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ASSESSMENT OF NURSES KNOWLEDGE TOWARD LEISHMANIASIS AT PRIMARY HEALTH CARE CENTERS IN THI-QAR PROVINCE

Yüksek Lisans

Abdulhadi Jabbar SHAREEF

Çankırı 2021

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Çankırı 2021

KABUL VE ONAY

ÇAKÜ, Sağlık Bilimleri Enstitüsü'nün 198205317 numaralı Yüksek Lisans öğrencisi Abdulhadi Jabbar SHAREEF , ilgili yönetmeliklerin belirlediği gerekli tüm şartları yerine getirdikten sonra hazırladığı "ASSESMENT OF NURSES KNOWLEDGE TOWARD LEISHMANIASIS AT PRIMARY HEALTH CARE CNETER IN THI-QAR PROVINCE" başlıklı tezini aşağıda imzaları olan jüri önünde başarı ile sunmuştur.

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Yüksek Lisans tezi olarak hazırlayıp sunduğum "Assesment of Nurses Knowledge Towrard Leıshmanıasıs at Prımary Health Care Centers in Thi-Qar Provınce" başlıklı tez; bilimsel ahlak ve değerlere uygun olarak tarafımdan yazılmıştır. Tezimin fikir/hipotezi tümüyle tez danışmanım ve bana aittir. Tezde yer alan araştırma tarafımdan yapılmış olup, tüm cümleler, yorumlar bana aittir.

Yukarıda belirtilen hususların doğruluğunu beyan ederim.

İmza
20 July 2021
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SHAREEF

ÖNSÖZ

Yüksek lisans eğitimimin ve tez çalışmam süresince bilgi ve deneyimleriyle yanımda olan, büyük bir özveri ve sabırla desteğini esirgemeyen değerli danışmanım Doç. Dr. Banuçiçek YÜCESAN'a.

Bu süreçte desteklerini hiç esirgemeyen, her konu da varlıklarını yanımda hissettiğim canım arkadaşlarım, Ve en önemlisi hayatım boyunca varlığına şükrettiğim, her an benimle olmayı başaran, beni her anlamda destekleyen canım eşim, Son olarak tez çalışmamın son demlerinde bana eşlik ederek aramıza katılacak annem ve babama.

Sonsuz teşekkür ederim.

İÇİNDEKİLER

Sayfa

KISALTMALAR VE SEMBOLLER

PKDL **:** Post-kala azar dermal leishmaniasis

VL **:** Visceral leishmaniasis

PBMC **:** Mononuclear cells

L. infantum **:** is the causative agent of infantile visceral leishmaniasis in the Mediterranean region and in Latin America, where it has been called Leishmania chagasi.

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Sayfa

THI-QAR İDARİ BÖLGESİ'NDE BİRİNCİL SAĞLIK MERKEZLERİNDEKİ HEMŞİRELERİN LEİSHMANİASİS HAKKINDAKİ BİLGİLERİNİN DEĞERLENDİRİLMESİ

ÖZET

SHAREEF, Abdulhadi Jabbar. Thi-Qar İdari Bölgesi'nde Birincil Sağlık Merkezlerindeki Hemşirelerin Leishmaniasis Hakkındaki Bilgilerinin Değerlendirilmesi, Yüksek Lisans, Çankırı, 2021.

Kutanöz *leishmaniasis*, cildi enfekte eden, kızarıklıkların ve kronik ülserlerin görüldüğü, zoonotik bir hastalıktır ve bu nedenle zoonotik ve antroponik hastalıklar grubuna girer. Bu ise söz konusu hastalığın hayvanlardan insanlara ve insanlar arasında bulaşabileceği anlamına gelir. Bu hastalığa nemli veya su ortamlarında üreyen tek hücreli bir parazit olan Leishmania cinsi neden olur. Kum sineği olarak bilinen dişi kan emici tarafından yayılır ve rezervuarlığını omurgalı hayvanlardan köpekler oluşturur.

Leishmaniasis, yoksulluk ve sağlık faktörleri ile doğrudan ilişkilidir. Sağlığın korunması için yaşam tarzı, kaynak mevcudiyeti ve kullanılabilirliği önemlidir. Ancak sosyal, çevresel ve iklimsel faktörler de hastalığın epidemiyolojisini doğrudan etkiler. Bu çalışma, 2020 yılında Thi-Qar Valiliğine bağlı birinci basamak sağlık merkezlerinde çalışan hemşirelerin leishmaniasis hakkındaki bilgilerinin değerlendirilmesini amaçlamaktadır. Bu çalışmada birinci basamak merkezlerinde hemşirelik bölümünden, 9 merkez ve 339 hemşire ile tanımlayıcı bir çalışma ve deneysel olmayan bir tasarım yapılmıştır. Örneklem 179 erkek ve kadın hemşire ile gerçekleştirilmiştir. Anket, kutanöz leishmaniasis hakkında genel bilgi, kutanöz leishmaniasis hakkında bilgi kaynağı, kutanöz leishmaniasis'in bulaşması hakkında farkındalık (bilgi), hastalığa neden olan vektörün özellikleri ve üreme yerleri hakkında farkındalık (bilgi), ve kutanöz leishmaniasis'in klinik belirtilerine ilişkin farkındalık (bilgi) konusunda yapılmıştır. İstatistiksel veri tabanı ve tabloları geliştirmek için SPSS versiyon 24 yazılımı kullanılmıştır. Kutanöz leishmaniasis hakkındaki bilgilerle ilgili olarak, 179 hemşirenin enfeksiyonu duyduğu veya okuduğu ve katılımcıların yarısından fazlasının konu hakkında düzenli bilgisinin olduğu belirlenmiştir. Örneğe ilişkin enfeksiyon bilgisi açısından katılımcıların %84,91'inin Leishmaniasis enfeksiyonu hakkında yeterli bilgisi olduğu, buna karşın katılımcıların %15'inin yeterli bilgiye sahip olmadığı belirlenmiştir

Çalışma sonucunda; Thi-Qar vilayetindeki hemşirelik personelinin Kutanöz Leishmaniasis hakkında yeterli bilgiye sahip olduğu ve çoğunluğunun bu hastalığı önlemek için yapılması gereken uygulamaları en iyi şekilde yerine getirdiği gözlemlenmiştir.

Anahtar Kelimeler: Değerlendirme, Hemşireler, Leishmaniasis

ASSESMENT OF NURSES KNOWLEDGE TOWRARD LEISHMANIASIS AT PRIMARY HEALTH CARE CENTERS IN THI-QAR PROVINCE

SUMMARY

SHAREEF, Abdulhadi Jabbar. Assesment of Nurses Knowledge toward Leishmaniasis at Primary Health Care Centers in Thi-Qar Province, (Master Thesis), Çankırı, 2021.

Cutaneous *leishmaniasis* is a zoonotic disease that infects the skin, in which rashes and chronic ulcers appear, and it is classified within the group of zoonotic and anthroponic diseases. This means that it can be transmitted from animals to humans and between people. It is caused by parasite of the genus *Leishmania*, a single-celled, predatory organism that breeds in humid or aquatic environments. It is spread by a female bloodsucker , known as a sand fly, which forms its reservoir in vertebrate animals.

Leishmaniasis is directly related to poverty and the determinants of health: sanitation, lifestyles and resource availability. However, social, environmental and climatic factors also directly affect the epidemiology of the disease. Climate change is one of the factors that should alert us to the way in which the humidity is increasing in Thi-Qar, and the high temperatures favor the proliferation of insects that transmit *leishmaniasis*.This study determines the assessment of nurses' knowledge of *leishmaniasis* in primary health care centers in Thi-Qar governorate, in 2020. It is a descriptive study, and a non-experimental design, with the nursing department 9 centers and 339 nurses in primary care centers. The sample was conducted using a non-probability intentional data type with 179 male and female nurses. The questionnaire was used on the topic of general information about cutaneous *leishmaniasis*, source of information about cutaneous *leishmaniasis*, awareness (knowledge) about the transmission of cutaneous *leishmaniasis*, awareness (knowledge) about the characters and places of reproduction of the disease-causing vector, and awareness (knowledge) of the clinical manifestations of cutaneous *leishmaniasis*. SPSS version 24 software was used to develop statistical database and tables. Related to knowledge about cutaneous *leishmaniasis*, from 179 nurses (92.73%) had heard or read about it and that more than half of the participants had regular knowledge of it. Whereas with regard to knowledge of infection (84.91%) of the sample had good knowledge of *leishmaniasis* infection and (15%) had poor knowledge of *leishmaniasis*. Thus, the nursing staff in Thi-Qar governorate have regular knowledge of cutaneous *leishmaniasis* and most of them apply good practices to prevent this disease.

