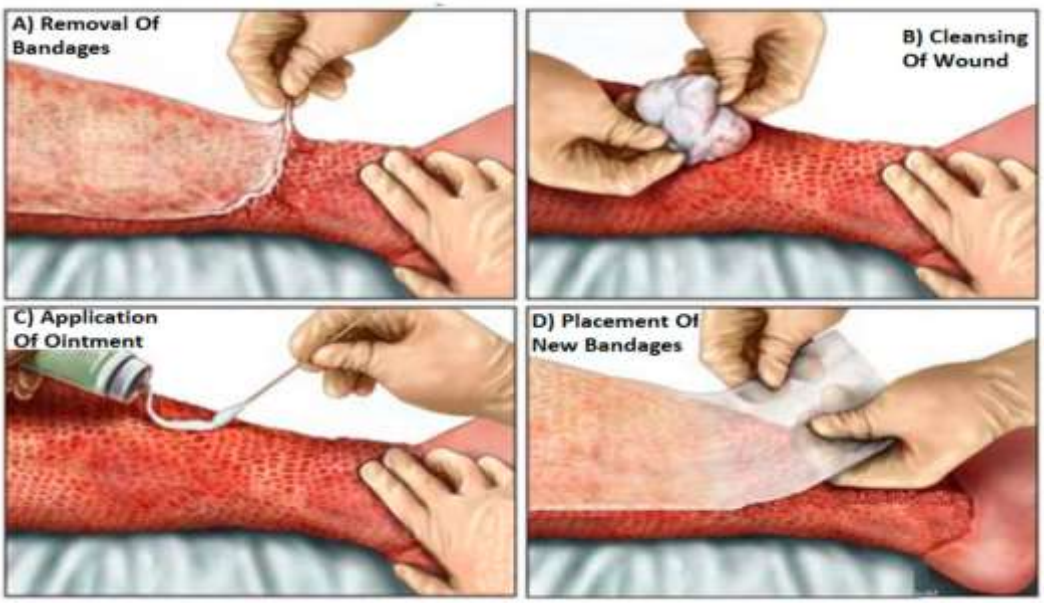


Figure 2.8. Wound care (Owda *et al.*, 2020)

D. When wound dressing, must inspect wounds carefully for any signs of infection, including increased redness, swelling, drainage, or foul odor until completely healed (Hinkle and Cheever 2018).

E. Using soap with water to clean the wound and a clean washcloth to dry it.

F. Applying prescribed topical medications and dressings or use hydrogel-based wound dressing which has a functional characteristics to absorption of secretion, stop or decrease evaporation, maintain gas exchange and oxygen concentrations to enhance the wound healing also prevent the infections (He *et al.*, 2021).

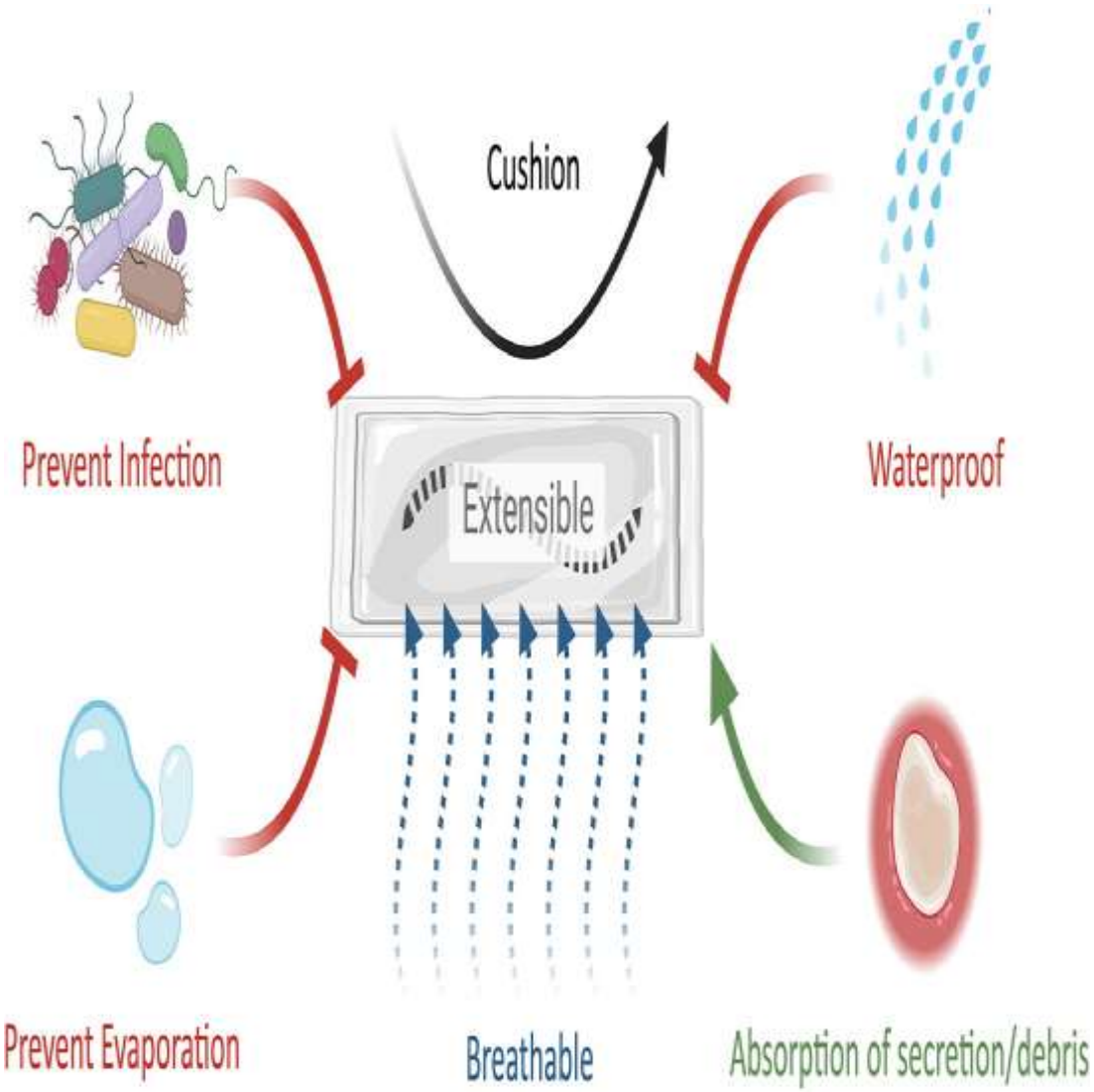


Figure 2.9. hydrogel-based wound dressing (He *et al.*, 2021).

2.8.2 Pain management

There are many methods used to control the pain or decreased it, one of them is relaxation training where several studies have demonstrated that massage therapy for (15 min) to others areas not burned reported decreased the pain scores. Learning the skills in meditation and stretching can relax patients and decreased the pain also get better compliance with physical therapy. Enhancing patient to control on the environment may be by providing a choice of music during wound care, scheduling meal times, offering food choices and timing of procedures such as wound care. Another approach is explaining the mechanics of procedure step by step allowing the patient to prepare or sensory-based approach (i.e., you will likely feel a tugging sensation as I pull off your dressings). Successful technique to minimize undesirable by take rest between stages of wound care may be with additional medications for pain and anxiolytic (Ray *et al.*, 2016).

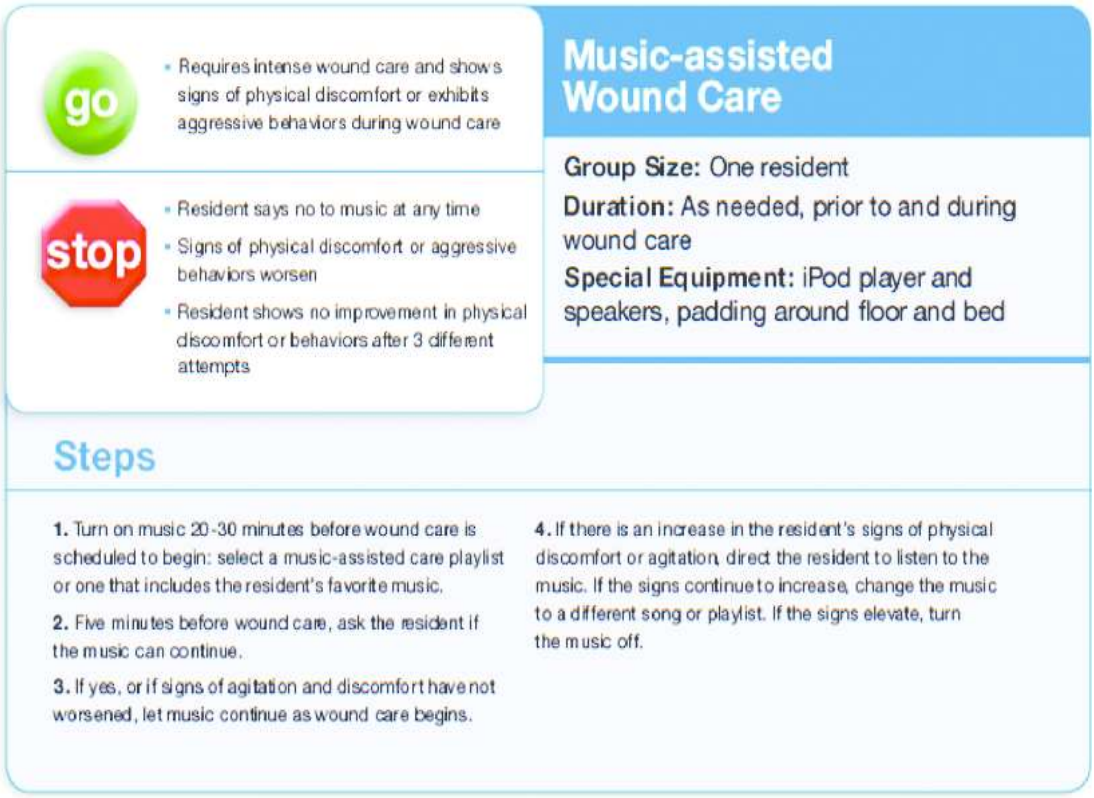


Figure 2.10. Music assisted wound care (Ray *et al.*, 2016).

2.8.3. Bathing

Bathing in usual manner may continue, however, soaking in a bathtub is not recommended. Test water temperature before getting into the tub or shower. The new skin is sensitive to extremes of hot or cold and may be injured easily. Using a clean, soft towel and gently washing instead of vigorously rubbing will lessen any discomfort of bathing. When the patient has open wound which may be lead to discomfort, before washing use medications as prescribed. If devices such as shower chairs or grab bars are needed in the home, this should be arranged prior to discharge from hospital (Lucy *et al.*, 2018).

Figure 2.11. shower chairs and grab bars (Deb Hipp 2023).

2.8.4. Dry skin care

The burn causes the damage or destruction of sebaceous glands which lead to dry skin and become scaly appearance and some of these need time to return normal function during this time use artificial lubricant but without contain lanolin or alcohol which may be make blisters in new skin (Hyland *et al.*, 2015).

2.8.5. Itching care

Approximately effect itching after burn on every patients also it is discomfort symptom for patients especially during the first month, effective way to dominance on it take many approach as known main cause such as (release of histamine, dryness of skin, and neuropathic) (Greenhalgh 2016).

Could be treat or reduce it by use oral anti-allergy, skin lubrication (3–5) times daily, cotton clothes, and some environmental modifications to avoid or improve itching. Also instruct the patient about avoid the scratch to prevent other complications and discomfort that can occur due to it (Hinkle & Cheever 2018).

2.8.6.Prevent the Bruises

After healing the wounds of burns, the characteristics of new skin different from body as high sensitive and thinner from other skin and need long time to build up skin as normal which is different between peoples, sometime take many months or years, so become more easily to occur of bruise and should be protect it from injury by sharp objects, avoid wear tight shoes also tight clothing which cause pressure on new skin and may be blistering. Progressively, thickness and hardness of skin, it will become less sensitive and able to do the normal routine with less fear of bruising (Lucy *et al.,* 2018).

2.8.7.Scarring care

There is a relationship between the discoloration and scarring. Where the difficult to determine or estimate the size of scarring and which one is permanent or recover with time, so many factors effect as tendency to formation the scar in some patients and depth of burn is important agent in cure the scar, so the scar which result from first-degree of burns may recover during limit time, also likewise for light second-degree burns, while a severe burn as third and fourth degree continue to forming the scars during the two years after burn, some of them gradually recover and others become permanent forever and need to surgically intervention. So it lead to change the appearance of patient and could be psychological problem which effect on the outcome of scars (Lucy *et al.,* 2018).

Soft massage for superficial scar can be carry out with a moisturizer many times per day, elastic bandage wraps are used initially to help promote adequate circulation, but they can also be used as the first form of compression for scar management. Application of elastic pressure garments loosens collagen bundles and encourages parallel orientation of the collagen to the skin surface. As pressure continues over time, collagen restructures and vascularity decreases, pressure has shown to be beneficial in controlling scar formation over time. Also massage with mild lotion or cream to stretch skin to maintain/increase its elasticity (Hinkle & Cheever 2018).

2.8.8. Cold care

The new skin is thinner and more sensitive to cold than normal skin also may be experienced from sometime slight tingling and numbness when the weather is cold particularly in hands and feet. Gradually this feeling will be decrease as skin toughens. The discomfort can decrease by wearing warm clothing and avoiding exposure to the cold for long time so need to protect skin about at least a year (Lucy *et al.,* 2018).

2.8.9. Discoloration

The skin discoloration for healed areas is a result of the normal healing process. It may appear light to deep pink, brown, or a grayish color. Discoloration different between individuals, depending on natural skin coloring so normal color could be return after superficial burns and some second-degree burns in several months whereas other areas may take longer time and some discoloration which result from severe burns may be permanent.

Increase the discoloration and swelling after walking or having arms down for long time if arms or legs are involved because collects the blood in feet, legs or arms. Improve circulation and decrease discomfort of involved areas by use the moderation exercise (Lucy *et al.,* 2018).

2.8.10. Exercise

Healing the skin after burn tends to formation the scar tissue and formation contracts of muscles. Stiffness and slight pulling in the joints at morning or after being inactive for long periods during the day. So the movement of the joints gradually decreases the stiffness also the regular exercise, daily participation is essential in physical rehabilitation, provide adequate rest and sleep also when the patient take rest elevated the swollen limbs, use the instructs to controlling pain by use non-pharmacologic interventions analgesics, all of them instructions or procedures helps to prevent rigid for upper and lower limbs (Hinkle & Cheever 2018).

Home exercise program is prepare by the therapist and develop it before the patient discharge from burn center in addition to instruct the patient and his /her family about how can use it also therapist works with them to obtain necessary exercise equipment and arranges it for physical therapy for patient at home (Lucy *et al.*, 2018).

There are special warnings for patient during doing the exercises; avoiding hold to the heavy weights not to overload the muscle, breathe normally during exercise and avoid the hold breath, avoid the risk of dehydration which result from increased sweating secretion due to strong exercises and also the patient must stop exercises and consult the doctor when feel any of following symptoms as, extreme weariness, chest pain, nausea, mild headache or a state of lack of focus (Hinkle & Cheever 2018).

2.8.11. Diet

Nutrition is an important to wound healing after leave the hospital as during recovery from a burn injury. It is significant to maintain a good weight for height by instruct the patient to choose foods with rich protein to complete healing and maintain good tissue structure. There are many sources from protein can be obtained as beans, nuts, cheese, fish, eggs,

meat, poultry and milk. Vitamins and minerals are essential for healing and maintaining normal body functions. They are provided by dairy products, whole grain cereals, enriched breads, fruits and vegetables. Daily the important to obtained on one of good source of Vitamin C, such as citrus fruits, tomatoes, green vegetables and potatoes. In addition to instruct the patient to use a variety of foods since different foods have different nutrients. Avoid the excessive weight gain by control the amount of fat added to foods and also avoid use the tea immediately after eating, advice the patient to drink a lot of fluid (8 cups or more), when the patient has special dietary style or needs, instructions will be provided before leave the hospital (Lucy *et al.*, 2018).

2.8.12. Psychosocial adaptation and social integration

- Changing in lifestyle and emotional adjustment to injury take time.
- Gradually regain the activities and previous interests.
- Using relaxation techniques to reduce stress and anxiety (can be breathing exercises, music and distraction)
- Consider community and other resources such as burn support groups, many books, videos, and Web sites are also available and may be invaluable in assisting with burn recovery.
- Programs are available to assist with school reintegration and return to work and the treatment team should be consulted as needed.
- Demonstrating adaptation of the home environment (Hinkle & Cheever 2018).

2.8.13. B*urn Skin Precautions:*

- Wear sunblock with highest sun protection factor possible to protect exposed burned skin from the sun. Light colored clothing, long pants, and long-sleeved shirts may also be necessary to protect from the sun.

- Wear wide-brimmed hats if face or ears have been burned to protect the area from the sun.
- Using only mild soap and lotion (i.e., products without perfume) on burned areas. Keeping skin clean overall is important to support good hygiene and prevent infection.
- Avoiding tight clothing over burned areas so as not to restrict movement or irritate newly healed areas.
- Wearing the cotton, white or transparent and loose-fitting clothes so may be irritate the new skin because the dyes in clothes.
- Protecting the skin after healing by wear clothing and gloves to avoid unnecessary bruises, bumps, and scratches.
- Be aware that tolerance to extremes in temperatures may be affected.
- Itching is a normal, uncomfortable part of healing and burn recovery; do not scratch, pat areas; apply mild moisturizers to decrease itching from dryness. Medications for itching can be discussed with the treatment team (Hinkle & Cheever 2018).

2.8.14. Use of medical devices:

- Following up occupational therapist's instructions for splint use and cleaning.
- Using crutches, walkers, or other assistive devices as instructed.
- The devices such as shower chairs or grab bars are needed in the home, should be arranged prior to discharge (Hinkle & Cheever 2018).