Key Words: Assesssment, Nurses, Leishmaniasis

1. INTRODUCTION

1.1. History of Leishmaniasis

In the late of the nineteenth century, Cunningham, Borowski, Leichmann, Donovan, Wright, Ledenberg, and Fiana independently identified the leishmaniasis parasite and Ronald Ross called the generic name of *Leishmania.* In 1904, Kathwar and Laveran found leishmaniasis in children with infantile splenic anemia. Nicole named the parasite *L. infantum*, identified its reservoir in a dog in Tunisia in 1908, and cultivated it in the laboratory. Karini identified leishmaniasis in the mucosal lesions of patients in Brazil in 1912. In 1914, the Russians. Yakimov and Shakur, identified the parasites that caused dry urban and rural forms of cutaneous leishmaniasis in Central Asia. In 1922, Pramachari described cutaneous leishmaniasis after kala azar (PKDL) in India. In the early 1940s, Swaminath, Shortt and Anderson in India and Adler and Ber in Palestine showed the transmission of *L. donovani* and *L. tropica* (possibly *L. major*) via sand flies. Gradually, clinical and geographical aspects of human disease were implemented through studies of reservoir animals, disease vectors, behavior of leishmaniasis in laboratory animals and the natural cycle environment of leishmaniasis, laying the foundations for classification and understanding of transmission (WHO, 2010).

1.1.1. Leishmania Species of Medical Interest

Today about 30 species of *Leishmania* are known, 20 of which are considered pathogenic to humans (Singh et al., 2014) (Figure 1).

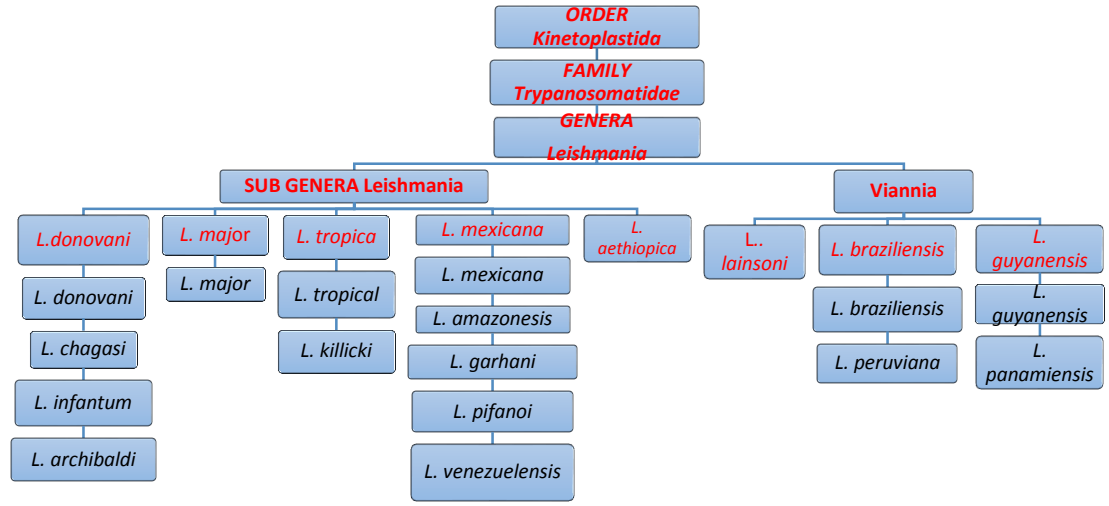

Figure 1.1. *Leishmania* species (Mishra et al, 2013)

1.1.2. Human Leishmaniasis

The *Leishmania* subtype includes the complexes: *L. donovani*, *L. tropica, L. major, L. aethiopica, L. mexicana.*

- *L. donovani* complex: Includes agents causing old and new world visceral forms such as *L. donovani* responsible in Asia for kala-azar (human cycle), *L. archibaldi* causing kala-azar in East Africa (Zoonotic cycle). *L. infantum* is the causative agent of leishmaniasis in the Mediterranean basin, Senegal, Central Asia and Northern China. It is the only indigenous species present in Italy and causes canine leishmaniasis and human cutaneous and visceral leishmaniasis.
- *L. chagasi* is synonymous with *L. infantum* (Mauricio et al., 2000).
- *L. tropica* complex: Includes *L. tropica* that causes skin forms from the ancient world. It is found in the Mediterranean basin, the Middle East, India and West Africa, which determines the dry form of the East button (human cycle).
- The main compound includes *L. principal,* widespread in the African Mediterranean region, Central West Africa, the Middle East and Central Asia, and it is the causative agent of the wet form of the Eastern Button (zoonotic cycle).
- *L. aethiopica* causes the dry form of the oriental button but tends to the skin type prevalent in East Africa (zoonotic cycle).
- *L. mexicana* contains *L. mexicana*, which determines the skin morphology of humans in the New World (zoonotic cycle).

- The Viania strain includes the complexes: *L. brasiliensis, L. guyanensis, L. naiffi* and *L. lainsoni.*
- The *L. brasiliensis* complex includes the causative agent of mucocutaneous polyps (espundia) in the New World and *L. peruviana*, a Uta cutaneous form factor generally less aggressive on a large scale in Peru (zoonoses).
- *L. guyanensis* contains *L. guyanensis* from Pian Bois cutaneous leishmaniasis (zoonotic cycle) and *L. panamensis* (zoonotic cycle).
- The *L. naiffi* complex contains *L. naiffi* that identifies cutaneous morphologies (zoonotic cycle).
- *L. lainsoni* contains *L. lainsoni* and defines cutaneous morphologies (zoonotic cycle).

1.2. Morphology

Leishmaniasis spp. are single-celled parasites, with clonal reproduction. Like other members of the Kinetoplastida order, it is characterized by the presence of large mitochondria, in which there is an accumulation of DNA outside the nucleus,which is called a kinetoplast. This DNA has a special structure of extreme and small circuits. In the life cycle of leishmaniasis, two forms are distinguished: the first one is immobile, intracellular (amastigote) and the second is extracellular flagellum (promastigote); The amastigote is localized in the cells of the histiocyte reticulum (SRI) system of vertebrate hosts and is elliptical (Ø 2-5 μm) with a blue cytoplasm, a purple-red nucleus, and a purple motility with giemsa staining (Fig.2).

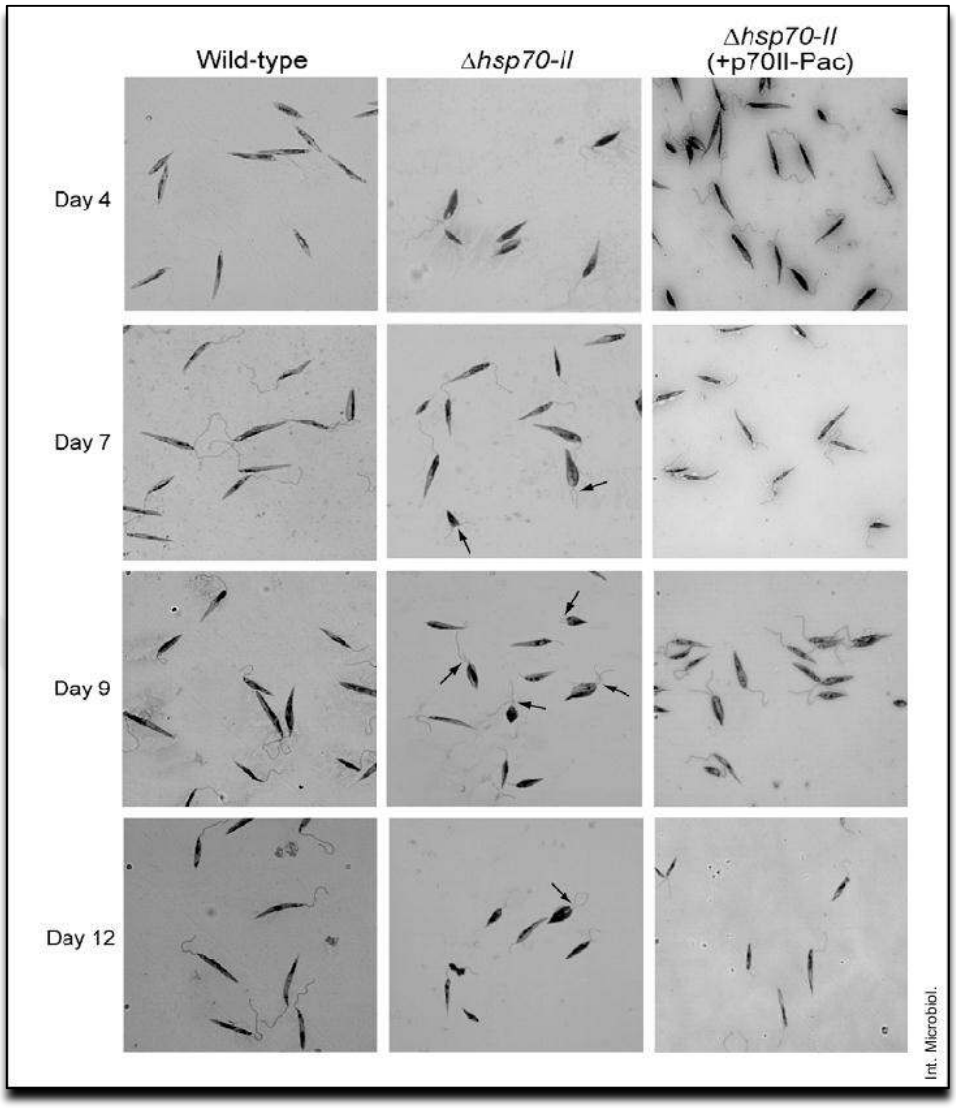

Figure 1.2: *Leishmania infantum* promastigotes (40X) (Carson et al, 2010)**.**

While the extracellular is localized in the digestive tract of insect vectors and is characterized by locomotor movement in an anterior position, near a free flagellum (Fig.3). The infectious forms of a mammalian host (Promastigote metasciculata) are found in the anterior segment of the intestine and in the proboscis of the sandfly. They are non-dividing forms characterized by a small cell body and very long flagella with high motor activity (Carson et al, 2010).

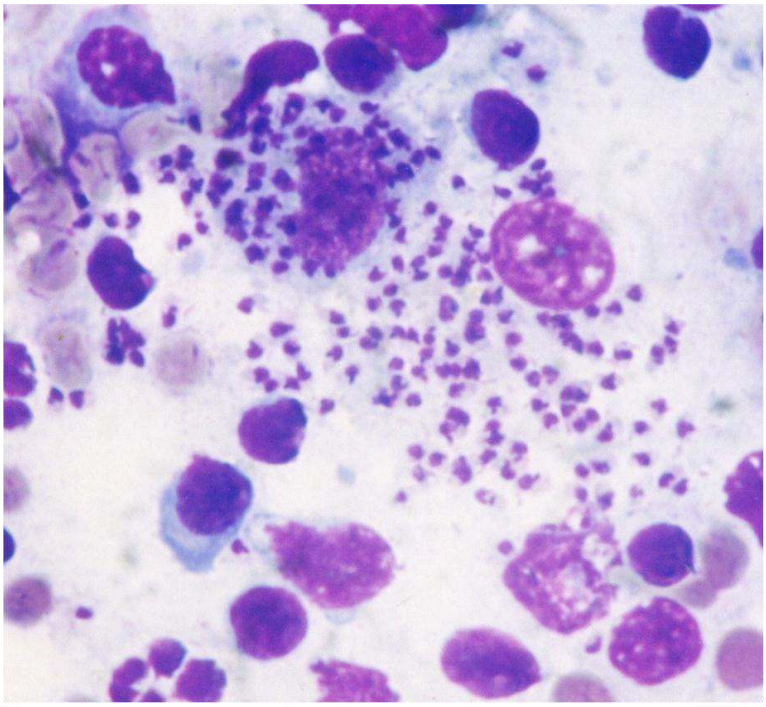

Figure 1.3: Amastigot form of *Leishmania infantum* (Raymond et al, 2012).

1.3. The Biological cycle

Leishmaniasis carry out their life cycle between two hosts: a contaminated blood insect belonging to the cyclodid species (*Phlebotomus* genera in the Old World, and *Lutzomyia* in the New World) that represent the carrier and vector and the mammal which play the role of reservoir for infection (Horrillo et al, 2019). The cycle begins when an infected female vector vomits leishmaniasis in the form of promastigote metastasis in mammalian dermis during a blood meal. The infectious forms appear to be ingested initially by neutrophilic cells (Van Zandbergen et al., 2004) and later, the neutrophil complex will be formed by macrophages. In macrophages, the parasite loses the flagellum (amastigote) and the division by binary fission leads to macrophage collapse which is thus defined as a "Trojan horse". Thus the emitted amastigotes infect other macrophages, and the infection expands. Insect vectors become infected by taking amastigotes contained in monocytes or macrophages of infected mammals during a blood meal; in the middle intestine of the insect, the cell degenerates and the parasite undergoes at least one division in the form of an amastigote (before it turns into a bug into a promastigote). This form actively is divided by binary fission and colonizes the intestine of the insect . From this process the infection ascends

into the esophageal valve and sometimes into the throat of the insect. The cycle begins again on a new blood meal and infected metacyclic promastigotes are refluxed and deposited in the dermis of a susceptible mammal (Raymond et al, 2012).

1.4. The vector

1.4.1. General characteristics and biological cycle

Sand flies are pale yellow or sand colored insects ("Phlebotomine sand flies"). They are very small (2-4 mm). They can be recognized by insects of their same size by the thick hair that covers them they keep their "V" wings above the body when they are at rest. The legs are very long and slender. Males are recognizable by the very developed genital segments they have no stinging apparatus as they are melliphagous (they feed on natural sugary substances such as honeydew). The females, on the other hand, have a rounded abdomen and are equipped with a stinging apparatus being hematophagous; a blood meal is in fact necessary for the development of the eggs. Sand flies are holometabolous insects, the biological cycle takes place with a complete metamorphosis where the preimaginal phase presents an embryonic egg stage, four larval stages and one pupal stage. Sand flies are insects with crepuscular and nocturnal activity. During the day they take refuge in relatively cool and humid places such as stables, chicken coops, cellars, houses, cracks in walls, rocks and soil. Female sand flies are haematophagous, even if autogenic phenomena (ability to mature eggs without blood meal) have been described under unfavorable conditions. After mating, the eggs are laid in ecological niches based on the chemical and physical constituents of the substrate and on the presence of pheromones of the eggs already laid to ensure optimal conditions for the development of the preimaginal stages. The geographic range of sand flies extends, in the north, up to above 50°C in the south up to the 40th parallel. Sand flies are absent only in New Zealand and the Pacific islands (Romi et al., 2012). Their altitudinal distribution ranges from below sea level, in the Dead Sea, up to 3300 m s.l.m. in Afghanistan (*Phlebotomus rupester*) (Maroli et al.,

2013). In Italy, the maximum limit was recorded in Sicily in the Madonie 1200 and in Filetto (L'Aquila) 1070 m a.s.l. The development of terrestrial larvae requires a relatively constant temperature, darkness, relative humidity almost close to saturation and a nutrient substrate (dry leaves, remains of other insects, rodent feces, etc.). In laboratory colonies it was noted a difference between the optimal development temperatures of different sand flies: 25-26°c for *Phlebotomus perniciosus*, 28-29°C for *Phlebotomus perfiliewi* and 29-30°C for *Phlebotomus papatasi.* The optimal photoperiod was that of July (17 hours of light, 7 hours of darkness) (Maroli et al., 1983, Maroli et al, 1987). The identification of larval outbreaks is difficult. From observations in nature and in studies on laboratory colonies , it appears that the average duration of the development cycle of the species widespread in Italy can vary from 45 days to two months. During the hot season , (June-September) it has been observed that at least two complete development cycles can occur, thus corresponding to two generations of adults. Behaviorally, sand flies have a silent flight and are also attracted to dim lights. The flight distance is limited to 100-200 meters, but it can be carried by the wind. They can be pushed up to 2 km. They are disturbed by the wind and by temperatures below the summer average. It has also been observed that sand flies infected with *Leishmania* make numerous attempts to sting before being able to feed, perhaps due to damage caused by the parasite to the stomodeal valve, thus increasing transmission efficiency. In addition, when a female stings, she injects saliva into the host's skin. This, in addition to causing an allergic reaction in some individuals, can play a fundamental role in the success of the infection by *Leishmania*, given that it has an immunosuppressive action on macrophages. From the studies carried out to understand whether sand flies have host preferences or not, it emerged that in natural conditions the choice is dictated exclusively by the availability, abundance and size of a warm-blooded host (Romi et al., 2012).