2.8.15. Electronic health tools

Electronic health tools such as applications and websites can be used to support self-care behaviors and maintain chronic illness stability. These interventions have tremendous potential to promote patient engagement and eHealth interventions have been found to improve care, self-care, self-efficacy, healthy behavior (quality of sleep, diet, physical activity mental

health) and medication adherence. eHealth also support the process of observing oneself for changes in signs, symptoms, and healthy behaviors (Riegel *et al.,* 2021).

2.9. Nursing management of the burn injury.

Optimal care of the burn patient requires a distinctive multidisciplinary approach. Positive patient outcomes are dependent on the composition of the burn care team and close collaboration among its members. The nurse which work in the burn unite most has the a broad-based knowledge of multisystem organ failure, techniques of critical care, diagnostic studies and rehabilitative ,and psychosocial skills (Greenfield 2010).

The nurse supervise on whole care for patient, cooperation with other specialties e.g. occupational therapy, physical therapy, social services, nutritional services and pharmacy. On other hand she is also a specialist in wound care as (responsible for wound care and observe subtle changes) which may be occur and effect on healing also need the immediately attention, prevent the infection and pain management.

Continuous development of role of nurse's also contributing to care of burn by researches of nursing and nurses training about standard procedure in nursing field as well as guidelines of practice, critical care and nursing process in burn unit (Greenfield 2010).

2.9.1. Nursing Assessment

A. Concentrating on priorities of management of patient with any trauma: consideration the wound of burn secondary, although aseptic technique use when care of burn and invasive lines.

B. Assessing the condition of surrounding area of burn: Also assessment the time, mechanism, place of burn and any related trauma as possibility of inhalation chemicals burns.

C. Assess the vital signs: Assessment the characteristics of respiratory, pulses in the different places of body (apical, carotid, and femoral) especially surround area of burn injury and peripheral pulse.

D. Monitoring the status of heart if indicated, especially when the patients have heart or respiratory diseases also with electrical burns.

E. Monitoring the input and output of fluid by calculated the oral intake, IV fluids, and amount of urine by urinary catheter when catheter is use to patient to monitor the renal function.

F. Taking the complete history: past medical history, past surgical history, present history, allergies history, medications history, immunization history, and assess the body weight especially before burn.

G. Assessing the corneal of patients when the patient suffer from face burn

H. Continues assessment of total body extent area of the burn and degree of burn.

I. Continue to assess the extent of the burn; assess depth of wound, and identify areas of full and partial thickness injury.

J. Assessment the neurologic status: assess the level of consciousness, psychological status, level of pain, level of anxiety, and patient behaviour.

K. Assessment the understand of patient's and family's for management approach of treatment also type of support system and strategies of coping by patient (Verastegui 2021).

2.9.2.a Nursing Diagnosis

Impaired gas exchange related to carbon monoxide poisoning, smoke inhalation and upper airway obstruction.

Patient outcome: maintenance of adequate tissue oxygenation.

Nursing interventions

A. Providing hundred percentage of humidity oxygen as possible.

B. Assessing breath sounds and respiratory rate, rhythm, depth, and symmetry of chest excursion, monitor patient for sign of hypoxia and report any abnormalities.

C. Monitoring the erythema or blistering of lips or buccal mucosa, singed nasal hairs, burns of face, neck, or chest, increased hoarseness, also the respiratory secretions for soot in sputum or tracheal tissue.

D. Monitoring the level of arterial blood gases, oxygen saturation and carboxyhemoglobin.

E. Preparing to assist with intubation and escharotomies of chest (Hinkle & Cheever 2018).

F. Elevating the head of bed to (30) degrees also daily oral care, if the patient on mechanical ventilation daily sedation interruption with continue assessment to be ready for weaning from it, and prophylaxis from bedsore and DVT (Dries & Marini 2017).

2.9.2.b Nursing Diagnosis

Risk for fluid volume deficit related to loss of fluid from burn wounds or hyper metabolic state, insufficient intake or haemorrhagic losses.

Desired Outcomes

Demonstrating improved fluid balance as evidenced by individually adequate urinary output with normal specific gravity, stable vital signs, moist mucous membranes.

Nursing Interventions

A. Monitoring the vital signs, especially peripheral pulse, refill of capillary and central venous pressure.

B. Monitoring the characteristic of urinary output.

C. Guessing and compensation wound drainage and insensible losses.

D. Monitoring the body Weight.

E. Evaluating changes in mentation.

F. Measure circumference of burned extremities as indicated.

G. Monitoring for hematemesis, tarry stools, nasogastric drainage and stools periodically.

H. Monitor laboratory test: haemoglobin, haematocrit, electrolytes, random urine sodium (Matt 2022)**.**

2.9.2.c. Nursing Diagnosis

Ineffective airway clearance and impaired gas exchange related to tracheal edema or interstitial edema secondary to inhalation injury and/or circumferential torso burn manifested by hypoxemia and hypercapnia.

Desired outcomes

• Adequate airway clearance and gas exchange.

• Partial pressure of oxygen more than (90) mmHg; partial pressure of arterial carbon dioxide less than (45) mmHg and oxygen saturation more than (95%).

• Respiration rate within normal value and normal breath sounds and symmetrical of chest wall excursion.

Nursing interventions

- Observing oxygen saturation every hour, arterial blood gases and Chest X-ray as instructed.
- Assessing the characteristics of respiratory, breath sounds and level of consciousness.
- Giving the oxygen as instructed.
- Encourage the patient to coughing and take deep breathing every hour when he awake.
- Suction the secretion every two hours or as instructed.
- Monitoring the characteristics of sputum also amount of it.
- Comfortable position with raise the head of bed.

- Schedule the activities to avert tiredness of patient (Greenfield 2010).

2.9.2.d. Nursing Diagnosis

Acute pain related to tissue and nerve injury.

Goal : pain control.

Nursing interventions

- Assessing the level of pain by use pain intensity scale.
- Distinguishing between restlessness result from pain and restlessness from hypoxia.
- Administer pain killer as prescribed and assess the effectiveness of it.
- Providing emotional support and reassurance (Hinkle & Cheever 2018).

2.9.2.e. Nursing Diagnosis

Impaired physical mobility related to neuromuscular impairment, pain/discomfort, decreased strength and endurance evidenced by reluctance to move/inability to purposefully move.

Desired Outcomes

- Maintaining position of function as evidenced by absence of contractures.
- Maintaining or increase strength and function of affected and/or compensatory body part.
- Verbalizing and demonstrate willingness to participate in activities.
- Demonstrate techniques/behaviours that enable resumption of activities.

Nursing interventions

- Avoid or prevent the complications of immobility as bedsore, control edema, atelectasis, pneumonia and contractures by encourage the patient to do the proper position, turning the patient every two hours as possible also repeat the deep breathing (Satahoo *et al.*, 2015).
- Giving the pain relive medication before start of exercises.

- Continuing the exercises and start with passive when the patient can't do the active exercises.
- Encourage the patient to participation in each part of exercises as possible.
- Schedule the time of treatments and other activities to keep enough time of rest (Caldwell *et al.*, 2019).

2.9.2.f. Nursing Diagnosis

Risk for infection related to loss of skin, impaired immune response and invasive therapies.

Desired Outcomes

- Keeping the patient free from infection show that by disappear of signs and symptoms of infection.
- Early detecting for any infection and use suitable treatment.
- Reducing complications that result from infection.

Nursing Intervention

- Keep the patient in isolation room and application the sterile technique and protocol of burns center and use Personal Protective Equipment when care the patient.
- Daily assessing and debride wounds in addition to send wound culture for laboratory a three times a week to check the present which types and loud of microorganisms.
- Removing the hair except the eyebrows for one inch around the burn area (Williams & Hopper 2015).
- When the patient feel increased the pain or the dressing become soaked or foul smelling change the dressing directly.
- Instructing the patient for avoid long fingernails also itching.
- Giving the antihistamine prior the bedtime to avoid itching as instructed (Atiyeh *et al.*, 2014).

- Giving the medications which support the immunity as instructed.
- Administer of systemic and locally antibiotics as prescribed (Williams & Hopper 2015).

2.10. Previous studies.

First study:

(Hassan *et al.,* 2005) who proven in their study (Physical And Psychological Effects Of Application Of Self-Care Strategies For Second Degree Burned Patients) which used systematic random sampling for sixty patients suffer from second degree of burn for seven months at El-Demerdash Hospital in (burn unit), they are able to carry out self-care activities, their conclusion were patients have needs of social and psychological greater than physical needs also self-care program was successful to improve burn patients knowledge and practices about self-care.

Second study:

(Lotfi *et al.,* 2018)In their study (The Effect of Pre-Discharge Training on the Quality of Life of Burn Patients) carry out in Iran, Tabriz, Teaching Hospital Sina for (128) burn patients (64) for each group, sampling were selecting randomly, provided for the participants in this study training materials such as booklets in addition education by face to face and answered their questions and worries. Their results refer to significant improved of the life quality for patients receive pre-discharge training programs. Those recommended for planning of in-discharge training programs and design it based on patients needs may be important step to improve this a programme for quality of life on the burns patients.

Third study:

(Ardebili *et al.,* 2019) They carried out a study entitled (The effectiveness of multimedia self-care education on burn patients quality of

life: An application of latent growth model) which carried out at Shahid Motahari Hospital in Tehran. As the sample of the study consists (100) burn patients. The burn patients were allocated into study group half of patients and the same number of patients in control group were randomly. The study group received the CD of self-care education and uses it during for six months. The conclusions of their were improves the burn patient's quality of life by use the multimedia self-care education. Also recommended it for concerned team to use training about multimedia self-care in order to make better quality of life for burn patients.

CHAPTER THREE
METHODOLOGY

3.Methodology

Chapter three presents the research design which used in this study and the methodology of it, also explain step by step of study as following :study design, arrangement, setting of the study, sample of the study, inclusion criteria, selection of the sample, steps of the study, validity and reliability of the study instrument, pilot study, data collection, implementation of the program and statistical analysis.

3.1. Study Design

A quasi-experimental design is used in the present study by carrying out of a pre and post-test approach for the study group and control group after implementation of self-care instructional program for patients with burns for study group.

The study been done from 19th October 2021 to 9th August 2023.

3.2. Administrative Arrangements

After official request submission and getting the endorsement of permission from the Faculty of Nursing / University of Babylon for the study also permission from Ethics Committee (Appendix B) after that and before collecting data the detailed description of the study including the objectives and methodology of the study submitted to the Babylon Health Directorate/Training and Human Development Center (Appendix C) in request to get an official consent to application the study and data collection. Later on, the official consent is send to at Al – Imam Sadiq Teaching Hospital (Burn unit) in order to ensure the agreement and cooperation to complete the study, (Appendix D) as well as take the permission from burns patients before that explain the purpose of study and provides the confidentiality for patients during and after application of the instruction program.

3.3. Setting of the Study

The present study is done at Al-Imam Sadiq Teaching Hospital in Burn unit. This hospital contains on many departments, consultations, others facilities, units and wards. One of them is burn unit which divided to (10) rooms each one has bed for patient with bathroom. Also this unit contains reception, room for manager, consult, physicians, pharmacists, nurses, technicians of anesthesia, storage, operating room, intensive care room and special bathroom of hydrotherapy for burns.

3.4. Sample of the Study

Non-probability (purposive sample) used to selected sixty patients from burn unit, the study sample in split to two groups (30) patients for the study group, which are exposed to the instructional program, and (30) patients for control group. Both groups were nearly matched relative to their characteristics. The total number of selected patients were (78). Who were attending burn unit during the study time, met the criteria and agreed to participate in this study. Ten patients selected to assessment patient need for self-care program and six patients involved in the pilot study, these patients were excluded from original study sample. Thirty patients are assigned to the study group and the same number of patients participate in the control group, two patients didn't complete their post-test from this purpose they droplet from the sample.

Inclusion Criteria

The criteria for selection the study sample are.

1. Conscious, able to cooperate and communicate to participate in the study.
2. Total Body Surface Area >10 %.
3. Passed 48 hours after burn.
4. Patients who had second, third or fourth degree of burn.

5. Stable patients as reported verbally by the physician.

3.5. Steps of the Study:

The following steps were carried in this study:

3.5.1. One of the objectives study is to preliminary assess the patients need for self-care instructional program in burn unit;

There for a format that is a close-ended questionnaire was used its content is depended on the review of related literature and personal experiences. Data are collected from (10) patients who are selected from burn unit and excluded from the study sample, the period of study is carried out from 25th September 2022 to 23rd October 2022.

The questionnaire which is related to the assessment of patients is composed of (13) questions about self-care, all patients are interviewed and each patient was given between (20-30) minutes to complete the questionnaire. The outcome of the assessment indicates that more patients had knowledge deficiency (Appendix E). The results recorded as (63.85 %) for incorrect answer, (20.77%) not sure and (15.38 %) correct. According to assessment results, it has been revealed that there is a need to construct an instructional program in order to improve the patients' self-care after burn.

	Rating	**Frequency**	**Percent**
Overall patients responses	Incorrect	83	63.85
	Not sure	27	20.77
	Correct	20	15.38
	Total	130	100.0

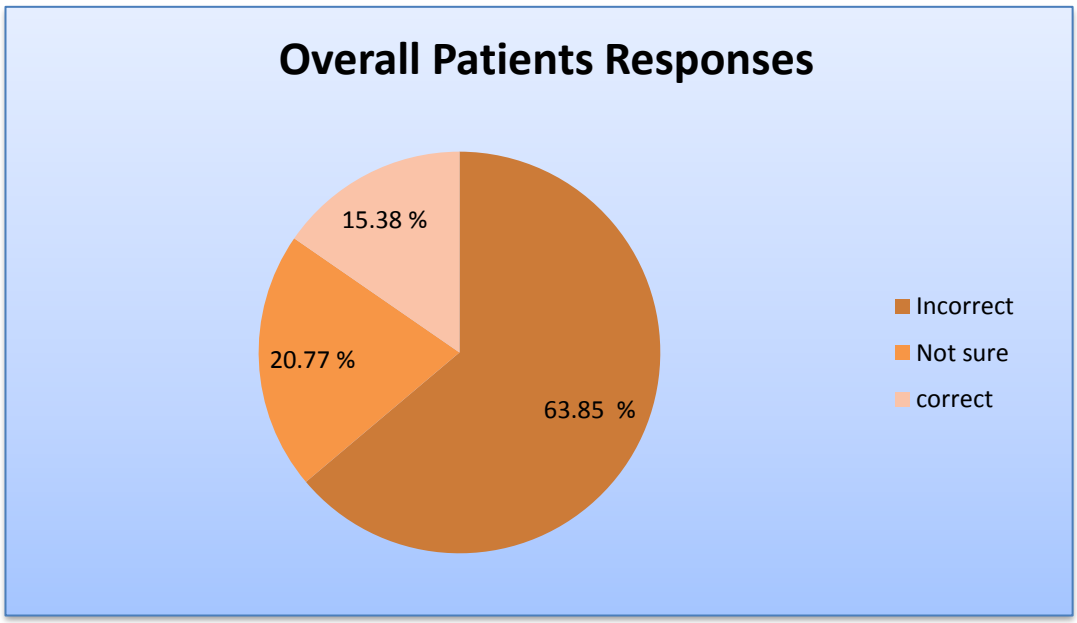


Figure 3.1 Distribution of overall patients responses to assessment their needs

3.5.2. Construction of the Instructional Program

The instructional program design is depending on the outcome of assessment patients needs and on information which obtained from scientific literature review and past studies so this program which contains more details about self-care that should be followed after burn (Appendix F) and they must know the following:

- The Introduction of burn.
- Introduction of self-care.
- Purpose of self-care.
- Wound care.
- Pain management.
- Healthy Diet.
- Exercise.
- Monitoring.
- Medications.
- Psychosocial adaptation and social integration.
- Personal Hygiene.

- Dry skin care.
- Itching care.
- Preventing bruises.
- Blisters care.
- Cold care.
- Discoloration.
- Scarring care
- Body Safety.
- Health education

3.5.3. The questionnaire of the study:

To evaluate the effect of the instructional program on the patients with burn, a self-administered questionnaire was developed to assess the knowledge; it is constructed through the review of related literature and previous studies. The questionnaire is applied pre and post implementation of the program, and used as a means of data collection (Appendix G) mainly it consists of three parts:

Part I. The Demographic Data of the Patients

This part is concerned with the collection of demographic data obtained from interview patients through answer the questionnaire such as [sex, age, marital status, level of education, residence and occupational status]. The seven questions offered response options of a fill in type.

Part II Clinical Information of Patients .

This part consists of six items which contain: length of hospital stay, degree of burn, cause of burn, total body surface area burned, burn area and history of chronic diseases. The format of demographic and clinical information of the patients data was filled by the researcher for both groups.

Part III. Self-Care Activities

This part consists of a (40) items questionnaire divided into (8) main domains which are:

A. Wound care, consists of (6) items.

B. Healthy Diet consist of (7) items.

C. Exercises, consist from (4) items.

D. Monitoring domain consists of (4) items.

E. Medications, consists of (3) items.

F. Management of psychological stress, consists of (4) items.

G. Personal Hygiene, this domain consists of (6) items.

I. Body Safety, this domain consists of (6) items.

Rating & Scoring of the Scale:

These items are rated according to the Likers' scale; incorrect (1); not sure (2); correct (3) for the positive items, and vice versa for the negative items. The score estimation for the study scale has been evaluated according to responses percentages of the items. Each answered (correct) item is assigned a score of (3), not sure answered items are assigned a score of (2) and those incorrect answered are assigned a score of (1). Total scores are summed and ranged in percentages. Score is assessed in percentages of the mean depending on the Likert scale as follows:

* High score: 2.34 – 3.0.

* Moderate score: 1.67 – 2.33.

* Low score: 1 – 1.66.

3.6. Validity of the questionnaire:

Validity of the content validity was presented to the panel (10) experts who had more than ten years' experience in their field from different Universities, in addition to the plastic surgeon, which is a specialty of great importance in this field during and after the hospital, they

were (2) faculty members from College of Nursing/ University of Baghdad, (4) faculty member from College of Nursing/ University of Babylon, (3) faculty member from College of Nursing/ University of kufa, (1) plastic surgeon from burn unit. To investigate the content of the questionnaire (Appendix H), those experts were provided with copy of study instruments and were asked to review and evaluate the instrument for its content clarity and adequacy. Some items were excluded and others were added after taking all the comments and recommendations into consideration. The questionnaire was considered valid after performing the modifications that based on their responses.