1.4.2. Species identification

Sand flies can be recognized on the basis of the morphology of the internal organs and thus require clarification processes for chitin in the exoskeleton.

In males, the main structure to be taken into consideration is the genital shield or hypopygium, and it consists of external appendages: cauxite and penis, and paramyri and searcy. In particular, the formation of collective valves is a characteristic of individual species (Fig.3). For females, especially spermatozoa, which consist of a main body divided into segments, the spermatogenesis, ducts and expansions at the end of the ducts must be taken into account (Fig.4). Sperm body shape, presence or absence of a neck between the body and the process, the length of the ducts and the presence and number of segments are characteristic of the individual species. The oropharyngeal shield also plays an important role in its formation of chitinized teeth that are used by females to tear off red blood cells at the time of the blood meal. Their shape and distribution are distinguished for each species (Romi et al., 2012).

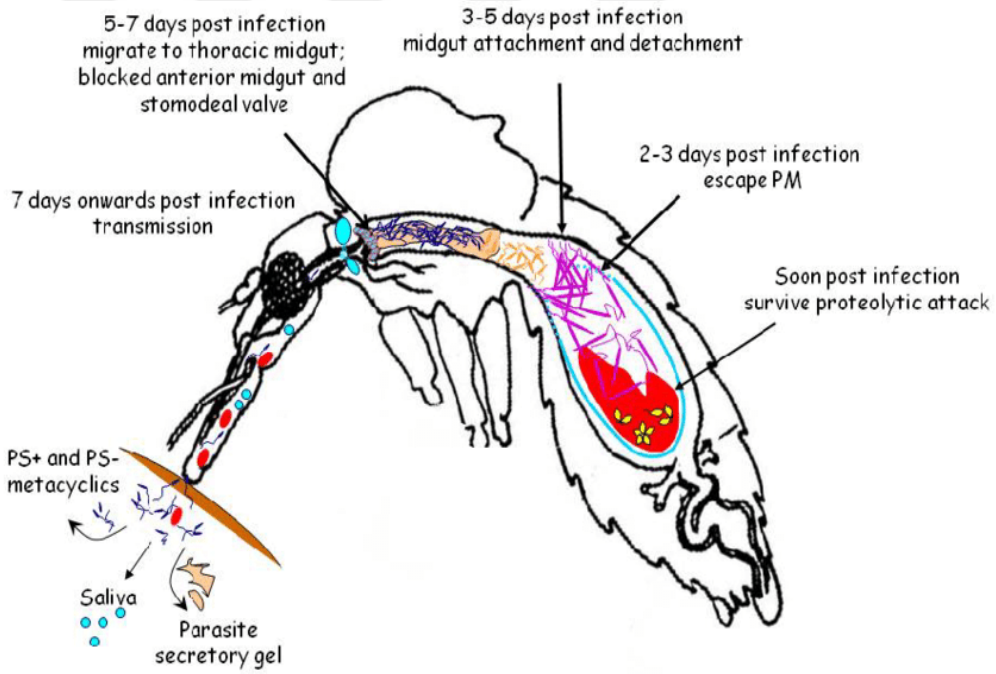

Figure 1.4: Sand fly internal organs (Marcelo et al, 2010).

1.5. The spread of the disease in the world

Cutaneous leishmaniasis (CL) is the most common of all three forms of leishmaniasis caused by the primary parasite *Leishmania*, which is transmitted by the

bite of the sand fly from the infected and occurs approximately 700,000 – 1,200,000 CL cases worldwide per year (Olliaro et al, 2018).

Leishmaniasis is one of the fastest spreading diseases in the world. As this disease was found in the countries of the Mediterranean, North and East Africa, the Near East, the Middle East, China, and Central and South America countries such as: Colombia, Ecuador, Venezuela and others (Berman, 1988).

The prevalence of CL related to the geographical distribution of the sand fly as it is a vector for the *Leishmania* parasite in different parts of the world, and its dependence on human or animal blood for nutrition, as well as its ability to aid growth and reproduction within its intestine and support the development of the parasite (WHO, 1990).

It was noted that the number of injuries was approximately 35.25 million people are infected with leishmaniasis, and there are 480 million people at risk of contracting this disease, and one and a half to two million cases of infection are recorded annually (Romi et al, 2012). More over , in central and southern America, *L. panamensis* and *L. braziliensis* cause mucocutaneous leishmaniasis (Al-Difaie et al., 1997)

This disease is characterized by its wide spread in different regions (except for Australia and the two polar continents) and in its second forms of cutaneous, visceral, and mucocutaneous, and it is endemic to the tropics and subtropics of about 88 countries (WHO, 1998).

It was noticed that the spread of the disease in areas that lack health care in southern Europe including France, Italy, Portugal and Spain, and the disease occurs as a result of infection with *L. tropica* parasites. That causes CL. *L. infantum* causes visceral leishmaniasis (Reguera et al.,1998).

The infections were estimated to be about 193 cases among the armies stationed in the Middle East for each population group of 1000 people, as this disease was considered one of the real problems during the World War, as well as similar

cases during the Gulf War, as their infection rates reached approximately 2-3% among the soldiers of the joint coalition forces (El- Deen et al, 2006).

The WHO report on combating leishmaniasis showed that there are two types of cutaneous leishmaniasis *L. major* and *L. tropica* was a high blood peak in Iraq. Three types of phlebotomus vectors have been installed. They are *P. alxandri, P. papatasi* and *P.sergenti* (WHO, 2010).

The spread of the disease is estimated to be around 10 million infected people in 82 countries, and its spread in the countries of the Middle East and the Maghreb countries with up to 350 thousand cases, and there are 90% of skin infections in India, Bangladesh, Brazil, Nepal and Sudan. World Health Organization stated that more than 90% of the cases were found Bolivia, Brazil and Peru in the New World (WHO, 2007).

Increasingly incidence of leishmaniasis has been observed for people who suffer from anemia, and malnutrition plays a major role in increasing exposure to leishmaniasis, as well as increasing cases of infection as a result of environmental changes, such as: building dams, mining, extracting wood and expanding cultivated areas, as well as the continued migration on a large scale from rural to urban areas (Gallego et al, 2009).

1.6 The spread of leishmaniasis in Iraq

Leishmaniasis is one of the most prevalent diseases in the world with malaria. It affects people who are more than 100 countries, and its infections appear on 40% of the world over the world and more than 2 billion individuals are exposed in North Africa. There are approximately 90% of these cases (Boger and Shapiro, 2005).

The emergence of the eastern skin was in Baghdad. The first person of who found the parasite was in Baghdad, as academic and medical studies were conducted for cutaneous and visceral leishmaniasis in Iraq (Abu Al-Hob, 1982) . The first indications for the diagnosis of the disease were before the researcher (Kulz, 1916),

who was the first to confirm the existence of the disease, that a person had nine cases by splenocentesis in the city of Baghdad (Kazem, 2012).

Also, the leishmaniasis epidemic in the southern governorates of Iraq was amounted to 90% of the cutaneous leishmaniasis cases, and the first cases of this disease were recorded in Baghdad and Mosul.The disease was recorded for the first time in Al-Adhamiya, Al-Senak, Al-Karkh, and Al-Hidarkhana (Thodor and Mesghali, 1964), as it recorded at 100% infection rate.

The incidence of this disease increased in the mid-sixties as a result of the cessation of disease control campaigns and consequently the increase in population density and spread (Rahim and Tatar, 1966).

Then, the disease began to decline in the mid-seventies of the twentieth century and this decline came as a result of sand fly control due to the use of pesticides with residual effect during malaria eradication compaigns (Guirges,1971).

The pathogen of CL (*L. tropica* and *L. major*) is more prevalent than visceral leishmaniasis in Iraq and it overlaps in many areas (Jarallah, 2014). The marshes area in the south of Iraq are free from this disease and it is limited in the north, widespread in the center, and the south, as 1984 year witnessed infections of up to 2500 cases (Desjeux, 2001).