3.7. Pilot Study

Pilot study is carried out on (6) patients who are randomly selected to get the determine the reliability of the study. The patients in the pilot study had the same criteria of the original study sample. It is conducted at burn unit during the period from (17^{th} October 2022 to 29^{th} November 2022) participants have been exposed to pre-test and finally post-test. Theses samples are excluded from the total study samples.

3.7.1. The Purpose of Pilot Study

1.To find-out whether the contents of the questionnaire and the instructional program are clear and understandable to the sample of study.

2. To know how much the time wanted for answering the questions.

3. To identify the limitations that may be facing during carry out the study.

3.7.2. The Result of Pilot Study:

The results of the pilot study referred to the questionnaire and the instructional program are clear and understandable to the participants. The time consumer to complete the questionnaire is (30-40) minutes and each interview takes about (30-60) minutes.

3.8. Reliability of the Study Instrument

Reliability of the questionnaire is determined through the use of test and re-test after (14) days approach on (6) patients in burn unit for determination the stability of the instrument to collect the data of burn patients regarding self-care. The results of the reliability revealed that the alpha correlation coefficient is (r= 0.858), which is statistically acceptable comparing with the standard lower bound of the reliability coefficient (Barton & Peat 2014).

3.9. Data Collection

Data collection by interview technique through the use of the study instrument and carry out of instructional program in the burn unit for the period from 3rd December 2022 to 24th May 2023.

Pre-test then post-test approach are used as appropriate means of data collection and performed through almost six and a half months which are lectures, booklets, and discussion.

The data collected through the following techniques:

1. All patients are interviewed and informed related to study purposes and objectives.
2. All patients are exposed to the pretest in order to assess their knowledge regarding self-care.
3. The study group are exposed to the instructional program as individuals in the similar conditions.
4. The study group are exposed to the post-test after carryout of the instructional program.
5. Concerning the control group, the same steps are followed except the carryout of the instructional program.

3.10. Implementation of the Instructional Program:

The instructional program is designed to provide information to patients related to self-care after burn. The program was carried out in burn unit (rooms patients) with consider the control infection standards which applied in this unit, as well as condition of patient and maintaining the privacy of patient, also informed to insure their agreement in the study before implementation.

The instructional program was implemented and introduced through three sessions included three lectures with respect to the essential information related to patients needs. The lectures are designed and scheduled for approximately (1 hour), and presented in the same room of patient in burn unit. The program is carried out by three methods; booklets, which are enriched with all the information regarding self-care, lectures which are related to the main topics and focused on the objectives of each lecture and discussion and through cell phone calls and communication, the researcher got and responded to any question or comments from the patients after the implementation of the program.

Sessions of the program:

First Session.

- Introduction of burn injury.
- Introduction of self-case activities.
- Purposes of self-case.
- Wound care.

Second Session.

- Pain management.
- Healthy diet.
- Exercise.
- Monitoring.

- Medications.
- Psychosocial adaptation and social integration.
- Personal hygiene.
- Dry skin care.

Third Session.

- Itching care.
- Preventing bruises.
- Scarring care.
- Cold care.
- Discoloration.
- Scarring care.
- Body Safety.
- Health education.

3.11. Statistical Analysis

Statistical procedures are used to analyze the data and assess outcomes of the study by used the package of SPSS (Statistical Process for Social Sciences) version (27) and Excel program to determine the effectiveness of the instructional program on self-care and correlation between their knowledge with specific variables, as following:

A. Descriptive Statistical Procedures:

This approach is performed through the determination of:

- Frequency (f).
- Percentage (%) (% = Σ f/n ×100).
- Mean= n = Σ X/n.

(Barton & Peat, 2014). It is utilized as a measure of inconstancy when interim or proportion information are gotten. This measurement depicts how esteems differ about the mean of the dispersion.

Standard deviation: is the measure of dispersion of a set of data from its mean. It measures the absolute variability of a distribution; the higher the dispersion or variability, the greater is the standard deviation and greater will be the magnitude of the deviation of the value from their mean.

$$S = \sqrt{\frac{\sum (x_i - \bar{x})^2 f_i}{n - 1}}$$

(Barton & Peat 2014)

B. Inferential Statistical Procedures

These are used to accept or reject the statistical hypotheses, which include the following:

It is used to estimate the study instrument (test and retest) reliability through the application of the following formula:

$$r = \frac{\sum (x - \bar{x})(y - \bar{y})}{\sqrt{\sum (x - \bar{x})^2 \sum (y - \bar{y})^2}}$$

T-test

It was used to determine the difference between two means at $P \leq 0.05$ and is computed according to the following formula:

$$t = \frac{D_{x-y}}{\sqrt{\frac{\sum d^2}{N(N-1)}}}$$

D_(X-Y) = the mean difference between the paired scores.

D = the deviation scores for difference measure.

$\sum d^2$ = the sum of the squared deviation scores.

N = number of pairs.

Efficient Alpha Correlation:

$$r = \left(\frac{k}{k-1}\right)\left(1 - \frac{\sum \sigma i^2}{\sigma^2}\right)$$

Where*:*

r = The estimation reliability.

K = The total number of items in the test.

$Q1^2$ = The variance of each individual item.

Qy^2 = The variance of the total test score.

$\sum$ = The sum of.

T-test (paired sample t-test) : to quantify the mean difference in patient responses between two measurement levels (pre-test and post-test).

Chi-Square test: It examines the deviation between observed and expected values. It is determined by calculating the difference between the frequencies actually seen in a sample data set and the probabilistically expected frequencies.

CHAPTER FOUR

RESULTS OF THE STUDY

4. Results of the Study

This chapter shows the characteristics of demographic, clinical information and Knowledge's of patients regarding to self-care for both groups and describes the effectiveness of instructional program on self-care for patients with burn, where the data were collected from patients that participants in this study by using specific instrument prepared for the mentioned purpose. Use the systematic analysis to discover the results and also show the type of relationship between the main of score for patients knowledge and specific variables after application of instructional program.

Table 4.1. Distribution of Participants' Socio-Demographic Characteristics of the Sample

No	Variable	Groups	Study		Control	
			F	%	F	%
1	Sex	**Male**	**18**	**60**	**17**	**56.7**
		Female	12	40	13	43.3
		Total	30	100	30	100
		Groups	**Study**		**Control**	
			F	**%**	**F**	**%**
2	Age Groups	**18-27 years**	**14**	**46.7**	**13**	**43.3**
		28-37 years	6	20.0	8	26.7
		38-47 years	7	23.3	5	16.7
		48-57 years	2	6.7	4	13.3
		58-67 years	1	3.3	0	0
		Total	30	100	30	100
		Groups	**Study**		**Control**	
			F	**%**	**F**	**%**
3	Marital Status	Single	8	26.7	9	30.0
		Married	**19**	**63.3**	**18**	**60.0**
		Divorce	2	6.7	2	6.7
		Widower	0	0	1	3.3
		Separated	1	3.3	0	0
		Total	30	100	30	100

		Groups	Study		Control	
			F	%	F	%
4	Educational Levels	Cannot read and write	1	3.3	0	0
		Read and write	0	0	1	3.3
		Primary	**12**	**40.0**	**11**	**36.7**
		Intermediate	9	30.0	8	26.7
		Secondary	7	23.3	9	30.0
		Institute or above	1	3.3	1	3.3
		Total	30	100	30	100
		Groups	**Study**		**Control**	
			F	**%**	**F**	**%**
5	Residence	**Rural**	**16**	**53.3**	**17**	**56.7**
		Urban	14	46.7	13	43.3
		Total	30	100	30	100
		Groups	**Study**		**Control**	
			F	**%**	**F**	**%**
6	Occupation	Employee	8	26.7	9	30.0
		Free work	**11**	**36.7**	**10**	**33.3**
		Retired	1	3.3	0	0
		House wife	10	33.3	9	30.0
		Student	0	0	2	6.7
		Total	30	100	30	100

F. =Frequency, % =Percentage,

Table (4.1) displays the frequency counts for socio-demographic characteristics of participants. As mentioned above, most of the participants in study group according to their gender are male (n= 18; 60 %) in the control group (n=17;56.7%), near of half of participants in both group within age groups (18-27) years (14;46.7%) (13;43.3%) respectively, near of two-thirds study group are married while a little less that in the control group (19;63.3%) (18;60.0%) respectively.

The education level for study group are primary education (12;40%) and (11;36.7%) for control group, more than half of both groups their

residence are rural (16;53.3%) in study group and control group are (17;56.7%), the percentage of free work in their occupation are (11:36.7%) (10:33.3%), respectively.

Table 4.2. Distribution of Clinical Information for Both Groups

		Groups	**Study**		**Control**	
			F	**%**	**F**	**%**
1	**Length of Hospital Stay**	4-7 days	1	3.3	1	3.3
		8-11 days	4	13.3	5	16.7
		12-15 days	**18**	**60.0**	**16**	**53.3**
		More than 15 days	7	23.3	8	26.7
		Total	30	100	30	100
		Groups	**Study**		**Control**	
			F	**%**	**F**	**%**
2	**Degree of Burn**	Second degree	3	10.0	3	10.0
		Third degree	**17**	**56.7**	**18**	**60.0**
		Fourth degree	10	33.3	9	30.0
		Total	30	100	30	1000
		Groups	**Study**		**Control**	
			F	**%**	**F**	**%**
3	**Cause of Burn**	**Flame**	**19**	**63.3**	**20**	**66.7**
		Scald	8	26.7	7	23.3
		Contact	1	3.3	2	6.7
		Chemical burns	0	0	1	3.3
		Electrical burns	2	6.7	0	0
		Total	30	100	30	100
		Groups	**Study**		**Control**	
			F	**%**	**F**	**%**
4	**Total Body Surface Area**	11-20%	9	30.0	11	36.7
		21-30%	**15**	**50.0**	**14**	**46.7**
		31-40%	6	20.0	5	16.7
		Total	30	100	30	100

F. =Frequency, % =Percentage.

The results in table (4.2) show that (18;60%) of study group the length of hospital stay within (12-15) days while in control group are (16;53.3%), third degree of burns are (17;56.7%) for study group whereas

(18;60%) for control group, the flame are cause of burn for more participants (19;63.3%) in study group also in control group (20;66.7%). And (15;50%) from participants the total body surface area within (21-30)% in study group while (14;46.7%) in control group.

Table 4.3. Distribution of the Study Sample related to Site of Burned

No	Items	Groups	Study		Control	
			F	%	F	%
1	Head & Neck	No	21	70.0	22	73.3
		Yes	9	30.0	8	26.7
		Total	30	100	30	100
		Groups	Study		Control	
			F	%	F	%
2	Chest	No	18	60.0	19	63.3
		Yes	12	40.0	11	36.7
		Total	30	100	30	100
		Groups	Study		Control	
			F	%	F	%
3	Abdominal	No	20	66.7	19	63.3
		Yes	10	33.3	11	36.7
		Total	30	100	30	100
		Groups	Study		Control	
			F	%	F	%
4	Back	No	22	73.3	24	80.0
		Yes	8	26.7	6	20.0
		Total	30	100	30	100
		Groups	Study		Control	
			F	%	F	%
5	Right upper limbs	No	18	60.0	16	53.3
		Yes	**12**	**40.0**	**14**	**46.7**
		Total	30	100	30	100
		Groups	Study		Control	
			F	%	F	%
6	Left upper limbs	No	17	56.7	17	56.7
		Yes	**13**	**43.3**	**13**	**43.3**
		Total	30	100	30	100

		Groups	Study		Control	
			F	%	F	%
7	Right lower limbs	No	20	66.7	21	70.0
		Yes	10	33.3	9	30.0
		Total	30	100	30	100
		Groups	Study		Control	
			F	%	F	%
8	Left lower limbs	No	20	66.7	19	63.3
		Yes	10	33.3	11	36.7
		Total	30	100	30	100
		Groups	Study		Control	
			F	%	F	%
9	Genital area	No	24	80.0	23	76.7
		Yes	6	20.0	7	23.3
		Total	30	100	30	100

F =Frequency,% =Percentage.

The outcomes of table (4.3) show that the place of burn for participations where (9;30%) (8;26.7%) respectively suffer from head and neck burns, the chest burns in study group are (12;40%) and in control group are (11;36.7%), the abdominal burns of participations (10;33.3%) in study group while in control group are (11;36.7%), whereas back burns are (8;26.7%) in study and (6;20%) in control group, (12;40.%) of right upper limbs and (13;43.3%) left upper limbs in study group and (14;46.7%) of participants have right upper limbs and (13;43.3%) left upper limbs in control group.

The burns of lower limbs in study group are (10;33.3%) in both limbs right and left, while (9: 30%) in control group have right lower limbs and (11; 36.7%) left lower limbs. About the genital area burns (6;20%) in study group while (7;23.3%) in control group.

Table 4.4. Distribution of the Study Sample (both groups) related to their Medical History.

No	Items	Groups	Study		Control	
			F	%	F	%
1	**Hypertension**	No	28	93.3	27	90.0
		Yes	2	6.7	3	10.0
		Total	30	100	30	100
		Groups	**Study**		**Control**	
			F	**%**	**F**	**%**
2	**Diabetes mellitus**	No	26	86.7	26	86.7
		Yes	**4**	**13.3**	**4**	**13.3**
		Total	30	100	30	100
		Groups	**Study**		**Control**	
			F	**%**	**F**	**%**
3	**Epilepsy**	No	27	90.0	28	93.3
		Yes	3	10.0	2	6.7
		Total	30	100	30	100
		Groups	**Study**		**Control**	
			F	**%**	**F**	**%**
4	**Cardiovascular disorder**	No	29	96.7	30	100
		Yes	1	3.3	0	0
		Total	30	100	30	100

F =Frequency,% =Percentage.

The table (4.4) shows the history of diseases for patients, where (2;6.7%) in study group and (3;10%) in control group had Hypertension, whereas the diabetes mellitus in both groups (study and control) are (4;13.3%), Epileptic patients (3;10%) in study group while (2;6.7%) in control group, only one patient has cardiovascular disorder (1;3.3%) in study group and no one in control group suffer from this disease.

Table 4.5. Knowledge of Patients Regarding to Wound Care

No	Items	Study				Control			
		Pre-Test		Post-Test		Pre-Test		Post-Test	
		Mean ± S.D.	level	Mean ± S.D.	level	Mean ± S.D	level	Mean ± S.D.	level
1.	Take painkillers half hour before cleaning the wound.	1.97 ± .718	M	2.77 ± .430	H	1.93 ± . 583	M	1.93 ± .365	M
2.	Change the dressing must be done daily or as instruct.	2.30 ± .702	M	2.67 ± .479	H	2.30 ± .651	M	2.37 ± .490	H
3.	Topical medications and damage tissue should be completely removed at each time	1.93 ± .583	M	2.70 ± .466	H	1.97 ± .320	M	2.00 ± .000	M
4.	Use soap with water to clean the wound and a clean washcloth to dry it.	2.27 ± .640	M	2.87 ± .346	H	2.30 ± .596	M	230 ± .535	M
5.	Examine the wounds are fully with each dressing change for signs of infection, including increased redness, swelling, discharge, or a foul odor.	1.93 ± .691	M	2.77 ± .430	H	1.87 ± .346	M	1.90 ± .403	M
6.	Use prescribed medications and topical dressings as instructed.	2.27 ± .640	M	2.80 ± .407	H	2.23 ± .679	M	2.13 ± .346	M
Total mean of wound care		2.112 ± 0.662	M	2.763 ± 0.426	H	2.10 ± 0.529	M	2.105 ± 0.357	M

S.D= Standard Deviation, L = Low (1.00 – 1.66); M = Moderate (1.67 – 2.33); H = High (2.34 – 3.00).

Table (4.5) Demonstrates results of differences in mean for general knowledge items related to wound care in the study group between the pre and post-test, the results show improve the knowledge from moderate to high on the other hand there are no differences of mean knowledge items are moderate between pre and post-test in the control group.

Table 4.6. Knowledge of Patients Regarding to Healthy Diet

No	Items	Study				Control			
		Pre-Test		Post-test		Pre-test		Post-test	
		Mean ± S.D.	level	Mean ± S.D.	level	Mean ± S.D	level	Mean ± S.D.	level
7.	Eat white meat (chicken and fish) instead of red meat.	1.47 ± .629	L	2.53 ± .507	H	1.40 ± .563	L	1.43 ± .626	L
8.	Drink one glass of low-fat milk daily.	1.67 ± .661	M	2.67 ± .479	H	1.77 ± .626	M	1.83 ± .531	M
9.	Eat vitamins and minerals as orange or lemon.	1.80 ± .664	M	2.63 ± .490	H	1.80 ± .551	M	1.80 ± .484	M
10.	Eat small, frequent (5-6) meals per day.	2.13 ± .681	M	2.83 ± .379	H	2.17 ± .592	M	2.13 ± .571	M
11.	Avoid drinking tea immediately after food.	1.53 ± .571	L	2.43 ± .504	H	1.27 ± .521	L	1.27 ± .521	L
12.	Drink 8 glasses of water and fluids daily.	1.57 ± .568	L	2.77 ± .430	H	1.53 ± .629	L	1.43 ± .568	L
13.	Avoid or limit the amount of fat in food.	1.47 ± .681	L	2.63 ± .490	H	1.33 ± .661	L	1.30 ± .596	L
Total mean of Healthy Diet		1.66 ± 0.636	L	2.641 ± 0.468	H	1.61 ± 0.592	L	1.599 ± 0.557	L

S.D= Standard Deviation, L= Low (1.00 – 1.66); M= Moderate (1.67 – 2.33); H = High (2.34 – 3.00).

Table (4.6) displays the level of patients knowledge regarding to healthy diet for both groups which are low level in pretest of study group while high level in posttest, and still the same low level of assessment knowledge in both tests (pre- post) of control group.