In 2004, there were 31 cases of cutaneous leishmaniasis in Al-Diwaniyah governorate. Statistics provided by the Walter Reed Army Medical Center (WRAMC) were used to determine the prevalence of serious leishmaniasis infection in the Middle East among US soldiers in the years (2002 and 2003) 85% of the cases were confirmed in Iraq, and were distributed between Baghdad and Th-Qar (MMWR, 2004). In 2002 – 2003, approximately 522 cases of cutaneous leishmaniasis were recorded among American soldiers in Iraq, Kuwait and Afghanistan (John and Peti, 2006). There were indicated the emergence of this disease among foreign soldiers in Iraq for a period of time from 2006-2004 (Russell et al., 2006).

In 2008, Leishmania was spread throughout in Wasit governorate. There were 178 cases of cutaneous leishmaniasis, the highest of which were in the city of Essaouira, 90 cases. The city of Badra, one case, and the infection rates ranged between 51%, 18%, 21%, 6%, Aziziyah, Nu'maniyah, Hay, Kut respectively. (WH0, 2010).

The incidence of the disease was found to increase during the months of the september and october, the most during the months of January and February, and decreased in March and reached their lowest levels in the months of June and August (WH0, 2010).

In 2011, 468 cases were recorded, and they were diagnosed with cutaneous leishmaniasis in the outpatient and dermatological consultation clinics in Tikrit, Baiji, Sharqat, Toz, and Al-Dur, and for the period from August 2007 to July 2008. In addition, 394 cases of cutaneous leishmaniasis were recorded in Diyala governorate (Kazem, 2012).

Also, in 2011, the Iraqi Ministry of Health recorded the number of infected people in Baghdad. The highest governorate is Diyala with 717 people infected, Salah al-Din governorate 628, then Maysan governorate 316, Corinthians. The other governorates recorded as follows Baghdad 112, Kirkuk 117, Nineveh 186 Wasit 144. In 2012, the Ministry recorded the number infections, the highest were in Diyala governorate, with 508 cases, followed by Salah al-Din governorate 326, Baghdad governorate 119, Diwaniyah governorate 35 and Karbula' governorate 209, Wasit 212, Muthanna 2 and Najaf 62 infections, respectively (Reports and statistics of the Iraqi Ministry of Health, 2012).

In the period between 2011-2012, 1189 clinical cases of cutaneous leishmaniasis were registered from the visitors to Tikrit Teaching Hospital (531 cases) and Samarra General Hospital (658 cases). Whereas recorded 124 cases in Maysan governorate, infection with cutaneous leishmaniasis (Reports and statistics of the Iraqi Ministry of Health, 2015).

1.7. The definition of nursing

It is the help of a person, whether he is sick or healthy. It is a practice related to his health or recovery actions he would take without someone else's help needed strength, desire and knowledge. All this is what a nurse wants to help to gain independence to the person in the shortest possible time (Kathleen and Lisa, 2010).

1.8. The essence of nursing

A nurse is a person who has successfully graduated from the country's government of average or higher recognized (it has been introduced in many countries today higher nursing education). The medical school, which the program studied, provided study materials and obtained a qualification conferred by the right to practice independent nursing. The nurse is required to develop and to carry out health prevention, diagnosis, treatment and measures aimed at rehabilitation and appropriate care of the patient (Sunter and Gull, 2017)

1.9. The Aim

This thesis aims to assess nurses' knowledge of leishmaniasis in primary health care centers in Thi-Qar governorate.

1.10. Statement of Problem

The statement of problem can be summarized by the following question:

What is the nursing knowledge of leishmaniasis in Nasiriyah, Iraq?

1.11. Limitation

The results are restricted by the study period, the questionnaire that was specifically developed for this study, and the fact that the data was based on self-reports from the nursing department in Nasiriyah, Iraq, in the study.

2. GENERAL INFORMATIONS

2.1 Description of The Leishmaniasis

Leishmania parasite is a unicellular protozoan obligative intracellular, with a Chordate host with two phases (Sunter and Gull, 2017).

Promastigotes live in the sand fly which belongs to the genus *Phlebotomus,* which is about 20 microns long. Amastigote grows inside the macrophages of the vertebral reservoir host (Paniker, 2007).

This parasite comes from the parasitic protozoa group, which is of medical importance. Primates are generally single-celled organisms that live alone or form groups or colonies and have the ability to carry out various metabolic activities and biological functions. And often they have clear nuclei, as they are considered eukaryotic organisms (Al-Saadi and Taher, 1990).

2.1.1 *Leishmania* amastigote form

This phase is present only within macrophages in the vertebral host and the advantage of this phase is that it has a circular to oval, colorless, size between 3-5 microns, and the flagellar phase consists of a single nucleus near the center. The kinetoplast is characterized by its heterogeneous shape. Ovoid, and curved rod that is very close to e basal granule blepharoplaste from which the axial thread extends. As shown in Figure 2.1

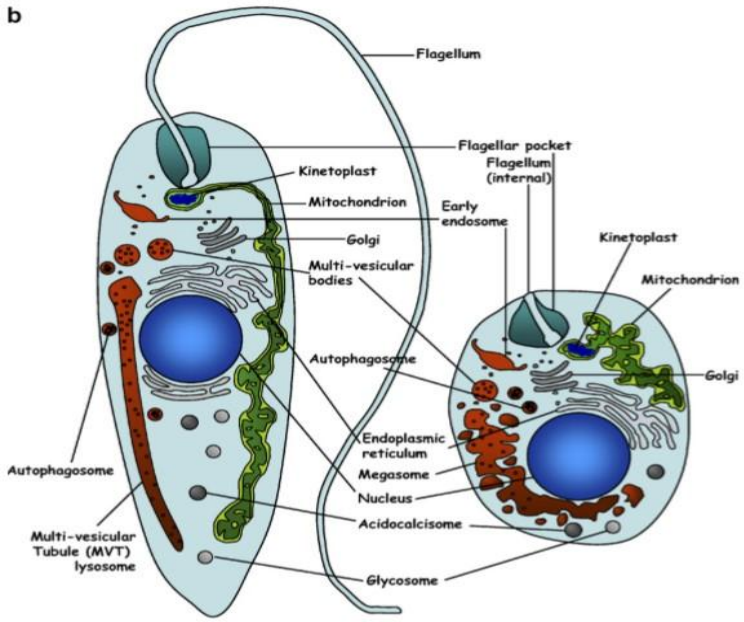

Figure 2.1: Schematic representation of the main intracellular organelles from *Leishmania* promastigote (left) or amastigote (right) forms. The flagellar pocket marks the anterior end of the cell (Besteiro et al, 2007)

2.1.2 *Leishmania* promastigote form

This stage is located inside the vertebral host (the vector insect) and is elongated. Its size ranges between (14-20) * (41.5) microns. A flagellum protrudes from the front end that aids movement. Its length reaches about 28 microns. As well as a medial twist and reproduces by longitudinal fission (Elizabeth and Zenlig, 1997). The parasite organels has which called the flagellum, length of 15 to 28 microns (Saraiva et al., 2005).

2.2 Classification of leishmania

Leishmania parasite is classified according to the sequence of the of DNA (Chappuis et al., 2006).

- Kingdom. Protista
- Subkingdom Protozoa
- Phylum Sarcomastigophora

- Subphylum Mastigophora
- Class. Zoomastigophora
- Order Kinetoplastida
- Suborder.Trypanosomatina
- Family.Trypanosomatidea
- Genus: *Leishmania*
- Species: *L. trop*ica
- *L. major*

2.3 The life cycle of *Leishmania*

Leishmania parasite enters females sand fly when the insect feed on the blood of the infected vertebral host. The first step is the transformation of the non-flagellated phase to the flagellar phase. This transformation occurs when the taking of the blood meal surrounded by the secreted by means of cells available in the midgut of the sand fly. The flagellar forms are divided in initial stage and this stage is called the procyclic stage. After three days of feeded the insect, the flagellar phase comes out of this membrane heading towards the front of the midgut. On the fourth day of feeding a number of intermediate stages are noticed in the middle intestine of the sand fly, then it moves and settles in the salivary glands of the insect as it transforms and takes a fast-moving, thin spindle shape. This phase is called gastric metacyclic promastigotes, the infectious phase of the vertebral host (Ayhan and Charrel, 2017).

Once it enters this phase by the sting of the insect that transmits the parasite to a healthy person while feeding it. Then the macrophage phagocytic cells of the reticuloendothelial system will confront these intermediate forms entering the body and swallow them. This process of phagocytosis takes 4-8 hours. The flagellum that enters the body rises to these cells (Ponte - Sucre, 2003; Ashford and Bates, 2001).