Table 4.7. Knowledge of Patients Regarding to Exercises

No	Items	Study				Control			
		Pre-Test		Post-Test		Pre-Test		Post-Test	
		Mean ± S.D.	**level**	**Mean ± S.D.**	**level**	**Mean ± S.D**	**level**	**Mean ± S.D**	**level**
14.	Can move or transporting without help from others.	2.03 ± .718	M	2.93 ± .254	H	2.10 ± .759	M	2.20 ± .407	M
15.	When at rest, elevate swollen limbs.	1.63 ± .718	L	2.63 ± .615	H	1.80 ± .551	M	1.73 ± .450	M
16.	Do simple exercises (such as walking).	1.83 ± .648	M	2.90 ± .305	H	1.93 ± .640	M	1.97 ± .320	M
17.	You do fitness exercises (3-5) times a week.	1.10 ± .305	L	1.97 ± .414	M	1.17 ± .379	L	1.07 ± .254	L
Total mean of Exercises		1.648 ± 0.597	L	2.608 ± 0.397	H	1.75 ± 0.58225	M	1.743 ± 0.358	M

S.D.= Standard Deviation, L. = Low (1.00 – 1.66); M. = Moderate (1.67 – 2.33); H = High (2.34 – 3.00).

Table (4.7) shows results of knowledge of patients regarding to exercises, in pre-test low level and high level of assessment in post-test for study group while moderate level in pre-test and maintains the level of assessment (moderate) in post-test for control group.

Table (4.8) Knowledge of Patients Regarding to Monitoring

No	Items	Study				Control			
		Pre-Test		Post-Test		Pre-Test		Post-Test	
		Mean ± S.D.	**level**	Mean ± S.D.	**level**	Mean ± S.D	**level**	Mean ± S.D.	**level**
18.	Regularly measure blood pressure.	1.23 ± .568	L	1.87 ± .629	M	1.27 ± .521	L	1.30 ± .596	L
19.	Regularly blood sugar test.	1.33 ± .661	L	1.70 ± .651	M	1.10 ± .305	L	1.10 ± .305	L

20.	Regularly a plastic surgeon visited.	2.10 ± .662	M	2.70 ± .466	H	2.20 ± .484	M	2.23 ± .430	M
21.	Visit a psychiatrist when needed.	1.07 ± .365	L	1.73 ± .521	M	1.13 ± .346	L	1.10 ± .305	L
Total mean of Monitoring		1.433 ± 0.564	L	2.00 ± 0.567	M	1.425 ± 0.414	L	1.433 ± 0.409	L

S.D= Standard Deviation, L= Low (1.00 – 1.66); M= Moderate (1.67 – 2.33); H = High (2.34 – 3.00).

Table (4.8) presents the outcomes of Knowledge of patients regarding to monitoring, in study group change the assessment from low level in pre-test to moderate in post-test while low assessment in pretest also in post-test for control group**.**

Table(4.9) Knowledge of Patients Regarding to Medications

No	Items	Study				Control			
		Pre-test		Post-test		Pre-test		Post-Test	
		Mean ± S.D.	**level**	Mean ± S.D.	**level**	Mean ± S.D.	**level**	Mean ± S.D.	**level**
22	Stick to taking the correct dose of medications.	2.20 ± .610	M	2.83 ± .379	H	2.27 ± .640	M	2.30 ± .466	M
23	Avoid using prescribed medications without medical advice.	2.17 ± .592	M	2.70 ± .466	H	2.07 ± .521	M	2.10 ± .305	M
24	Notify the physician when appear side effects from taking the treatment.	2.30 ± .651	M	2.57 ± .568	H	2.17 ± .592	M	2.13 ± .434	M
Total mean of Medications		2.223 ± 0.618	M	2.7 ± 0.471	H	2.17 ± 0.584	M	2.177 ± 0.402	M

S.D.= Standard Deviation, L. = Low (1.00 – 1.66); M. = Moderate (1.67 – 2.33); H = High (2.34 – 3.00).

The results of table (4.9) show knowledge of patients regarding to medications, which moderate level of assessment in pre-test of study group before applying the instructional program and high in post-test after

implementation of instructional program, whereas moderate in pre- test in addition to post-test of control group.

Table (4.10) Knowledge of Patients Regarding to Management of Psychological Stress

No	Items	Study				Control			
		Pre-Test		Post-Test		Pre-Test		Post-Test	
		Mean ± S.D.	level	Mean ± S.D.	level	Mean ± S.D.	level	Mean ± S.D.	level
25	Get enough time to rest and sleep (sleep 7-9 hours a day).	1.73 ± .583	M	2.57 ± .679	H	1.77 ± .817	M	1.83 ± .592	M
26	Avoid situations that make you more irritable.	1.93 ± .450	M	2.83 ± .379	H	2.00 ± .587	M	2.03 ± .669	M
27	Use relaxation technique (Aerobics, meditation, music, and massage techniques) to reduce stress and anxiety.	1.10 ± .305	L	1.73 ± .450	M	1.17 ± .379	L	1.13 ± .346	L
28	Interest in communication and strengthen social relationships with friends and relatives.	1.67 ± .547	M	2.13 ± .507	M	1.60 ± .724	L	1.53 ± .507	L
Total mean of Management of psychological stress		1.608 ± 0.471	L	2.315 ± 0.503	M	1.635 ± 0.627	L	1.63 ± 0.529	L

S.D.= Standard Deviation, L = Low (1.00 – 1.66); M = Moderate (1.67 – 2.33); H = High (2.34 – 3.00).

The results of table (4.10) shows knowledge of patient about management of psychological stress for both groups (control and study) in pre-test are low in both groups while in post-test of study group are moderate and low assessment level in post-test for control group.

Table 4.11 Knowledge of Patients Regarding to Personal Hygiene

No	Items	Study				Control			
		Pre-Test		Post-Test		Pre-Test		Post-Test	
		Mean ± S.D.	level	Mean ± S.D.	level	Mean ± S.D.	level	Mean ± S.D.	level
29.	Can take bath without help.	1.40 ± .563	L	2.60 ± .621	H	1.63 ± .765	L	187 ± .507	M
30.	Depend on yourself when using the toilet.	1.80 ± .805	M	2.77 ± .430	H	1.83 ± .791	M	2.00 ± .455	M
31.	Get dressed completely without help.	1.27 ± .521	L	2.60 ± .563	H	1.33 ± .547	L	1.67 ± .547	M
32.	Dress up without help (style, hair, nails, hands, face and clothes).	1.23 ± .504	L	2.50 ± .498	H	1.43 ± .626	L	1.63 ± .490	L
33.	Take care in dental hygiene.	1.77 ± .679	M	2.97 ± .183	H	1.80 ± .610	M	1.83 ± .461	M
34.	Use soft, clean towels to avoid skin scratches.	2.20 ± .484	M	2.80 ± .407	H	2.27 ± .521	M	2.27 ± .583	M
Total mean of Personal Hygiene		1.612 ± 0.593	L	2.707 ± 0.452	H	1.715 ± 0.643	M	1.878 ± 0.507	M

S.D.= Standard Deviation, L. = Low (1.00 – 1.66); M. = Moderate (1.67 – 2.33); H = High (2.34 – 3.00).

The table (4.11) shows results regarding to personal hygiene which in pre-test are low assessment in study groups and in post-test are high of study group, whereas in pre-test also in post-test of control group are moderate level of assessment.

Table (4.12) knowledge of patients regarding to Body Safety

No	Items	Study				Control			
		Pre-Test		Post-Test		Pre-Test		Post-Test	
		Mean ± S.D.	level	Mean ± S.D.	level	Mean ± S.D.	level	Mean ± S.D.	level
35	Wear sunscreen to protect burn-prone skin from the sun, such as light-colored clothing, long pants, and long-sleeved shirts.	1.97 ± .556	M	2.80 ± .407	H	1.93 ± .450	M	1.97 ± .414	M
36	Avoid tight clothing over burned areas.	2.00 ± .587	M	2.87 ± .346	H	1.90 ± .481	M	1.97 ± .414	M
37	Avoid sitting near a heat source (heating).	1.97 ± .718	M	2.73 ± .450	H	1.83 ± .592	M	1.80 ± .551	M
38	Taking care of new skin because it is sensitive to extreme heat or cold and can be easily injured.	2.20 ± .551	M	2.80 ± .407	H	2.20 ± .484	M	2.23 ± .430	M
39	Avoid contact with sick people to avoid transmission of infection.	1.57 ± .568	L	2.40 ± .675	H	1.50 ± .630	L	1.40 ± .498	L
40	Avoid falls and accidents.	2.07 ± .521	M	2.63 ± .490	H	2.07 ± .583	M	2.10 ± .548	M
Total mean of Body Safety		1.963 ± 0.584	M	2.705 ± 0.463	H	1.905 ± 0.537	M	1.912 ± 0.479	M

S.D.= Standard Deviation, L= Low (1.00 – 1.66); M= Moderate (1.67 – 2.33); H = High (2.34 – 3.00).

The table (4.12) shows the results about body safety are moderate assessment in pre-test of study, pre-test and post-test of control group while high assessment level in post-test of study group.

Table (4.13) Comparison the Significance of Total Patients Knowledge Related to Self-Care for Patients with Burns Between Study and Control Groups.

Group	Pre-Test			Post-Test		
	N	Mean	Std. Deviation	N	Mean	Std. Deviation
Study	30	1.7795	0.3698	30	2.5832	0.3406
Control	30	1.7835	0.3703	30	1.8078	0.380
t-test	-.244			21.011		
P-value	0.808			0.00001		
Sig.	**NS**			**HS**		

N =Number ,Std= Stander, Sig= Significant, NS=Non Significant and HS=High Significant

As shown in this table (4.13), there are no significant differences between both groups (study and control) at pre-test. While high significant between the total knowledge of participants related to self-care for patients with burns in the study group and control group in the post-test, at p -value ≤ 0.05.

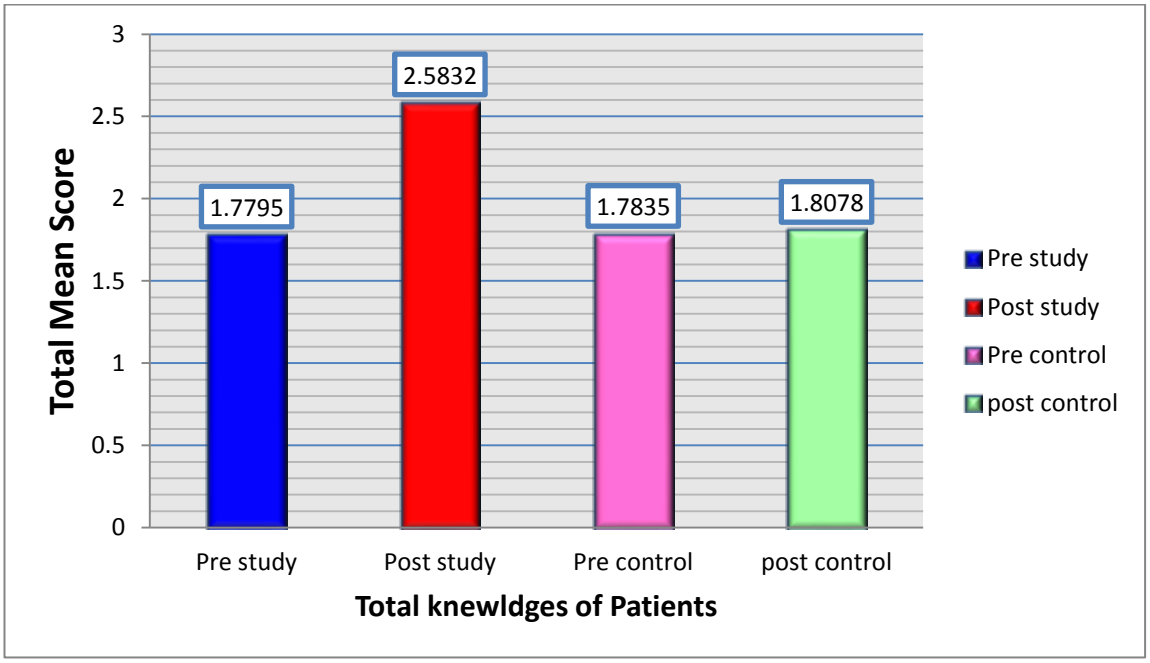


Figure (4.1) shows the overall of both groups knowledge related to self-care for patients with burns.

Table (4.14) Comparison the Significance of Total Patients Knowledge Related to Self-Care for Patients with Burns for Study Groups (pre-test and post-test).

Group	Pre-Test			Post-Test		
	N	Mean	Std. Deviation	N	Mean	Std. Deviation
Study	30	1.7795	0.3698	30	2.5832	0.3406
t-test	30.305					
P-value	0.00001					
Sig.	**HS**					

N =Number ,Std= Stander, Sig= Significant and HS=High Significant

As shown in this table (4.14), there is high significant differences between pre-test and post-test for study groups after applying the instruction program at p -value ≤ 0.05.

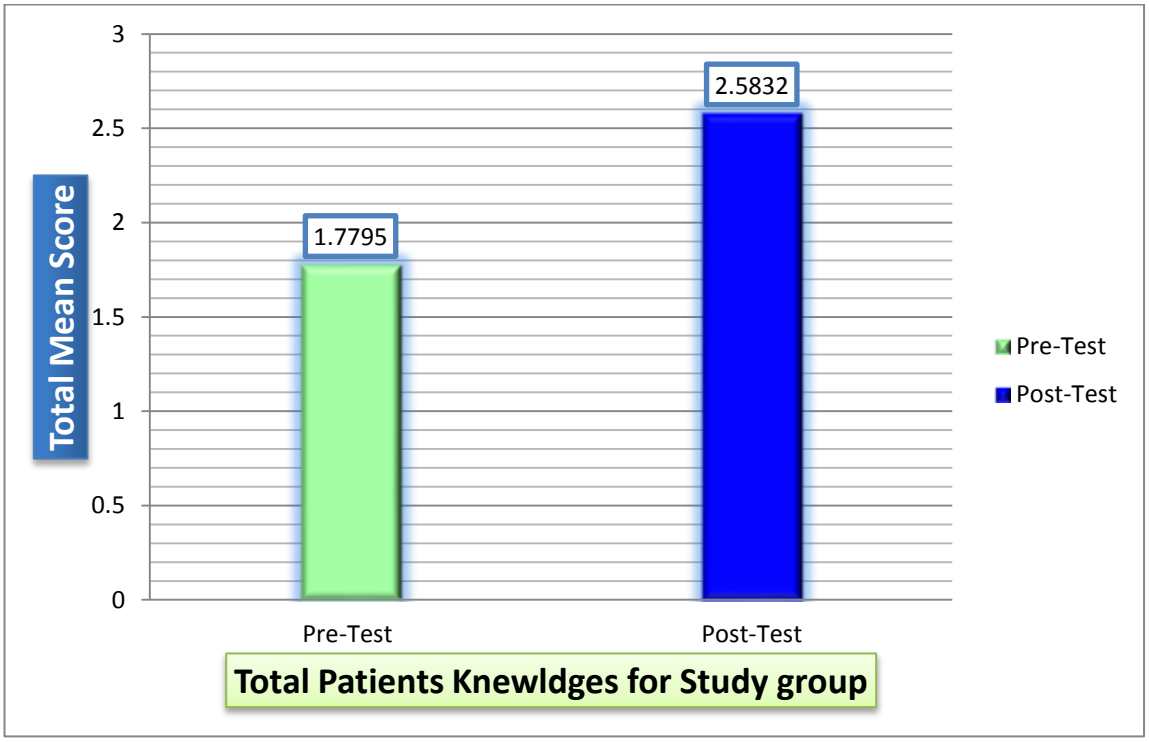


Figure (4.2) shows total patients knowledge related to self-care for patients with burns for study groups.

Table (4.15) Comparison the Significance of Total Mean Score of Patients Knowledge Related to Self-Care for Patients with Burns Between Pretest and Posttest for Control Groups.

Group	Pre-Test			Post-Test		
	N	Mean	Std. Deviation	N	Mean	Std. Deviation
Control	**30**	**1.7835**	**0.370**	**30**	**1.8078**	**0.380**
t-test	-1.704					
P-value	0.096					
Sig.	**NS**					

N =Number, Std= Stander, P. value= Probability value, Sig= Significant, and NS=Non-Significant.

As shown in this table (4.15) there is no significant differences between the total participants knowledge related to self-care for patients with burns between both tests (pre and post) in control group at $p \leq 0.05$.

Table (4.16) Association Between Patients Specific Variables and Self-Care Knowledge of the Study Group.

Specific Variables	Chi-Square Value	df	P- Value	Sig
Gender	6.371	1	0.702	NS
Age Groups	38.665	4	.350	NS
Marital Status	26.827	4	.473	NS
Educational Levels	33.817	5	.573	NS
Residence	6.371	1	.702	NS
Occupation	21.002	4	.786	NS
Length of Hospital Stay	25.642	3	.539	NS
Degree of Burn	15.135	2	.653	NS
Cause of Burn	32.723	5	.206	NS
Total Body Surface Area	17.667	2	.478	NS

df= Degree Of Freedom, P. value= Probability value, Sig= Significant, and NS=Non-Significant.

Table (4.15) shows there is no association between patients specific variables as (sex, age, marital status, education level, residence, occupation, length of hospital stay, degree of burn, causes of burn and total body surface area) with self-care knowledge of the study group at $p \leq 0.05$.

CHAPTER FIVE

DISCUSSIONS

5. Discussions of the Results

Chapter five presents interpretation and discussion of results obtained from the current study with regard to objectives of study and supported by available literature and related studies.

5.1. Discussion of Demographic of patients with burns as shown in Table (4.1):

Throughout the course of the data analysis of the present study, the findings show that more than half of study group are males while a slightly less than that in the control group.

This findings agree with the study done by Agbenorku *et al.,* (2017) their found (53%) from admitted patients were males also agree with Abo El Ata *et al.,* (2021) who found that most of patients were males (63%).

Related to the natural lifestyle of males, where they need to hard work for long time or take on more responsibilities from females so many factors interacting together lead to males become more susceptible to burns.

Less than half patients are within age group (18-27) years for both groups of study. This result agree with the study that done by Liliane *et al.,*(2016) most frequent patients those suffering from burns between (20 to 30) years old also support by other study which done by Abo El Ata, *et al.,* (2021) who found most of patients within age group more than twenty and less than thirty years old. Also support by other study which done by Hadi and Mohammad (2021)who found most of burns patients were within age group of (20-29) years old.