The amastigote phase begins with proliferation within the phagocyte which leads to its destruction, causing the parasites to multiply inside them and the parasite to spread freely to infect other cells. This process is repeated until treatment is completed or may lead to death in untreated cases. The uninfected sand fly feeds on blood the infected person's blood is digested by the macrophage cells. The parasites releases that settle in the middle gastrointestinal tract of the vector insect, and the Procyclic form transforms into the mouth of the vector insect and settles in the insect's salivary glands and turns into the metacyclic form, which enters the phagocytes of the vertebral host when feeding on blood. These asexual reproduction begins that reproduces and turns into the flagellated phase (Bates, 2009). As shown in Figure 2.2 .

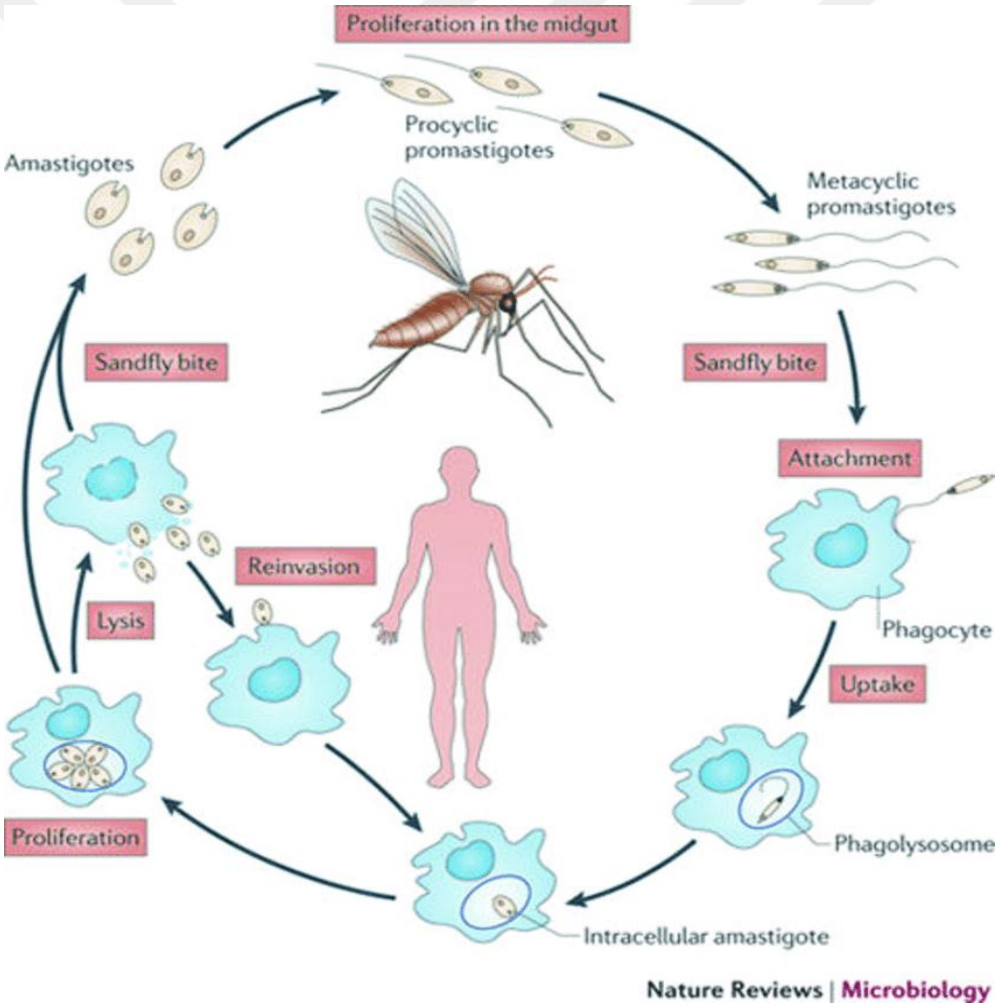

Figure 2.2 : The life cycle of *Leishmania* (Colineau, 2018)

2.4 Storge Host

The reservoir hosts in the Middle East, Asia and Africa are wild rodents, wolves, foxes and gerbils (WHO, 2003).

In 1930 isolated the cutaneous leishmaniasis parasite from a dog in the city of Baghdad, and this isolation was injected into rats and produced skin change, which differs from the sores caused by the stings of the sand carrier insect (Jacobson, 2003).

For humans, the reservoir host remains in the absence of the original host. Dogs, wild animals and rodents are the reservoir hosts for cutaneous leishmaniasis of animal origin (ZCL) that is caused by the Leishmania parasite (WHO, 2014: WHO, 2007: Jacobson 2003: Ashford and Bates, 2001).

Small rodents such as: *Rattus rattus* rats, *Mus musculus* mice, and *Crociaura Slaveolens* have been found to be disease reservoir rodents (Svobodova et al., 1999). For this reason, black grouse infestation of *Rattus rattus* in Baghdad province in the Adhamiya district was caused parasites cutaneous Leishmaniasis (WHO, 2006: Jacobson, 2003: Ashford and Bates, 2001)

Also, the spread of the reservoir strains transmits the cutaneous Leishmaniasis parasite in Diwaniyah province, (which are the domestic rat *Rattus rattus*, the domestic rat Mus musculus and the promotional rat *Rattus nervagicus*, and the domestic rat was the most widespread) and then the Leishmania parasite was isolated from the Norwegian rat for the first time in Iraq (Jara et al,2013).

Standing in Iran as well as Egypt the reservoirs were two other species of rodents, *Rhombomyiopnus* and *Meriones tipycus*. Reservoirs were the black rat (Rattus rattus) and the Norwegian rat *R. vogicus* (Morsy et al., 1995). (Morsy et al., 1995).

In Sudan, the parasite was discovered in the rodent species *Vicanthis niloticus* (Yaghoobi and Reza, 2016).

2.5 Transfer methods

The modes of transmission of *Leishmania* parasite are with one of the vectors and that each type of *Leishmania* is transmited a specific type of sand fly. Female sand flys are only those that feed on blood, especially in humid climates free from wind and rain, and their activity are usually during the night and dawn period. *Leishmania* parasite is transmitted by the sand fly hosts of the genus *Lutzomyia* and *Phlebotomus* (Gallego et al., 2009).

Transmission of the parasite occurs through free sting and blood drawing, as this method is an important method for parasite transmission (Ates et al., 2013).

It is also transmitted from the infected person to the healthy person through the use of medical injections filled with the parasite (Gallego et al., 2009).

2.6 Immunity

As a result of the different rate of detection of leishmaniasis varieties varies, methods of treatment and prevention of this disease have remained relatively slow over the course of the twentieth century. There are no vaccines available to treat the infection and no preventive drugs for the disease, mainly due to the restriction of the immune response to leishmaniasis, with research in this area and the elaboration of the broad complexities of host-parasite-mediated interactions (Duncan et al, 2014).

The parasite enters a healthy person with a bite of the sand fly. A reaction occurs between the *Leishmania* parasite and the immune cells of the host directly after the sand fly was injected with the parasite. There occurs an inflammatory responses (Peters, 2008).

The process of the parasite's entry into the phagocytic cell begins with the cell membrane. As this contact leads to an association that depends on two types of surface protein determinants that envelope the surface of these shapes, and these determinants are: Glycoprotein 63 (gp-63) and Lipophosphoglycan LPG. These determinants interact with the inflammatory cell receptors of the macrophage directly or indirectly with the help of the Opsonins. The *Leishmania* parasite species can avoid some enzymes such as Superoxide disantage, which protects from the

influence of oxygen radicals. It should be noted that this mechanism is a common feature between the genera *Leishmania* and *Trypanosoma cruzi, Toxoplasma gondii*. Because these genera have the ability to stop the explosions (Gallego et al., 2009).

Distinguishing of the presence of some chemical compounds such as Glycoproteinase (PG 63) and Lipophosphoglycan (LPG) on the outer surface of the leishmaniasis parasite facilitates the entry of the ring into the macrophage cell. Thus they are very important in the process of mastigote attachment to the host's cell before infection occurs (Duncan et al., 2014).