Its concluded that many factors related to these age group as more activities, the beginning of establishment the future and requirements of life increase in these age as (choose the job, buy car, build house, or choosing the wife) so more activities and ambitious may lead to become confused

and don't concentration to protection procedures and use of protection equipment.

Majority of study sample are married in the both study groups. This result is consistent with the findings that found by Heydarikhayat *et al.*, (2018) which reveals that the majority of sample (62%) are married. And Tehranineshat *et al.,* (2020) who mentioned in their study that most of the patients were married (64.9%). And also supported by other study carried out by Magbool *et al.,* (2021), which indicates that more than two third of burns patients were married.

From point of view married person may expose to economical and social stress more than single person which may increase the chance to expose to burn.

Forty percentage of study group are graduated from primary school, while close to that in control group. This result support by the study carry out by Abo El-Ata *et al.,* (2021) show their results (47.9%) of study sample have basic education.

It can be analyzed that the person with primary educational level may have less awareness to use or follow preventive measures with increasing stress levels in their lives, many studies refer that there is correlation between low education level with stress also stress with injures so according to these correlation it can be concluded that person with low level of education have more possibility to suffer from burn injury.

More than half a participants their residence is rural for both groups. This finding similar for result obtained by Abd Elalem *et al.*, (2018) which they fund (58.8)of patients live in rural.

For this reason people that live in rural area more use to oil derivatives in lifestyle to become more possible to burn accidental from urban area.

Less than one third of those patients in study group their occupation as free work, while third of patients in control group their work as free work. This study confirms during the study done by Abo El-Ata *et al.*, (2021) who found most of patients their occupations are manual work (41.1%).

Therefore, self-employment in different places, as chefs in restaurants, bakers, cafes, and car maintenance workshops may be exposed to burns more than other professions, because the nature of their work is different, in addition to the difference in their interest and priorities in safety principles among them.

5. 2 Clinical information as shown in table (4.2):

The findings of the present study revealed the sixty percentage of patients have length of hospital stay (12-15) days in study group and near of that in control group.

The present study agree with Agbenorku *et al.*, (2017) they found (67.1%) of patients the length of hospital more than (10) days. Also the study of Lotfi *et al.*, (2018) where the their study show in control group were (13.45) days the length of hospital and (18.03) days in study group.

It can be revealed that this period of patients to become more stable and decrease the risk of complications and could be do the self-care independently.

The results of degree burns in this study are more than half percent of participants have third degree of burns in study group, while near of that of participants have the same degree of burns in control group. These results agree with study carried out by Klifto *et al.*, (2020) which were (58%) of participants suffer from the third degree.

For this reason the third degree need to intensive medical care and had more complications reach to life threatening so necessary to admission

to burns center to care for their wounds also to instruct the patient about self-care.

The current study shows a majority cause of burn is flame for participants in study group also in control group. The finding is similar to results obtained from the study done by Dongo *et al.*,(2007) the commonest causes of burns were flame (61%). Other study support the current study done by Abd Elalem *et al.*, (2018) showed the flame was the major cause of burn. Also line with the study which done by Jeschke *et al.*, (2020) who found the majority cause of burns in the USA is flame.

As point of view, the gas leakage in kitchens, use of oil in heating sources, use of gasoline in car and generator maintenance workshops, the storage of gasoline in homes and shops, in addition to the use of other highly flammable oil derivatives, all these reasons make flame the most common cause of burns in adults.

The study shows that half of patients in study group are within (20-29%) of total body surface area, and less than that of patients in control group.

These results are supported by Magbool *et al.*, (2021),who found in their study the most of patients with burns within (20-29 %) of total body surface area.

Perhaps because of the area of the burned within (20-29%), it is critical and requires care, follow-up, and rehabilitation and long time to return the patient to his normal condition as much as possible.

5.3 Regarding the place of Burn area as shown in table (4.3):

Right and left side of upper limbs are more effect by burns form others parts of body.

This study agree with results which done by Shahid *et al.*, (2018) where refer to (42.8 %) of patients were suffer from right arm and (35.6%)

left arm. Also agree with Taheri *et al.*,(2018) who mention in their study (35.4%) suffer from upper limbs.

Because usually use of upper limbs in many work, kitchen or the body reflex when the someone feel in the fire use upper limbs to put out it or take off his clothes.

5.4. Regarding to history of diseases as shown in table (4.4):

The results of this table shows (13.3%) of participants suffer from Diabetes Mellitus in both groups which it more than others history of diseases among the participants of study.

This result support by Kirkland *et al.,* (2022) which refer to about (12%) of the population have Diabetes Mellitus.

There is no relationship between the history of diseases with burn. Therefore the Diabetes Mellitus in burn patients within normal incidence according to WHO. So no evidence of history of diseases to increase the incidence in burn patients.

5.5 Related to wound care

The table (4.5) demonstrates results of total mean of knowledge items related to wound care in pre and post-test for each group, where the results show improve the knowledge from moderate to high level in study group on the other hand the same of mean knowledge items are moderate level in both tests (pre and post) in the control groups.

These results correspond with results of study which done by O'Brien *et al.*,(2011) where was a statistically significant improvement wounds healed when use guidelines for wound care.

The study group exposed to instructional program and simulate to improvement their knowledge by explain about important use of painkillers before cleaning the wound, examine the wounds, important of remove the topical medications and damage tissue and sterilize the wound. So these instructions modification their knowledge about self-care wound.

5.6 Related to Healthy Diet

The table (4.6) shows the average of score for general patients knowledge about healthy diet which indicate a clearly significant change in the post-test for the study group while there is no change between the control groups in the both tests.

This study consistent with the study which done by Abd Elalem *et al.,* (2018) where their found use the proper nutrition and diet for burn patients were effective by applying the self-care nursing intervention model.

Following healthy diet is important to improve the patient health condition after a burn because the body needs to build new tissues and protein to heal the burn wound, so a healthy diet is an essential component in management of burns as it speeds up the healing process.

5.7 Regarding to Exercises

The table (4.7) presents the statistical analysis of patients regarding to exercises where the level of assessment improve in post-test for study group while maintain the same level of assessment when comparing between the pre-test and post-test for control group. This results agree with the study done by Najafi *et al.*, (2018) which found the program of exercises improves the autonomy of burn patients.

The exercises play important role after burn because decrease the activates or immobility and damage of burn for muscles makes it weak, as well as joints stiffness and pain, all of them indications to start early exercises as soon as possible (as walking and smile exercises in bed as movements of hands or toes) and gradually, in addition to continues it for long time even the patient return to home or adaptation to new situation after burn.

5.8 Knowledge of Patients Regarding to Monitoring

The findings of the research in table (4.8) appear the total knowledge of patients regarding to monitoring, there is no different in level of assessment between two groups in pre-test, whereas improve level of assessment after applying the instructional program in post-test of study group when compare with control group.

Breland *et al.,* (2013) support the current study where mentioned the efficacy of self-monitoring of blood glucose was improving glycemic control. Also agree with Odom *et al.,*(2019) use new technologies program to provide remote monitoring for participants to improve their knowledge of self-care and experience to improve glycemic control.

After burn some changes can occur because the burn itself or because the complications which possible occur, so monitoring the blood sugar, blood pressure, regular plastic surgeon and psychiatrist visit will improve the general condition for patient and early detect for any complication from burn or treatment of burn and proper management for contractures or scars which can occur after burn.

5.9 Regarding to Knowledge of Patients about Medications

Table (4.9) presents the statistical analysis regarding to knowledge of patients about medications which moderate level of assessment in pre-test of study group and high in post-test, whereas moderate in pre-test, in addition to post-test for control group.

These findings agree with Abd Elalem *et al.,*(2018) their findings were statistically significant improvement of self-care knowledge about effective and proper use of medications after implementing self-care model.

5.10 Related to Management of Psychological Stress

The findings of (4.10) the present study revealed the low level of assessment knowledge of patient about management of psychological stress

for both groups (control and study) in pre-test while improve level of assessment when compare between post-tests for both groups where become moderate level of study group after what were low assessment and the still level of assessment are low for control group.

This study in line with the study conducted by study which done by Heydarikhayat *et al.*,(2018) psychological status was improved by application the follow-up patients with burns after hospital discharge. In addition to Tehranineshat *et al.,* (2020) their results indicate that management and coping with difficulties or problems play important roles in improving their health.

Training skills on stress management and dealing with stress to avoid or decreased it also to improve the quality of life, adaptation of the home environment and emotional adjustment to injury after burns.

5.11 Regarding to Personal Hygiene

The table (4.11) shows results of personal hygiene which are low assessment level in pre-test and improve the level of assessment after use instructional program to high in post-test for study group, on other hand no enhance in level of knowledge patients in pre-test and too in post-test of control group (moderate level).

This study line with study done by Mattson *et al.,* (2016) their found the effective interventions and direct participants in learning and maintaining on personal hygiene can play a role in enhance health promotion, decrease incidence of disease, increase socialization and merging with the environment.

Personal hygiene is important not only for patient but also for everyone, especially for burn patients. Therefore, it plays a major role in reducing and controlling infection. It also has a role in improving healing, self-care, and returning to normal life or close to that as soon as possible.

5.12 Regarding to Body Safety

The table (4.12) displays the better changes of findings between the patients knowledge related to (body safety) after implementation of the program, from moderate to high level, these results fulfill the research objectives in the study group. On the other hand the control group are not exposed to the instructional program so they keep the same moderate level of the knowledge regarding to body safety.

The current study is in line with the study by Mehta *et al.*, (2014) this study emphasizes that standard precautions should be followed to prevent transmission of infection to burn patients. Also supported by another study done by Lanham *et al.*, (2020) wearing protective clothing during the day with long sleeves, long pants, using sunscreen to avoid ultraviolet and also to avoid using heaters and candles, all these interventions maintain the body safety for burn patient.

The new skin needs a long time to return to its normal characteristics, and during this period the skin is more sensitive to heat and cold, and it is easy to get injured and change the color of the skin. Infection control also contributes to protecting the patient from transmission of infections through contact with sick people. The body safety after burns is important and more instructional information is needed to achieve the goal of it.

5.13 Related to Total Means Score of Patients Knowledge for Study and Control Groups

This table (4.13) explain the total means score of knowledge between (study and control) groups in pre-test where P-value (0.808) that refer to there is no significant difference between them, whereas present high significant (0.00001) improvement in the knowledge of the patients after implementation of the instructional program for study group when compared with control group in post-test.

There results supported by Magbool *et al.,* (2021) their reported there were non-significant statistical difference between pre study test and pre control test in all domains while highly significant statistical after application of self-care education when compare between (post study test and post control test).

Implementing of instructional program make improves knowledge among patients so they become aware of the things that benefit them and the things that they should avoid. While the control group may obtain knowledge by chance or through discussion or search with anyone close or through social media, but it is not as perfect as those who have an instructional program, so they are still at a different level of knowledge when compared between them.

5.14 Related to Comparison between Total Means Score of Patients Knowledge for Study Groups in Both Tests

Table (4.14) presents there is high significance when compare between total mean score of patients knowledge in pre-test and post-test of study groups after applying instructional program on self-care.

This results support by Hashemi *et al.,* (2014) their found high significant for application of self-care program on burns patients.

For this reason instructing and training patients on how to take care of themselves and motivating them to follow the application of the program "wound care, healthy diet, exercise, monitoring, medication, management for stress and body safety," and communicates with patients over the phone and other social media to talk about any self-care queries.

5.15 Related to Comparison between Control Groups in Both Tests

Table (4.15) comparison patients total mean score of knowledge related to self-care between pretest and posttest for control groups which there is no significance between two groups in both tests.

This outcomes consistent with the outcomes by Hashemi *et al.*, (2014) where they found no significant changes were observed in the self-care for patient who did not undergo the self-care program.

Not much change happens to patients without educating them and they can maintain the same level of assessment or make some adjustments to care on their own, because no add new information to patient by training and instruction by participating in like this program.

5.16 Related to Relationship between Selected Variables with Their Overall Knowledge

This table (4.16) show the statistical analysis of patients regarding to relationship between selected variables as (sex, age, marital status, education level, residence, occupation, length of hospital stay, degree of burn, cause of burn, and TBSA) with their overall knowledge in the study group, there is no association between each variables with total knowledge of patients at p-value ≤ 0.05.

The present study is agreement with the findings of study by Kazemzadeh (2019) was indicate no significant association between variables as (age, monthly income and education level) with quality of life for patients with burn. Also with the findings of Lotfi *et al.*, (2018) findings of their study showed that there is no significant relationship between self-care and hospital stay.

It is interested in the delivery of information in a simple and logic access to the patients, so that all information is accessible to all age group, taking into consideration all levels of culture and education of all patients in the study group. So there is no difference between age groups, level of education and other variables in getting knowledge and the instructional intervention is effective in improving the patients knowledge.

Generally, the current study outcomes clarify the significant effectiveness of instructional program on self-care for patients with burns, these results support the hypothesis of the study.

CHAPTER SIX
CONCLUSIONS & RECOMENDATIONS

Chapter Six

Conclusions and Recommendations

6.1. Conclusions:

Based on the study results, the researcher has come to the following conclusions:

Most of the study samples are males, within age group (18-27) years, married, graduated from primary school, rural residents are more vulnerable to burn, compared with urban residents, and free works.

Most of study samples are the length of hospital stay within (12-15) days, suffer from third degree, the cause of burn is flame, and total body surface area within 21-30%.

Most of study samples suffer from upper limbs burns.

The majority of the sample had poor knowledge about self-care for patients with burns before the instructional program and improvement the knowledge of patients after application the instructional program while no change in knowledge of patients in the pre-test and post-test for control groups.

Instructional program is effective and improve the knowledge of patients regarding to self-care for patients with burns after application of self- care instructional program in study group for all domains as shown in the post test

There is no significant relation between patients with specific variables as (sex, age, marital status, education level, residence, occupation, length of hospital stay, degree of burn, causes of burn and total body surface area) with their overall knowledge in the study group.

6.2. Recommendations:

1. Self-care instructional program may established in burn unit or out patients, which may improve patients education to maintain their health and enhance their quality of life.
2. Nurses play a unique role when they act as teachers or educators in the burn units to improve patients self-care, which can be started as group sessions or by individual session, written instruction can be used also.
3. Supporting civil society institutions for burn survivors to rehabilitate them and to integrate them with society.

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Appendices

*(*Appendix A)

[Panel of Experts]

قائمة بأسماء الخبراء

ت	الاسم الثلاثي	اللقب	الاختصاص	مكان العمل	سنوات الخبرة
١	د. أمين عجيل الياسري	استاذ	تمريض صحة الاسرة والمجتمع	جامعة بابل/ كلية التمريض	٣٨
٢	د. سلمى كاظم جهاد	استاذ	تمريض صحة الاسرة والمجتمع	جامعة بابل/ كلية التمريض	٣٨
٣	د. نهاد محمد الدوري	استاذ	تمريض اطفال	جامعة بابل/ كلية التمريض	٣٥
٤	د. سحر ادهم علي	استاذ	تمريض البالغين	جامعة بابل/ كلية التمريض	٢٧
٥	د. حسين هادي عطية	استاذ	تمريض البالغين	جامعة بغداد/كلية التمريض	١٩
٦	د. ابراهيم علوان كاظم	استاذ مساعد	تمريض البالغين	جامعة كوفة/ كلية التمريض	١٧
٧	د. محمد عبد الكريم	استاذ مساعد	تمريض البالغين	جامعة كوفة/ كلية التمريض	١٤
٨	د. صادق عبد الحسين حسن	استاذ مساعد	تمريض البالغين	جامعة بغداد/كلية التمريض	١٣
٩	جهاد جواد كاظم	استاذ مساعد	تمريض البالغين	جامعة كوفة/ كلية التمريض	١١
١٠	د. احمد فخري عبيد	طبيب اختصاص	جراحة تجميلية	دائرة صحة بابل/ مستشفى الامام الصادق ع	١١

(Appendix B)

جامعة بابل
كلية التمريض
لجنة اخلاقيات البحث العلمي

University of Babylon
College of Nursing
Research Ethics Committee

Issue No:

Date: / /2022

Approval Letter

To,

Wisam Hadi Mahdi

The Research Ethics committee at the **University of Babylon, College of Nursing** has reviewed and discussed your application to conduct the research study entitled " **Effectiveness of Instructional Program on Self-Care for Patients' with Burns at Al – Imam Sadiq Teaching Hospital**"

The Following documents have been reviewed and approved:

1. Research protocol
2. Research instrument/s
3. Participant informed consent

Committee Decision.

The committee approves the study to be conducted in the presented form. The Research Ethics committee expects to be informed about any changes occurring during the study, any revision in the protocol and participant informed consent.

Prof. Dr. Salma K. Jehad
Chair Committee
College of Nursing
Research Ethical Committee
6 /9/2022

(Appendix C)

Ministry of Higher Education and Scientific Research

وزارة التعليم العالي والبحث العلمي

University of Babylon
College of Nursing

جامعة بابل
كلية التمريض
لجنة الدراسات العليا

Ref. No.:
Date: / /

العدد: ٥٦٥٢
التاريخ: ٢٠٢٢/٩/٢١

الى / دائرة صحة بابل/ مستشفى الامام الصادق التعليمي(ع)
م/ تسهيل مهمة

تحية طيبة :

يطيب لنا حسن التواصل معكم يرجى تفضلكم بتسهيل مهمة طالب الدكتوراه (وسام هادي مهدي) لغرض جمع عينة دراسة الدكتوراه والخاصة بالبحث الموسوم :

(فاعلية البرنامج الارشادي على الرعاية الذاتية لمرضى الحروق في مستشفى الامام الصادق التعليمي)

Effectiveness of Instructional program on self-care for patients' with burns at AL-Imam sadiq teaching hospital.

مع الاحترام ...

المرفقات //
- بروتوكول .
- استبانة

ا. د. نهاد محمد قاسم الدوري
معاون العميد للشؤون العلمية والدراسات العليا
٢٠٢٢/٩/٢١

صورة عنه الى //
- مكتب السيد العميد للتفضل بالاطلاع مع الاحترام .
- لجنة الدراسات العليا
- الصادرة .

E-mail:nursing@uobabylon.edu.iq

STARS

وطني 07711632208
المكتب 009647711632208

www.uobabylon.edu.iq

(Appendix D)

جمهورية العراق

Ministry Of Health Babylon Health Directorate Email:- Babel_Healthmoh@yahoo.com لأجل عراق اخضر مستدام ..سنعمل معا لترشيد استهلاك الطاقة الكهربائية والمحافظة على البيئة من التلوث		وزارة الصحة دائرة صحة محافظة بابـــل المديـــر العـــام مركـــز التدريب والتنمية البشرية وحدة أدارة البحوث العدد : ١٢٨٠ التاريخ: ٢٢/ ٩ /٢٠٢٢

إلى / مستشفى الأمام الصادق (ع)
مستشفى الحلة التعليمي

م// تسهيل مهمة

تحية طيبة ...

أشارة إلى كتاب جامعة بابل / كلية التمريض /لجنة الدراسات العليا ذي العدد ٣١٥٥ في ٢٠٢٢/٩/٢١

نرفق لكم ربطا استمارات الموافقة المبدنية لمشروع البحث العائد للباحث طالب الدراسات العليا / الدكتوراه (وسام هادي مهدي).

للتفضل بالاطلاع وتسهيل مهمة المومأ اليه من خلال توقيع وختم استمارات أجراء البحث المرفقة في مؤسساتكم وحسب الضوابط والإمكانات لاستحصال الموافقة المبدنية ليتسنى لنا أجراء اللازم على أن لا تتحمل مؤسساتكم أية تبعات مادية وقانونية .... مع الاحترام

المرفقات :
استمارة عدد /٢

وزارة الصحة
دائرة صحة بابل
مركز التدريب والتنمية البشرية

الدكتور
محمد عبد الله عجرش
مدير مركز التدريب والتنمية البشرية
/ /٢٠٢٢

نسخة منه إلى :
- مركز التدريب والتنمية البشرية / وحدة أدارة البحوث مع الأوليات ...

سوزان ٢٢/٩

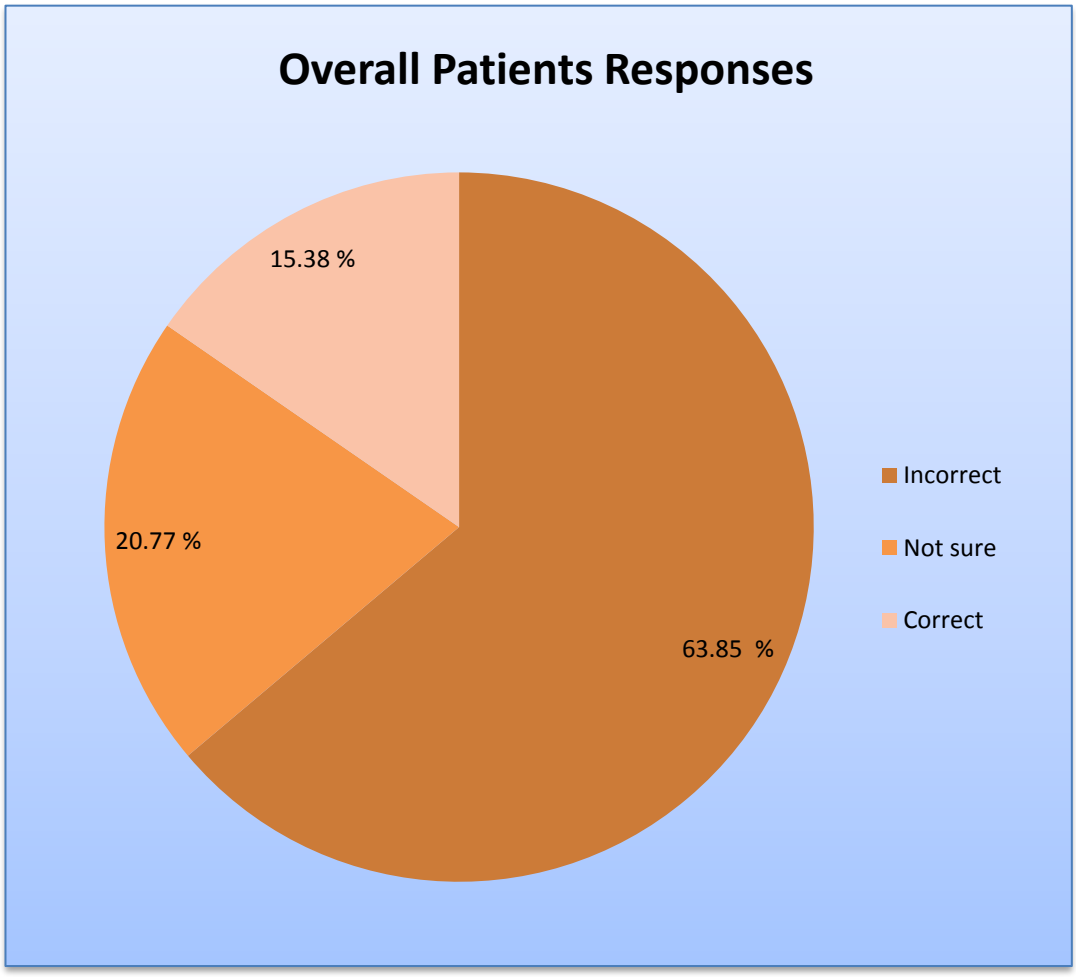
Appendix E

"Statistical Results of the Assessment Needs"

No	*Variable*	*Groups*	*Freq.*	*%*
1.	Can move or transporting without help from others	Incorrect	2	20
		Not sure	3	30
		Correct	5	50
		Total	10	100
No	*Variable*	*Groups*	*Freq.*	*%*
2.	Depend on yourself when using the toilet	Incorrect	2	20
		Not sure	3	30
		Correct	5	50
		Total	10	100
No	*Variable*	*Groups*	*Freq.*	*%*
3.	Can take bath without help	Incorrect	10	100
		Not sure	0	0
		Correct	0	0
		Total	10	100
No	*Variable*	*Groups*	*Freq.*	*%*
4.	Get dressed completely without help	Incorrect	7	70
		Not sure	3	30
		Correct	0	0
		Total	10	100
No	*Variable*	*Groups*	*Freq.*	*%*
5.	Can do breathing and coughing exercises	Incorrect	2	20
		Not sure	5	50
		Correct	3	30
		Total	10	100
No	*Variable*	*Groups*	*Freq.*	*%*
6.	Do simple exercises (such as walking)	Incorrect	5	50
		Not sure	3	30
		Correct	2	20
		Total	10	100

No	*Variable*	*Groups*	*Freq.*	*%*
7.	Drink 8 glasses of water and fluids daily	Incorrect	10	100
		Not sure	0	0
		Correct	0	0
		Total	10	100
No	*Variable*	*Groups*	*Freq.*	*%*
8.	Eat small, frequent (5-6) meals per day	Incorrect	10	100
		Not sure	0	0
		Correct	0	0
		Total	10	100
No	*Variable*	*Groups*	*Freq.*	*%*
9.	Eat white meat (chicken and fish) instead of red meat	Incorrect	7	70
		Not sure	3	30
		Correct	0	0
		Total	*10*	*100*
No	*Variable*	*Groups*	*Freq.*	*%*
10.	Use relaxation technique to reduce stress and anxiety	Incorrect	10	100
		Not sure	0	0
		Correct	0	0
		Total	*10*	*100*
No	*Variable*	*Groups*	*Freq.*	*%*
11.	Take care in dental hygiene	Incorrect	8	80
		Not sure	2	20
		Correct	0	0
		Total	10	100
No	*Variable*	*Groups*	*Freq.*	*%*
12.	Able to communicate with others	Incorrect	4	40
		Not sure	3	30
		Correct	3	30
		Total	10	100
No	*Variable*	*Groups*	*Freq.*	*%*
13.	Get enough time to rest and sleep (sleep 7-9 hours a day)	Incorrect	6	60
		Not sure	2	20
		Correct	2	20
		Total	10	100

Overall patients responses	Rating	Frequency	Percent
	Incorrect	83	63.85
	Not sure	27	20.77
	Correct	20	15.38
	Total	130	100.0



Distribution of overall patients responses to assessment their needs

Appendix F

البرنامج الإرشادي على الرعاية الذاتية لمرضى الحروق

الحروق

الحروق: هي السبب الرئيسي للوفيات والعجز في جميع أنحاء العالم لأنها تعتبر تجربة مؤلمة ولها تأثير سلبي على الجوانب الجسدية والعاطفية والاجتماعية ونوعية الحياة (Abd Elalem *et al.*, 2018).

اسباب الحروق

١. الحروق الحرارية

أ. اللهب

ب. الحرق بالماء الحار.

ت. الحروق التلامس مع الأسطح الساخنة.

٢. الحروق بالكهرباء.

٣. الحروق الكيميائية.

٤. الحروق بالإشعاع.

٥. الحروق عن طريق الاحتكاك (Greenhalgh 2016 : Yin 2017).

درجات الحروق

١.حروق الدرجة الأولى: هي إصابات سطحية تصيب الطبقة الخارجية من الجلد فقط وتسمى الحروق حمامية، مثل حروق الشمس أو الحرق السطحي (Huckfeldt *et al.*, 2017) .

٢. حروق الدرجة الثانية: تشمل حروق البشرة بأكملها وأجزاء مختلفة من الأدمة وإنها مؤلمة وترتبط عادةً بتكوين البثور(Noorbakhsh *et al.*, 2021) .

٣. حروق الدرجة الثالثة: تشمل حرق كاملًا للبشرة والأدمة، وفي بعض الحالات تلف الأنسجة التي تحت الادمة. ويتراوح لون الجرح بشكل كبير من الأبيض الباهت إلى الأحمر أو البني أو المتفحم (Hinkle & Cheever 2018).

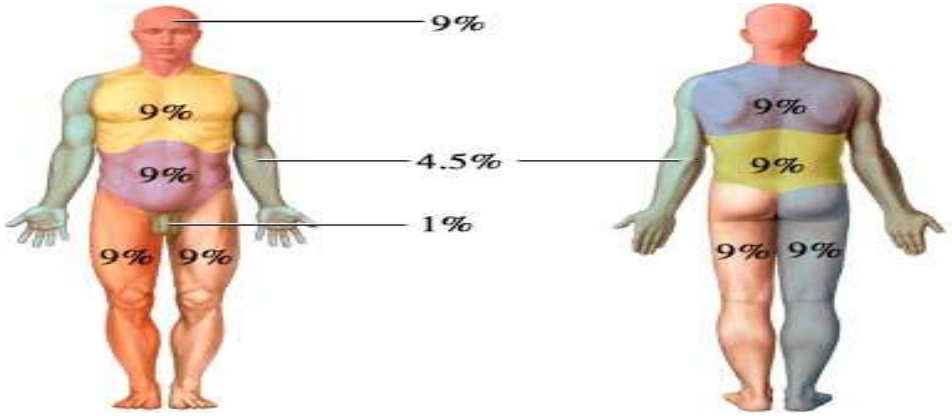
٤. حروق الدرجة الرابعة: هي تلك الإصابات الممتدة الى الأنسجة العميقة أو العضلات او العظام(الحروق النخر العميقة) (Jeschke 2013) .

مساحة الجسم المتأثرة بالحروق

تستخدم طرق مختلفة لتقدير مساحة سطح الجسم المتأثرة بالحروق، مثل: قاعدة التسعة وطريقة لوند وبراودر وطريقة بالمر(Hinkle & Cheever 2018).

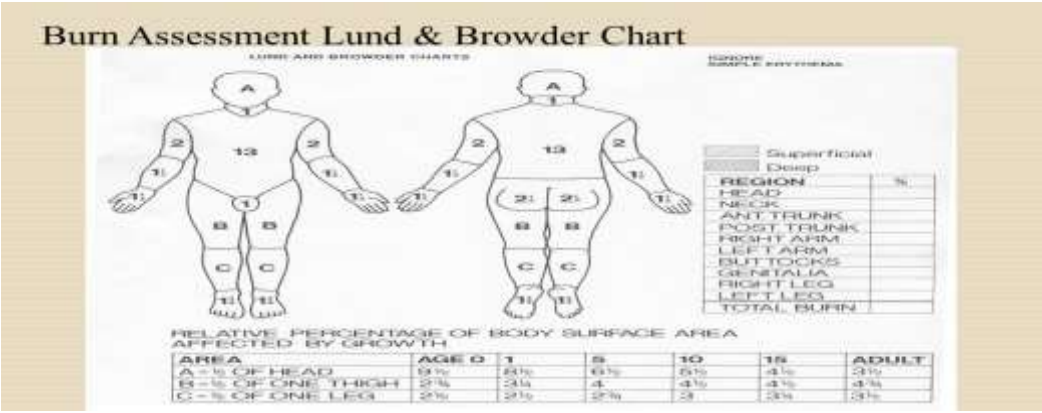
١.قاعدة التسعة (لوالس)

و هي الطريقة الأكثر شيوعًا المستخدمة لتقدير مدى الحروق عند البالغين. ويعتمد هذا النظام على المناطق التشريحية ، كل منها يمثل حوالي (٩٪) من مساحة سطح الجسم (Hinkle & Cheever 2018).



٢.مخطط لوند وبراودر

يعد مخطط لوند وبراودر أحد أكثر الطرق شيوعًا لتقييم منطقة الحرق. يأخذ في الاعتبار تباين مساحة سطح الجسم مع النمو ويمكن استخدامه لكل من البالغين والأطفال (Murari and Singh 2019) .



٣.طريقة بالمر

هي إحدى الطرق البسيطة لتقدير مساحة الحرق في اعتبار راحة يد المريض بأصابع مغلقة تمثل حوالي (١٪) من مساحة سطح الجسم. و إنها طريقة فعالة لتقدير مساحة الحروق الصغيرة (<١٥٪) أو الحروق الكبيرة (> ٨٥٪)، يمكن حساب المنطقة المحترقة بسرعة عن طريق تقدير مساحة الجلد غير المصاب وطرحها من (١٠٠) (Borhani *et al.*, 2017).

رعاية ذاتية

الرعاية الذاتية تعني محافظة الفرد على صحته الشخصية. فهي أي نشاط من فرد أو أسرة أو مجتمع بنية تحسين الصحة واستعادتها أو معالجة المرض أو الوقاية منه (Riegel *et al.*, 2021).

الغرض من الرعاية الذاتية

هو العناية الذاتية المدروسة حول مبادئ التغذية المناسبة والنظام الغذائي، واستخدام الأدوية، والعناية بالآلام عن طريق الادوية او من خلال الطرق الغير الدوائية، والجروح والجلد المحروق، والتضميد، وطرق التعويض عن العجز والتكييف لدرجة الحرارة والتمارين والعلاج الطبيعي، والتغيرات في المشاعر حول الصورة الذاتية، وطرق التشجيع على التكيف مع التغييرات، وتقوية القدرة وتعزيز احترام الذات، وتطبيق تقنيات الاسترخاء، والرعاية الصحية العقلية والعلاقات الجنسية (المرضى المتزوجين) (Riegel *et al.*, 2021).

١. العناية بالجروح

أ- تناول مسكنات الألم الموصوفة إذا لزم الأمر قبل ٣٠ دقيقة من العناية بالجروح لتحقيق أقصى قدر من فعالية العلاج (Lanham *et al.*, 2020).

ب- تغيير الضمادة يوميًا أو حسب التعليمات، ويجب إزالة الأدوية الموضعية والأنسجة التالفة تمامًا في كل مرة (Cancio *et al.*, 2017).

ت- استخدم الصابون مع الماء لتنظيف الجرح ومنشفة نظيفة لتجفيفه (He *et al.*, 2021).

ث- افحص الجروح بعناية مع كل تغيير ضمادة بحثًا عن علامات العدوى مثل زيادة الاحمرار أو التورم أو الافرازات أو الرائحة الكريه (Hinkle and Cheever 2018).

ج- استخدام الأدوية والضمادات الموضعية الموصوفة حسب التعليمات (He *et al.*, 2021).

٢.السيطرة على الالم

هناك العديد من الطرق المستخدمة للسيطرة على الألم أو تقليله ومنها:

- التدريب على الاسترخاء حيث أثبتت العديد من الدراسات أن العلاج بالتدليك لمدة (١٥ دقيقة) للمناطق الأخرى غير المحروقة يودي الى تقليل درجات الألم.
- تعلم مهارات التأمل والتمدد يمكن أن يريح المرضى ويقلل الألم كما يؤدي إلى امتثال أفضل للعلاج الطبيعي.
- تعزيز سيطرة المريض على البيئة من خلال توفير خيار الموسيقى أثناء العناية بالجروح قد يساعد في تقليل الالم.
- استخدام الادوية الموصوفة حسب ارشادات الطبيب (Ray *et al.*, 2016).

٣. النظام الغذائي

- تعتبر التغذية مهمة للصحة بعد مغادرة المستشفى كما هي أثناء التعافي من إصابة الحروق ومن المهم الحفاظ على وزن جيد بالنسبة للطول.
- اختيار الأطعمة الغنية بالبروتين لاستكمال الشفاء والحفاظ على بنية الأنسجة الجيدة (تتناول اللحوم البيضاء مثلا الدجاج والأسماك بدلا من اللحوم الحمراء).
- شرب كوب واحد من الحليب قليل الدسم يوميا.
- تناول وجبات صغيرة ومتكررة (٥-٦) يوميًا.
- يمكن الحصول على البروتين من الفول والمكسرات والجبن.
- الفيتامينات والمعادن ضرورية للشفاء والحفاظ على وظائف الجسم الطبيعية. يتم توفيرها من خلال منتجات الألبان والحبوب الكاملة والخبز المدعم والفواكه والخضروات.
- تضمين مصدر واحد جيد لفيتامين سي كل يوم، مثل الحمضيات والطماطم والخضروات والبطاطس.
- استخدام مجموعة متنوعة من الأطعمة لأن الأطعمة المختلفة لها مغذيات مختلفة.