The virulence factor (LPG) of leishmaniasis has multiple functions that keep the parasite alive and developing within a host of mammals. It includes providing protection against supplements and oxidants and serving as a major factor for its attachment to the macrophage as well as a mitigating factor for host responses by disrupting the signaling pathways of macrophages normally responsible for Intracellular pathogen destruction of the lacunar phase of leukemia (Zhang et al., 2004).

The human and animal pathogenic parasites have been able to develop several virulence factors in order to ensure their survival and reproduction within their host. The first role of these factors is to mitigate the host's defenses against them. The host, thereby allows these organisms to survive in an immune environment in the host (Hall and Joiner, 1991; Sacks, 1989).

Among the most important of these identified factors (GIFL5): Proteophosphoglycan, Lipophosphoglycan (LPG), Glicoinositolphospholipids (PPG) a protein with a molecular weight of 11 kDa 11 KMP-Kinetoplashid membrane protein (Matlashewski, 2001) and a glycoprotein called (glycoproteinase) (GP63) (Chaudhuri and Chang, 1988).

2.7 Types of leishmaniasis

Types of Leishmaniasis can be distinguished from each other depending on the clinical aspect, epidemiology, geographical distribution, as well as genetics (Kazem, 2012).

1- Cutaneous Leishmaniasis (CL)

2- Visceral Leishmaniasis (VL)

3- Muco - Cutaneous Leishmaniasis (MCL)

2.7.1 Cutaneous leishmaniasis

Cutaneous leishmaniasis is caused by multiple types of leishmaniasis. *L. major* can cause wet lesions which is self-heal within 6 months which is storing host is rats. *L. tropica* forms dry sores and painless blisters and dogs and elephants are the storing host in East Africa and the vector insect is *P. longipe* (Monteiro et al., 2007).

This skin lesion or ulcer is known as the Oriental sore or Baghdad boil, also known as Sister, and the disease spreads in the countries surrounding the Mediterranean Sea as well as in West Asia, South Asia, North and Central Africa. This disease is self-healing (Hect and Hecht, 2005).

The infection leads to the enlargement of the dermis and the occurrence of an infiltration consisting of lymphocytes and serous cells. This ulcer initially appears in the form of nodules and increases in size taking the form of a papule with a high center. It covered with a thin layer of the skin in the form of an ulcerated vesicle, after which it bursts and exits from it. A thin substance is left in its place a distorted area with irregular edges, brown in color called the scar. Sometimes it may have 200 ulcers in different places of the body, especially in the arms, legs and face (Markle and Makhoul, 2004). As representend in figure 2.3.

Figure 2.3 : Cutaneous Leishmaniasis on leg (Ramot and Zlotogorski, 2016).

2.7.1.1 Clinical forms of cutaneous leishmaniasis

1. **Urban Type (dry type)**

It is caused by my *L. tropica* is found in urban areas in the countries of the Mediterranean basin, the Middle East, Pakistan, and parts of India (Schmidt et al., 2005). This type causes dry ulcer, as its shape is small, single and slow to develop, usually painless, with an unsteady shape. Infection with this type is more frequent in

urban areas, and it cures after a year or more and has a long incubation period ranging between 2-8 months. Dogs represent the reservoir hosts of this species (Monteiro et al., 2007; Lesho et al.,2005). Ulcers appear in the exposed parts of the body, change from red to bluish-red, and have dimensions ranging from 2-4 cm (Badaro et al, 1996).

2. Rural (Wet type)

This type is caused by the *L. major* parasite, which forms a wet lesion. It tends to blister very early as the incubation period of the parasite ranges from 1-3 weeks and heals spontaneously over a period of two months to a year, leaving a low colored scar with permanent immunity (Schmidt et al., 2005). This type *L. major* is the most prevalent in Iraq. It usually affects rural areas. Because the parasite is transmitted through the sand fly from dogs, rodents, or gerbils to humans, or the parasite is transmitted from one person to another in polluted ways. The disease appears in the form of painless skin lesions and often It is multiple, especially in immunocompromised people (WHO, 1984).

3. Acute Cutaneous Leishmaniasis

This is the most common type of CL and is limited by any of the types that cause CL. The infection appears within one year, with a different formulation in the form of non-ulcerative scarring and of an eczema-like shape (Tan et al., 2000).

4. Recidivous Leishmaniasis (RL)

Lupoid leishmaniasis is called the lesions resulting from this disease that are destructive and erosive to the tissues, as it is of little spread and is usually chronic. The original blister isn't appeared ulcerated and the new ulcers formed around the old lesion appear on the face and trunk. This is clinically similar to Leprosy. It needs an accurate diagnosis to distinguish it from various other infections that include Lupus vulgaris, Fungal infections and leprosy (Tan et al., 2000). It is not possible to spontaneously heal. It is possible that a relapse occurs after taking the treatment, due to a decrease in the immune response (WH0, 1998; 2000) Caused by the disease *L. tropica*, especially in the absence of parasites in lesion (Dowlati, 1996). This type of leishmaniasis may be caused by infection with the *L. major* parasite (Herwaldt, 1999).

5- Diffuse Cutaneous Leishmaniasis (DCL)

This type leads to the spread of the parasite over a wide area of the body surface, forming deformed nodules that may not ulcerate sometimes. This type occurs as a result of infection with *L. mexicana* and *L. aethiopica* in subjects with impaired specialized immune responses and thus an inability to cellular response to Echinacea (Chance, 1985).

This parasite may attack the cartilage and soft areas of the body, infecting them and thus cause severe pain. Sometimes it may attack the nose and ear, and then it is called white leprosy disease (Jason, 2003).

2.7.2 Mucocutaeous leishmaniasis

It is caused by the *L. aethiopica* in the ancient world and *L. braziliensis* in the modern world infection (as infection with mucous cutaneous leishmaniasis is characterized by infection of the mucous membranes, especially the mouth, nose and throat). It causes extensive damage and deformities in the face area, as the infection can become worse in the event of bacterial or fungal infections, i.e. secondary infection. This disease is spread in South America (Agrawal et al., 2005).

2.7.3 Visceral leishmaniasis (Black fever)

It is known as Kala azar or black fever, or dum dum in the past,and caused by the *L. donovani* . This disease is the most dangerous among the other types of leishmaniasis as it is fatal when not treated in its early stages. It incubation period extends to months or years. It differs from the cutaneous forms of leishmaniasis in that it includes the internal organs (WH0, 2000). This disease is characterized by chronic irregular fever with diarrhea, weight loss and anemia with enlarged spleen and liver. Hepatosplenmegaly, leukopenia and glomerulonephrolysis to death if left untreated (Davies et al, 2004). The types that caused him in the ancient world are *L. donovani* and L. infantum and in the new world *L. chagasi*. Dogs and rodents are the main reservoirs for this species (Duncan et al., 2014).

The clinical phenomena of the disease in Iraq are similar in the Mediterranean region (Kazem, 2012).

Kala azar disease affects children under the age of three of both sexes (Al - Taee, 2008).

It is more common in the central region of Iraq (Kazem, 2012).

The causes of three types of leishmaniasis are:

1. Leishmania Donovani Donovani

The parasite is *L. donovani* . The disease is called anthroponotic disease because it is transmitted from one person to another through the capacity of the vector insect. The sand fly is of the genus *Phlebotomulus* which means that humans are its storing host (WH0, 2000).

2. Leishmania Donovani Infantum

The parasite is *L. infantum*. The disease is transmitted from the storing host (dogs and rodents) to the human through the capacity of the vector insect . Because the disease is shared between humans and animals. So it is termed as zoonotic disease and it mainly affects children under the age of ten years and is 94% (Ramot and Zlotogorski, 2016).

3. Leishmania Donovani Chagasi

It found in Mexico and South America and affects the elderly and adults. The storing vertebral hosts are foxes and dogs. The vector insect is sand flies of the genus *Lutzomyia* (Carson et al, 2010)**.**

Another condition is called Post-Kala-azar dermal leishmaniasis (PKDL). The persistence of visceral leishmaniasis after treatment occurs in 20% of patients. It appears after one to two years of treatment for visceral leishmaniasis. But in Africa it usually appears during or shortly after treatment. It lasts only for a few months (Al - Taee, 2008).

This tropical skin disease appears after recovery from visceral leishmaniasis (Ramot and Zlotogorski, 2016).

2.8. Cutaneous leishmaniasis pathogenesis

The skin lesion appears in the form of a small red circle bean at the site of the bite. The flagellar phase protrudes into the skin during feeding (Duncan et al., 2014).