- تحكم في كمية الدهون المضافة إلى الأطعمة للمساعدة في منع زيادة الوزن المفرطة.
- تجنب تناول الشاي مباشرة بعد الأكل.
- ينصح شرب الكثير من السوائل (٨ أكواب أو أكثر)
- إذا كانت هناك احتياجات غذائية خاصة، فيجب أخبار الطبيب المعالج للحصول على التعليمات الضرورية قبل مغادرة المستشفى (Lucy *et al.*, 2018).

٤.التمارين الرياضية

خلال الشفاء الجلد تتطور الأنسجة الندبية ويميل الجلد إلى الانقباض، مما يتسبب في شد العضلات. قد يودي الى تيبسًا وسحبًا طفيفًا في المفاصل عند الاستيقاظ من النوم أو بعد الخمول لفترات طويلة خلال النهار. ومن الممكن ان حركة المفاصل تدريجيًا تقلل من التيبس الذي يحدث للمفاصل، يساعد التمرين المنتظم على منع الذراعين والساقين من تصلب (Hinkle & Cheever 2018) .

قبل الخروج من المستشفى، يقوم المعالج بتطوير برنامج تمارين منزلية للمريض ويوجه المريض والأسرة لاستخدامه. يعمل المعالج أيضًا مع المريض وعائلته للحصول على معدات التمرين اللازمة وترتيب العلاج الطبيعي للمرضى (Lucy *et al.*, 2018).

ممارسة التمارين الرياضية

- القيام بأكبر قدر ممكن من التمارين الرياضية.
- التزام بنظام التمارين الرياضية الذي يقدمه المعالجون.
- ممارسة التمارين الرياضية البسيطة (مثل المشي).
- ممارسة التمارين اللياقة البدنية (٣-٥) مرات في الأسبوع.
- التخطيط للراحة والنوم الكافيين.
- عند الراحة ، يجب رفع الأطراف المتورمة.

- استعمل طرق السيطرة على الألم (على سبيل المثال ، تناول المسكنات على النحو الموصوف، واستخدام التدخلات غير الدوائية السيطرة على الألم).
- التغييرات في النظام الغذائي اللازمة لتعزيز الصحة (على سبيل المثال، الأطعمة الغنية بالبروتينات ، بدلا من الاطعمة ذات السعرات الحرارية القليلة.
- تناول السوائل اللازمة لمنع الإمساك المرتبط باستخدام الأدوية المسكن (Hinkle & Cheever 2018).

تحذيرات خاصة

- تجنب رفع الأوزان الثقيلة حتى لا تفرط في العضلات.
- تأكد من التنفس بشكل طبيعي أثناء التمرين وعدم حبس أنفاسك.
- تؤدي التمارين الشديدة إلى زيادة إفراز العرق مما يؤدي إلى زيادة خطر الإصابة بالجفاف.
- إذا شعرت بأي من هذه الأعراض التالية فتوقف عن ممارسة الرياضة واستشر الطبيب:
- التعب الشديد.
- آلام في الصدر.
- الغثيان.
- حالة من عدم التركيز(Hinkle & Cheever 2018) .

٥.مراقبة الجسم

- قياس ضغط الدم بانتظام.
- فحص نسبة السكر في الدم بانتظام.

- زيارة جراح التجميلية بانتظام.
- زيارة الطبيب النفسي عند الحاجة (Breland *et al.*, 2013).

٦.استخدام الادوية

- التزم بتناول الجرعة الصحيحة من الأدوية.
- تجنب استخدام الأدوية الموصوفة دون استشارة طبية.
- إبلاغ الطبيب عند ظهور آثار جانبية من تناول العلاج (He *et al.*, 2021).

٧.التكيف النفسي والاجتماعي

- التغييرات في نمط الحياة والتكيف العاطفي للإصابة تستغرق وقتًا.
- استئناف الاهتمامات والأنشطة السابقة تدريجيا.
- الحصول على الوقت الكافي للراحة والنوم (النوم من ٧ إلى ٩ ساعات يومياً).
- تجنب المواقف التي تجعلك أكثر عصبية.
- استخدم تقنيات الاسترخاء (التمارين الرياضية، والتأمل، والموسيقى، وتقنيات التدليك) لتقليل التوتر والقلق
- الاهتمام بالمجتمع والموارد الأخرى مثل مجموعات دعم الحروق، وكذلك أيضًا العديد من الكتب ومقاطع الفيديو ومواقع الويب والتي لا تقدر بثمن في المساعدة في التعافي من الحرق.
- استخدم البرامج المتاحة للمساعدة في إعادة الإدماج في المدرسة والعودة إلى العمل وقد يجب استشارة فريق المعالج حسب الحاجة.
- التكيف مع البيئة المنزلية.
- الاهتمام بالتواصل وتقوية العلاقات الاجتماعية مع الأصدقاء والأقارب (Hinkle & Cheever 2018).

٨. النظافة الشخصية

من الممكن الاستمرار في الاستحمام بالطريقة المعتادة، ومع ذلك لا ينصح بالنقع في حوض الاستحمام.

- اختبر درجة حرارة الماء قبل الدخول في الاستحمام، الجلد الجديد حساس للحرارة الشديدة أو البرودة الشديدة ويمكن أن يصاب بسهولة.
- استخدام منشفة نظيفة وناعمة والغسل برفق بدلاً من الفرك بقوة سيقلل من الشعور بعدم الراحة أثناء الاستحمام.
- إذا كان هنالك أي مناطق مفتوحة تسبب عدم الراحة، فيجب استخدام الأدوية على النحو الموصوف قبل الغسيل.
- إذا كانت هناك حاجة إلى أجهزة مثل كراسي الاستحمام أو مقابض الإمساك في المنزل، فيجب ترتيب ذلك قبل الخروج من المستشفى.
- الاهتمام بنظافة الاسنان (Lucy *et al.*, 2018).

٩.العناية بالجلد الجاف

ينتج المظهر الجاف والمتقشر للجلد عن تلف أو تدمير الغدد المنتجة للدهون. ستبدأ بعض هذه الغدد في العمل مرة أخرى، ولكن حتى ذلك الوقت استخدام بعض مواد المرطبة الاصطناعية و تجنب المرطبات التي تحتوي على اللانولين والكحول لأنها تميل إلى تكوين بثور في الجلد الملتئم (Hyland *et al.*, 2015).

١٠. العناية بالحكة

- تجنب الحك لأن هذا قد يحطم الجلد الرقيق ويترك مناطق مفتوحة وتحتاج الى وقت اطول للشفاء.

- وضع المستحضر أو ترطيب الجلد (٣-٥) مرات يومياً.
- ارتداء الملابس القطنية.
- استخدام مضادات الحكة حسب ارشاد الطبيب (Greenhalgh 2016).

١١.الوقاية من الكدمات

- عندما تلتئم هذه الحروق، تظهر طبقة جديدة من الجلد تكون أرق وأكثر حساسية من باقي الجسم. حيث سوف تتعرض هذه المناطق للكدمات بسهولة ويجب حمايتها من الحروق والأشياء الحادة.
- عدم ارتداء ملابس أو أحذية ضيقة التي يمكن أن تسبب الضغط والتقرح حيث يحتاج الجسم إلى وقت لبناء جلد يمكنه تحمل الضغط. طول الوقت سوف يختلف مع كل فرد بالنسبة للبعض قد يستغرق عدة أشهر والبعض الآخر قد يستغرق سنة أو أكثر.
- تدريجيًا، مع الوقت سماكة الجلد وتقويته، يصبح أقل حساسية و قادر على ممارسة الروتين الطبيعي مع خوف أقل من الكدمات (Lucy *et al.*, 2018).

١٢. العناية بالبثور

- تحدث البثور بشكل شائع في المناطق الملتئمة أو المطعمة ولا داعي للقلق.
- الاحتكاك من ملابس الكتان والفرك والارتطام بالأشياء سوف يتسبب في ظهور بثور.
- قد يؤدي الوقوف لفترات طويلة دون دعم مناسب أيضًا إلى ظهور البثور.
- يميل بعض الناس إلى تكوين البثور بسهولة أكبر من غيرهم، ويتناقص هذا الميل مع زيادة سماكة الجلد الجديد (Lucy *et al.*, 2018).

١٣.العناية بالبرودة

الجلد الجديد رقيق و يكون أكثر حساسية للبرد. من الممكن الشعور بوخز خفيف وتنميل، خاصة في اليدين والقدمين عندما يكون الطقس باردًا. سيقل هذا الإحساس تدريجيًا مع تصلب الجلد. ويمكن أن يقلل الانزعاج من خلال ارتداء الملابس الدافئة وتجنب التعرض للبرد لفترات طويلة، سيحتاج لحماية البشرة لمدة عام على الأقل (Davies & Hewitt 2022).

١٤. تلون الجلد

يظهر تغير لون الجلد في مناطق الملتئمة نتيجة لعملية الشفاء الطبيعية وقد يبدو فاتحًا إلى وردي غامق أو بني أو رمادي، هذا ليس سببا للقلق. يختلف تغير اللون من شخص لآخر حسب لون البشرة الطبيعي وقد يعود اللون الطبيعي إلى الحروق السطحية وبعض حروق الدرجة الثانية خلال عدة أشهر. وقد تستغرق مناطق أخرى وقتًا أطول وقد يكون بعض تغير اللون دائمًا في الحروق ذات العمق الأكبر.

إذا كانت الذراعين أو الساقين محروقة، فقد تلاحظ المزيد من تغير اللون بعد المشي أو رفع الذراعين ويمكن أن يساعد في تخفيف هذه المشكلة في الساقين عن طريق الجلوس مع رفع القدمين على كرسي. قد تجد هذه التجربة أقل إزعاجًا إذا مشيت بدلًا من الوقوف في مكان واحد. الوقوف ثابتًا لفترات طويلة يسمح للدم بالتجمع في القدمين والساقين مما يسبب التورم وتغير اللون. وممارسة الرياضة باعتدال ستحسن الدورة الدموية في هذه المناطق وتقليل الانزعاج (Lucy *et al.*, 2018).

١٥. تندب

يرتبط تغير اللون بشكل عام بالتندب، في البداية من الصعب للغاية معرفة مقدار الندوب التي ستكون دائمة حيث بعض الناس لديهم ميل أكبر للتندب. اضاقة الى من الصعب التنبؤ بكمية الندبات التي سيصاب بها أي شخص لأن الكمية يتم تحديدها أيضًا على أساس فردي وعمق الحرق. قد تختفي الندبات الناتجة عن حروق الدرجة الأولى وحروق الدرجة الثانية الخفيفة في غضون بضعة أشهر. قد تستمر مناطق الحروق العميقة من الدرجة الثانية والثالثة في تكوين النسيج الندبي لمدة عامين على الأقل. في هذه المرحلة قد تبدأ بعض الندبات بالاختفاء تدريجيا. يمكن أيضًا توقع أن يكون بعضها دائمًا ويمكن تحسين بعض الندبات التي تسبب القلق بشأن المظهر الشخصي أو صعوبة الحركة جراحيًا(Hinkle & Cheever 2018).

١٦. وقاية الجلد المحروق

- ارتدِ واقيًا من الشمس لحماية البشرة المعرضة للحروق من أشعة الشمس. قد تكون الملابس ذات الألوان الفاتحة والسراويل الطويلة والقمصان ذات الأكمام الطويلة ضرورية أيضًا للحماية من أشعة الشمس.
- ارتدِ قبعات واسعة الحواف إذا تم حرق الوجه أو الأذنين لحماية المنطقة من أشعة الشمس.
- استخدم فقط الصابون والغسول (أي المنتجات بدون عطر) على المناطق المصابة بالحروق. الحفاظ على نظافة البشرة بشكل عام أمر مهم لدعم النظافة الجيدة ومنع العدوى.
- تجنب الملابس الضيقة فوق المناطق المحروقة حتى لا تقيد الحركة أو تهيج المناطق التي شُفيت حديثًا.
- اختر ملابس قطنية بيضاء فضفاضة بحيث لا تسبب الصبغات في الملابس الملونة تهيج الجلد الذي تعافى.
- ارتدِ الملابس والقفازات لحماية الجلد الذي يتعافى من الكدمات والصدمات والخدوش غير الضرورية.
- كن حذرا قد يتأثر تحمل درجات الحرارة .
- اتبع تعليمات المعالج لاستخدام الجبيرة وتنظيفها.
- استخدم العكازات أو المشاية أو غيرها من الأجهزة المساعدة حسب التعليمات.
- تجنب مخالطة المرضى لتجنب الاصابة بالعدوى.
- تجنب السقوط والحوادث (Hinkle & Cheever 2018).

١٧. التثقيف الطبي

التثقيف الطبي من المواضيع المهمة جدا لكل المرضى وخصوصا المرضى الناجين من الحروق ومنها الثقافة الجنسية.

التثقيف حول استخدام الأجهزة الطبية :

- اتبع تعليمات المعالج لاستخدام الجبيرة وتنظيفها.
- استخدم العكازات أو المشاية أو غيرها من الأجهزة المساعدة حسب التعليمات.

- إذا كانت هناك حاجة إلى أجهزة مثل كراسي الاستحمام أو مقابض الإمساك في المنزل، فيجب ترتيب ذلك قبل المغادرة المستشفى (Hinkle & Cheever 2018).

التثقيف حول الثقافة الجنسية:

- بعد إصابة بالحرق قد يبدو ويشعر بالجلد مختلفًا تمامًا. قد ينتج عن التغييرات في المظهر، وفقًا للمرحلة الذي وصل إليها المريض في رحلة التعافي، قد يتغير المظهر والأشياء التي يمكنك القيام بها أيضًا.
- يؤثر الحرق أحيانًا على كيفية عمل أو شعور الأعضاء الجنسية أو المناطق المثيرة الأخرى. لذلك يمكن أن يؤدي إلى الإحباط والغضب وخيبة الأمل، وكل ذلك غالبًا ما يؤدي إلى الضغط والتوتر على العلاقة. تمتد الحالة الجنسية إلى الأبعاد البيولوجية والنفسية والعاطفية والروحية والاجتماعية للحياة.
- إن الشعور بالرضا عن نفس وجسم هو الخطوة الأولى نحو صورة صحية للجسم، لذا فإن الأشياء الصغيرة مثل الاستمالة المناسبة يمكن أن تساعد في الشعور بالإيجابية تجاه نفس.
- يمكن أن يؤدي ممارسة الرياضة والبقاء نشطًا إلى زيادة مستويات الطاقة وزيادة احترام الذات.
- التواصل هو أهم شيء في العلاقة الحميمة، لذلك يحتاج المرضى إلى مناقشة مع شركائهم حول المشاعر أو الكشف عن الندوب الناتجة عن الإصابة بالحروق.
- تأكد من أن الأشخاص الذين أصيبوا بالحروق يمكنهم بالفعل إقامة علاقات رومانسية، والزواج، والحياة الجنسية النشطة، والأطفال.
- يأتي استئناف العلاقات الحميمة في وقت مختلف بالنسبة للجميع - فالبعض يفعل ذلك بعد فترة وجيزة من مغادرته المستشفى والبعض الآخر تحتاج الى وقت طويل بعد الإصابة بالحروق. الحياة الجنسية الطبيعية هي الحياة التي تقرر أنت وشريكك أنها مريحة وتمنحكما المتعة.
- ترطيب الجلد بغسول، زيت مرطب يحسن حالة الجلد وحساسيته ويساعد على التقارب والقبول بالإضافة إلى تعزيز القبول والمشاعر الإيجابية تجاه البشرة.
- قد يؤثر الجلد والمفاصل المتيبسة أو المؤلمة على الراحة أثناء النشاط الجنسي، لذا تناول مسكنات الألم قبل نصف ساعة إلى ساعة واحدة للتأكد من المريض في حالة خالية من الألم.

- عند الشك في تأثير الأدوية على الوظيفة الجنسية، ناقش هذه المشكلة مع الطبيب. في بعض الأحيان قد يتم وصف جرعات مختلفة أو دواء بديل.
- من الشائع أن ينقطع الحيض بعد الإصابة بالحروق، لكن معظم النساء تبدأ مرة أخرى بشكل عفوي. يمكن أن يحدث الحمل خلال هذا الوقت، لذا استخدم وسائل منع الحمل المناسبة ضروري.
- يمكن أن يكون التعافي من إصابة الحروق أمرًا مرهقًا، ويمكن أن يتداخل التوتر مع المشاعر الجنسية والحميمية. تعتبر التمارين الرياضية، والتأمل، والموسيقى، وتقنيات الاسترخاء أمثلة على طرق التعامل مع التوتر بطريقة إيجابية.
- زيادة المعرفة من خلال تبادل المعلومات والخبرة مع الناجين الآخرين من الحروق (Ruth & Cindy 2019).

Appendix G

المحور الأول / المعلومات الديموغرافية

١- **الجنس:** ذكر ☐ انثى ☐

٢- العمر : ☐ سنة.

٣-الحالة الاجتماعيـــة:

أعزب/ باكر ☐

متزوج/ متزوجة ☐

مطلق/ مطلقة ☐

منفصل / منفصلة ☐

أرمل/ أرملة ☐

منفصل /منفصلة ☐

٤- المستوى التعليمي :

لايقرأ ولا يكتب ☐

يقرأ ويكتب ☐

خريج ابتدائية ☐

خريج متوسطة ☐

خريج إعدادية ☐

خريج معهد فما فوق ☐

٥- بيئة السكن:

ريف ☐ حضر ☐

٦- الوظيفة :

موظف حكومي ☐ مهنة حرة ☐ متقاعد ☐

ربة ربيت ☐ طالب ☐

المحور الثاني / المعلومات السريرية

١. مدة الرقود في المستشفى ☐ يوم

٢. درجة الحرق

الدرجة الثانية ☐ الدرجة الثالثة ☐

الدرجة الرابعة ☐

٣. اسباب الحرق

اللهب : ☐ الماء او سوائل ساخنة: ☐

لمس الاشياء الساخنة: ☐ المواد الكيمائية: ☐

التيار الكهربائي: ☐ الاشعاع: ☐

٤. مساحة سطح الجسم المحروقة:

- ١١- ٢٠% ☐
- ٢١- ٣٠ % ☐
- ٣١- ٤٠ % ☐

٥. مكان الحرق

- الرأس والعنق ☐ الصدر ☐
  البطن ☐
- الظهر ☐ الطرف العلوي الايمن ☐ الطرف العلوي الايسر ☐
- الطرف السفلي الايمن ☐ الطرف السفلي الايسر ☐
  المنطقة التناسلية ☐

تعاني من الأمراض التالية:

أ- ارتفاع ضغط الدم المزمن: كلا ☐ نعم ☐

ب- مرض السكري : كلا ☐ نعم ☐

ت- الصرع: كلا ☐ نعم ☐

ث- أمراض القلب والاوعية الدموية: كلا ☐ نعم ☐

المحور الثالث/ العناية الذاتية :

ت	الفقرات	ابدا	احيانا	دائما
	العناية بالجرح			
١.	اخذ مسكنات الالام قبل نص ساعة قبل تنظيف الجرح.			
٢.	تغيير الضمادة يجب ان يكون يوميًا أو حسب التعليمات.			
٣.	إزالة الأدوية الموضعية والأنسجة التالفة تمامًا في كل مرة.			
٤.	استخدم الصابون والماء ومنشفة نظيفة لتنظيف الجروح.			
٥.	افحص الجروح بعناية مع كل تغيير ضمادة بحثًا عن علامات العدوى، مثل زيادة الاحمرار أو التورم أو الافرازات أو الرائحة الكريهة.			
٦.	استخدم الأدوية والضمادات الموضعية الموصوفة حسب التعليمات.			
	الغذاء الصحي			
٧.	تتناول اللحوم البيضاء مثل(الدجاج والأسماك) بدلا من اللحوم الحمراء.			
٨.	تشرب كوب واحد من الحليب قليل الدسم يوميا.			
٩.	تتناول البرتقال او الليمون.			
١٠	تتناول وجبات صغيرة ومتكررة (٥-٦) وجبات يوميا.			
١١	تتجنب تتناول الشاي مباشرتا بعد الطعام.			
١٢	تتناول ٨ أكواب يوميا من الماء والسوائل.			
١٣	تتجنب او تحدد كمية الدهون في الأكل.			
	التمارين الرياضية			
١٤	تستطيع تحريك او التنقل بدون مساعدة الاخرين.			
١٥	عند الراحة ترفع الأطراف المتورمة.			
١٦	تمارس التمارين البسيطة (مثل المشي).			
١٧	تمارس تمارين اللياقة البدنية ٣-٥ مرات في الأسبوع.			
	المراقبة			
١٨	تقوم بقياس ضغط الدم بشكل منتظم.			
١٩	تقوم بقياس مستوى السكر الدم بشكل منتظم.			
٢٠	تقوم بمراجعة طبيب التجميلية بانتظام.			

٢١	تقوم بزيارة الطبيب النفسي عند الحاجة.				
العلاج					
٢٢	تلتزم بأخذ الجرعة الصحيحة من الدواء.				
٢٣	تتجنب استخدام الأدوية الموصوفة دون استشارة طبية.				
٢٤	تقوم بأخبار الطبيب عند ظهور الآثار الجانبية الناتجة من تناول العلاج.				
التعامل مع الضغوطات النفسية					
٢٥	تحصل على الوقت الكافي من الراحة والنوم (النوم ٧- ٩ ساعات) في اليوم.				
٢٦	تتجنب المواقف التي تؤدي الى زيادة انفعالك.				
٢٧	استخدم أسلوب الاسترخاء (الأيروبكس ، والتأمل ، والموسيقى ، وتقنيات التدليك) لتقليل التوتر والقلق.				
٢٨	الاهتمام بالتواصل وتقوية العلاقات الاجتماعية مع الأصدقاء والأقارب.				
النظافة الشخصية					
٢٩	تستطيع الاستحمام بدون مساعدة.				
٣٠	تعتمد على نفسك عند استخدام المرحاض.				
٣١	ترتدي ملابسك بصوره كاملة بدون مساعدة.				
٣٢	تقوم بالتأنق بدون مساعدة (الاناقة ،الشعر ،الأظافر ،اليدين ،الوجه والملابس).				
٣٣	تهتم بنظافة الاسنان.				
٣٤	تستخدم المناشف الناعمة والنظيفة كي تتجنب خدوش في الجلد.				
سلامة الجسم					
٣٥	ارتدِ واقيًا من الشمس لحماية البشرة المعرضة للحروق من أشعة الشمس ، مثل الملابس ذات الألوان الفاتحة والسراويل الطويلة والقمصان ذات الأكمام الطويلة.				
٣٦	تجنب ارتداء الملابس الضيقة فوق المناطق المحروقة.				
٣٧	تتجنب الجلوس بالقرب من مصدر الحرارة (التدفئة).				
٣٨	العناية بالبشرة الجديدة لأنها حساسة للحرارة الشديدة أو البرودة ويمكن أن تصاب بسهولة.				
٣٩	تتجنب ملامسة او مخالطة المرضى من أجل تجنب انتقال العدوى.				
٤٠	تتجنب السقوط والحوادث.				

University Of Babylon / Faculty Of Nursing

Part one / Demographic Characteristics

1. Sex :

Male ☐ Female ☐

2. **Age** : ☐ years

3. Marital Status

- Single ☐
- Married
- Divorced ☐
- Widowed ☐
- Separated ☐

4. Level of Education

- No read and write ☐
- Read and write ☐
- Primary ☐
- Intermediate ☐
- Secondary ☐
- Institute and above ☐

5. Residency

- Urban ☐
- Rural ☐

6. Occupation

- Employee ☐
- Free work ☐
- Retired ☐
- House wife ☐
- Student ☐

Part 2:Clinical Information:

1. **Length of hospital stay:** ☐ **days**
2. **Degree of burn:**
   - Second degree ☐ •Third degree ☐
   - Fourth degree ☐
3. **Cause of Burn:**
   - Flame ☐ Scald ☐
   - Contact burns ☐ Chemical ☐
   - Electrical current ☐ Radiation ☐
4. **Total Body Surface Area Burned:**
   - 11–20% ☐
   - 21–30% ☐
   - 31–40% ☐
5. **Burn area :**
   - Head & Neck ☐ Chest ☐ Abdominal ☐
   - Back ☐ R. upper limb ☐ L. upper limb ☐
   - R. lower limb ☐ L. lower limb ☐ Genitalia ☐
6. **Suffer from any of the diseases below:**

Hypertension : No ☐ Yes ☐

Diabetes mellitus : No ☐ Yes ☐

Epilepsy : No ☐ Yes ☐

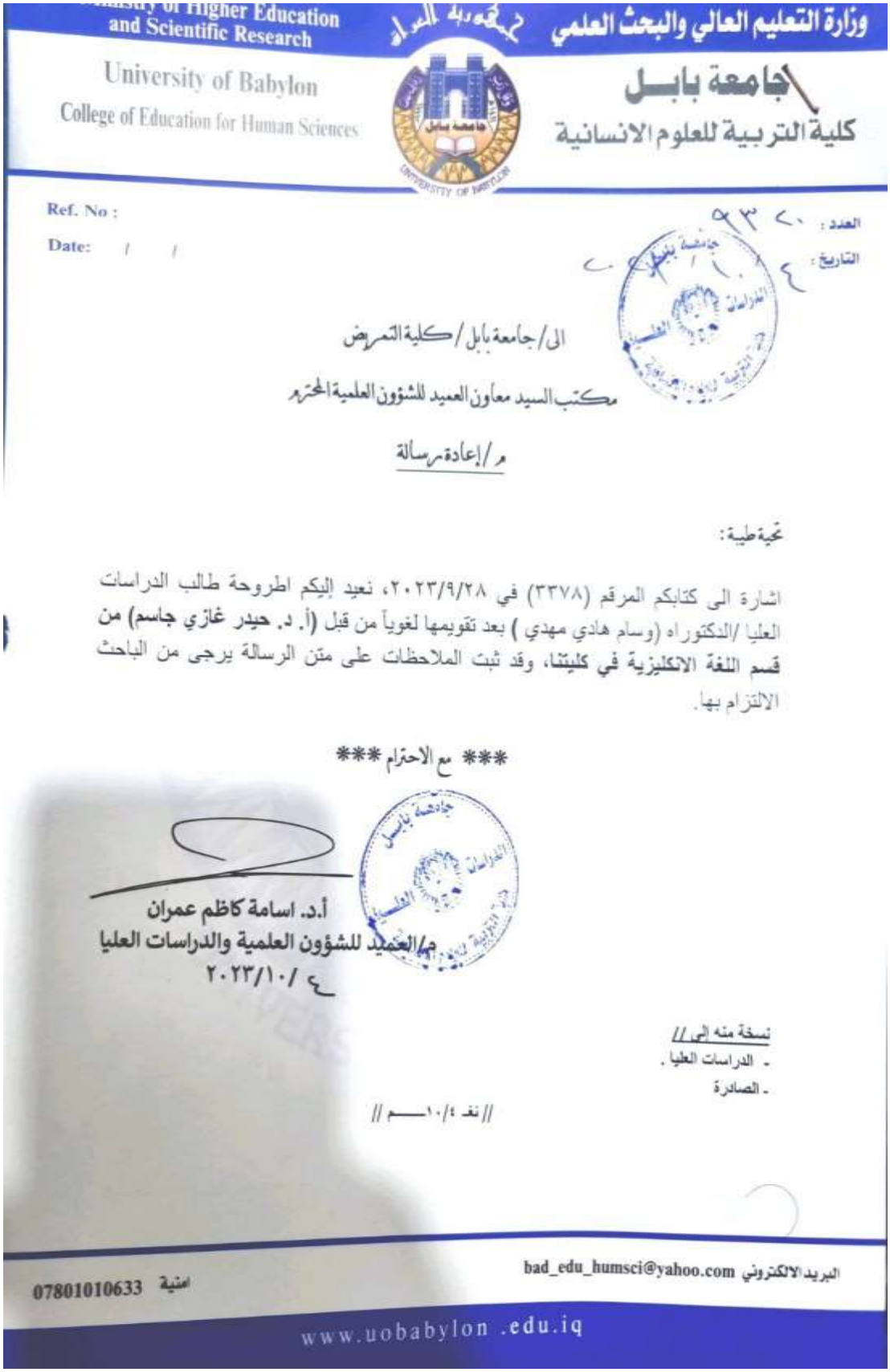
Cardiovascular disorder: No ☐ Yes ☐

Part 3 / Self-Care Activities

No	Item	Never	Sometimes	Always
Wound care				
1	Take painkillers half an hour before cleaning the wound.			
2	Change the dressing must be done daily or as instruct.			
3	Topical medications and damage tissue should be completely removed at each time			
4	Use soap with water to clean the wound and a clean washcloth to dry it.			
5	Examine the wounds carefully with each dressing change for signs of infection, including increased redness, swelling, discharge, or a foul odor.			
6	Use prescribed medications and topical dressings as instructed.			
Healthy Diet				
7	Eat white meat (chicken and fish) instead of red meat.			
8	Drink one glass of low-fat milk daily.			
9	Eat vitamins and minerals as orange or lemon.			
10	Eat small, frequent (5-6) meals per day.			
11	Avoid drinking tea immediately after food.			
12	Drink 8 glasses of water and fluids daily.			
13	Avoid or limit the amount of fat in food.			
Exercises				
14	Can move or transporting without help from others.			
15	When at rest, elevate swollen limbs.			
16	Do simple exercises (such as walking).			
17.	You do fitness exercises (3-5) times a week.			
Monitoring				
18.	Regularly measure blood pressure.			
19.	Regularly blood sugar test.			
20.	Regularly a plastic surgeon visited.			

21.	Visit a psychiatrist when needed.			
Medications				
22.	Stick to taking the correct dose of medications.			
23.	Avoid using prescribed medications without medical advice.			
24.	Notify the physician when appear side effects from taking the treatment.			
Management of psychological stress				
25.	Get enough time to rest and sleep (sleep 7-9 hours a day).			
26.	Avoid situations that make you more irritable.			
27.	Use relaxation technique (Aerobics, meditation, music, and massage techniques) to reduce stress and anxiety.			
28.	Interest in communication and strengthen social relationships with friends and relatives.			
Personal Hygiene				
29.	Can take bath without help.			
30.	Depend on yourself when using the toilet.			
31.	Get dressed completely without help.			
32.	Dress up without help (style, hair, nails, hands, face and clothes).			
33.	Take care in dental hygiene.			
34.	Use soft, clean towels to avoid skin scratches.			
Body Safety				
35.	Wear sunscreen to protect burn-prone skin from the sun, such as light-colored clothing, long pants, and long-sleeved shirts.			
36.	Avoid tight clothing over burned areas.			
37.	Avoid sitting near a heat source (heating).			
38.	Taking care of new skin because it is sensitive to extreme heat or cold and can be easily injured.			
39.	Avoid contact with sick people to avoid transmission of infection.			
40.	Avoid falls and accidents.			

Appendix H



وزارة التعليم العالي والبحث العلمي
Ministry of Higher Education and Scientific Research
جامعة بابل
University of Babylon
كلية التربية للعلوم الانسانية
College of Education for Human Sciences

Ref. No :
Date: / /

العدد : ٩٣٧٠
التاريخ : ٤/١٠/٢٠٢٣

الى/ جامعة بابل / كلية التمريض
مكتب السيد معاون العميد للشؤون العلمية المحترم

م/ إعادة رسالة

تحية طيبة:

اشارة الى كتابكم المرقم (٣٣٧٨) في ٢٠٢٣/٩/٢٨، نعيد إليكم اطروحة طالب الدراسات العليا /الدكتوراه (وسام هادي مهدي) بعد تقويمها لغوياً من قبل (أ. د. حيدر غازي جاسم) من قسم اللغة الانكليزية في كليتنا، وقد ثبت الملاحظات على متن الرسالة يرجى من الباحث الالتزام بها.

*** مع الاحترام ***

أ.د. اسامة كاظم عمران
م/العميد للشؤون العلمية والدراسات العليا
٤/١٠/٢٠٢٣

نسخة منه الى //
- الدراسات العليا .
- الصادرة

// نف ٤/١٠ــــم //

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المستخلص

الخلفية: تعد إصابات الحروق واحدة من أكثر الصدمات المؤلمة ومن أسوء الجوانب المأساوية التي يمكن أن يمر بها الأشخاص وعوائلهم على حد سواء جسديًا ونفسيًا وكذلك رابع أكثر المشكلات الصحية انتشارًا على مستوى العالم. الحروق الشديدة تكون مصاحب الى العديد من المضاعفات التي يمكن أن تستمر لفترة طويلة أو إلى الأبد، يحتاجوا المرضى إلى إعادة تأهيلهم من خلال البرامج الإرشادية ومتابعتهم من قبل الفريق الطبي بعد خروجهم من وحدة الحروق لفترة طويلة ليتمكنوا من القيام بالرعاية الذاتية المستقلة.

الهدف: الهدف الرئيسي من الدراسة هو تقييم تأثير برنامج الرعاية الذاتية الإرشادي على معارف مرضى الحروق. **المنهجية**: تم تصميم دراسة شبه تجريبية لتقييم تأثير برنامج الرعاية الذاتية الإرشادي على معارف مرضى في وحدة الحروق. البرنامج الإرشادي الذي تم بناؤه وتطبيقه بنهج الاختبار القبلي والبعدي لعينة الدراسة المنفذة. أجريت الدراسة من التاسع عشر من شهر تشرين الاول ٢٠٢١ إلى التاسع من شهر اب ٢٠٢٣. تم اختيار عينة غير احتمالية (عينة غرضية) من (٦٠) مريضاً من وحدة الحروق. وهم مقسمون إلى مجموعتين: (٣٠) مريضاً خضعوا للبرنامج الإرشادي كمجموعة الدراسة و (٣٠) مريضاً يتلقون رعاية روتينية وتم تعيينهم كمجموعة ضابطة. تم جمع البيانات من خلال استخدام الاستبانة المصممة من (٣) أجزاء رئيسية (الخصائص الديموغرافية والمعلومات السريرية للمرضى وأنشطة الرعاية الذاتية) التي تم الحصول عليها عن طريق المقابلة. حددت صلاحية الاستبيان من خلال فريق من الخبراء مكون من (١٠) متخصصين. وتم تحديد الموثوقية من خلال دراسة تجريبية. تم تطبيق التحليل الإحصائي الوصفي والاستنتاجي في تحليل البيانات. **النتائج:** معظم عينات الدراسة هم من: الذكور، فئاتهم العمرية (١٨-٢٧) سنة، متزوجون، تخرجوا من المدارس الابتدائية، سكان الريف، اعمال حرة، مدة الإقامة في المستشفى (١٢-١٥) يوماً، حروق من الدرجة الثالثة، الحرق بلهب، ومساحة سطح الجسم الكلية (٢١-٣٠٪)، ويعانون من حروق في الأطراف العلوية. وكذاك تشير نتائج الدراسة إلى وجود فروقات كبيرة بين الاختبار القبلي (المتوسط = ١.٧٧٩٥) والاختبار البعدي (المتوسط = ٢.٥٨٣٢) في مجموعة الدراسة فيما يتعلق بمعارف المرضى حول الرعاية الذاتية بعد الحروق. **الاستنتاج**: استنتجت الدراسة إلى أن البرنامج الارشادي فعال

وأن معارف المرضى حول الرعاية الذاتية قد تحسنت بعد تطبيق البرنامج الارشادي لمجموعة الدراسة.

التوصيات: قد يتم إنشاء برنامج الرعاية الذاتية الارشادي في وحدة الحروق أو المرضى الخارجيين، مما قد يحسن معارف المرضى للحفاظ على صحتهم وتحسين نوعية حياتهم.

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جامعة بابل- كلية التمريض

تأثير برنامج الرعاية الذاتية الإرشادي على معارف المرضى في وحدة الحروق

أطروحة تقدم بها

وسام هادي مهدي

الى

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كجزء من متطلبات نيل شهادة الدكتوراه فلسفة في علوم التمريض

بأشراف

الأستاذ الدكتورة شذى سعدي محمد

اب ٢٠٢٣ ميلادية **محرم ١٤٤٥هجرية**