After completing the Promastigote injection of Leishmania parasite into the vertebral host by the bite of the female sand fly. These flagellate forms correlate with the macrophage cells spread below the surface of the skin, the mechanism of attachment of the anterior flagellar phases with macrophages depends on the presence of two surface molecules. Lipophospholycan in the parasite is clearly active in the attachment process. It seems that the outcome of parasite infection depends on the immune response of the host and the complexity of the interaction in the severity of the parasite infection (Vidyashankar, 2007).

The infected macrophage cells spread the disease to most parts of the body according to the type of leishmaniasis and the disease it caused. These infected cells burst, releasing the parasites that may infect the skin and cause the occurrence of the known types of leishmaniasis. There is found mucous membranes of the mouth and nose in the event of mucocutaneous leishmaniasis. Visceral leishmaniasis which leads to the spread of the infection to the liver, spleen and bone marrow the capsular enlarges, enlarges the vascular spaces and becomes congested with blood. Liver is an increase in the number and size of cells. It also enlarges and becomes infected with the non-whiplash forms of the parasite (Al-Janabi, 2001).

Skin infections include two distinct phases: a primary phase called the silent phase that starts after the parasite enters the host body directly. The second phase in the onset of lesion phase is considered to be both special or non-specific (Kazem, 2012).

The clinical manifestations begin with the appearance of a small reddish swelling at the insect bite site of 0.5 cm in diameter called a papula enlarging as the nodule (Mandell et al., 1997). Than necrosis of the infectious cells after a period of time in the center of the blister as a result of the immune response that leads to ulceration of the affected area (Markle and Makhoul, 2004)

The presence of ulcers is limited to the exposed surface of the body, which is mostly exposed to the bite of a sand fly, which generally heals spontaneously within 3-6 months (Bari and Rahman, 2008). The most affected sites are the face, upper and lower extremities, while the ear is rarely affected. They are often found nose, the lips, and eyelids, however the ulcers aren't noticed on the palm of the hand or the soles of the foot (Schmidt, 2005; Chance, 1985).

2.9 Diagnosis of cutaneous leishmaniasis

There are several diagnostic methods for cutaneous leishmaniasis, including immunological, parasitic, molecular and pathological methods, as follows:

2.9.1 Clinical diagnosis

This type of diagnosis is based on the characteristic appearance of the raised ulcers that appear as a papule or a crusted lesion with raised edges that may ulcerate and become infected with secondary infections from other organisms. This needs to be distinguished from infections such as *Staphylococcus aureus* or fungi (Reithinger and Dujardin, 2007).

2.9.2 Parasitic diagnosis

2.9.2.1 Microscopic examination

This examination depends on the method of Ross (1903) by observing the parasite. It is proving its presence through swabs prepared from materials taken from the edge of the sore. It is made visible by staining the fluid taken from the ulceration base (Tarish, 2000). Another may is by making biopsies of the affected skin at the site of the ulcer. The lacunar phase can be seen in the examined specimens known as *L. donavani*'s antibodies (Duncan et al., 2014).

2.9.2.2 Culture

This method is used in cultivating the Leishmania parasite on special media, as the stage grows in front of the flagellum Promastigote, and the most common medium is the NNN medium. The parasite is cultivated by taking the ulcer fluid in a sterile manner and distribute it in its own cultivation medium. It incubate at a temperature of 26^0C for a week then take a drop of cultivation fluid and test for health. The examination is considered positive when the flagellar phase is seen, but this method requires a long period until results are visible (Markell and Vores, 2006; Roberts and Janovy., 2005).

2.9.2.3 Immunological diagnosis

A range of methods include the Eliza and Direct aglutination test (DAT) as well as the Polymerase chain reaction (PCR) which is one of the modern and very sensitive techniques in diagnosing leishmaniasis parasites in the blood, bone marrow,

lymph nodes and spleen (Vaneys et al., 1992). This technique was discovered by the American scientist Kary Mullis in 1983 (Mullis et al., 1985). Through this invention, researchers in the field of molecular biology multiplied the DNA millions of copies from a small piece of it. This invention helped diagnose living organisms through their DNA (Al - Taee, 2008).

PCR technique was used to detect leishmaniasis parasites in clinical specimens, especially those suspected cases of leishmaniasis (Duncan et al., 2014).

Several studies have shown that the PCR technique is more specific and sensitive than other methods, in which blood or biopsy material can be used for skin lesions as well as bone marrow and blood points collected on filter paper. The latter is an easy, simple and sensitive method for identifying cutaneous Leishmaniasis (Meredith et al., 1993). This process is important in routine diagnostics in laboratories around the world depending on molecular characteristics (Lachand et al., 2000).

3. MATERİAL AND METHOD

3.1. Research Approach:

The research level of this study is descriptive because it aims to define the characteristics of the study phenomenon such as knowledge and nursing practices for cutaneous leishmaniasis and the direction of the study group in which primary care centers in Thi-Qar Governorate.

3.2. Design of the study:

This study is of a non-experimental design because there is no manipulation of the variable. In this respect, it is done without the intentional manipulation of the variables, as phenomena are only observed in their natural environment for analysis. This study is descriptive because it sought to define the knowledge and practices of nursing in primary care centers in Thi-Qar governorate, the second sector of Nasiriyah, and it is part of an applied research, because it uses the theoretical knowledge of the researcher. There will be numerical measurement and statistical analysis of the data collected. The study began from 1/9/2020 until 1/4/2021.

The data collected either contribute to the development of the theory or explain phenomena from the perspective of the people under study

3.3. Study method **According to logical thinking, this is a study where the deductive method was applied, as it started from a theory and an expression was derived from it.**

3.4. Administrative arrangement

Prior to the initiation of this study, approvals were obtained from the Behavioral Research and Ethics Boards of Cankiri Karatekin University to ensure on 20/10/2020 that this research study complies with the ethical standards and safety of the participants. After approval by the Behavioral Research and Ethics Councils, the researcher provided a detailed description that includes the aim of the study and its methodology to the Iraqi Ministry of Health to obtain official permission, and it was

presented to the Thi-Qar Health Directorate of Nasiriyah 2. Sector, to ensure its approval and cooperation.

The approval facilitated entry to primary health centers and facilitated meeting of nursing staff. Finally, the consent of the nursing staff to participate in the interview was obtained to answer the questionnaire. Participants were verbally informed of the aims of the study and asked to participate voluntarily, and their anonymity was confirmed. To ensure participants' confidentiality, no names were written during data collection and reporting. They have also been informed that they can refuse to answer a specific question or withdraw from the study at any time without any penalty. Emphasis was placed on creating a comfortable atmosphere during the interview by using good communication skills with the participants.

It is important to consider the ethical aspects of a project (nursing dissertation research) in the first stage of project planning. The ethics review process is vital to safeguard the (nursing dissertation research) project that will protect the rights, safety, dignity and well-being of all participants.

3.5. Place and time of study:

The study will be conducted in primary health care centers in Thi-Qar, where there are 9 health centers and a nursing staff consisting of a nursing team of 339 male and female nurses. The research will take place in the second half of 2020.

3.6. Study population

The study population was 179 male and female nurses in primary health care centers in Thi-Qar governorate in Iraq, who met the inclusion and exclusion criteria

3.7. Study and inspection sample

Non-probability estimated sampling was performed, so the subjects were deliberately selected according to some specific characteristics that the researcher must cover. In this sense, the study was conducted according to the criteria of geographical availability and time. Therefore, a sample was taken from 179 male and female nurses. The sample is used according to the sample size calculation method in all nursing staff in the primary health centers in Thi-QarThe inclusion criteria.

- Nursing workers in primary health centers over the age of 20 years in primary care centers in Thi-Qar governorate in Iraq.
- Users who wish to voluntarily participate in the study.
- Users of both sexes.

3.7.1. Exclusion criteria.

- Nursing staff working in primary health centers under the age of 20.
- Users who do not agree to participate in this study.

3.8. Study variables

- **The independent variable:** Age, gender, education level, marital status, working time.

- **Dependent variable:** Knowledge and practices of nurses on Leishmaniasis.

3.9. Search limits:

Spatial boundaries: In primary care centers in Thi-Qar governorate.

Deadlines: The study will be carried out between 1/9/2020 and 1/4/2021.

3.10. Data collection techniques and tools

The technique used was the survey that aims to obtain data through simple and easy-to-understand questions that were formulated directly for the users, using the questionnaire as a main method for gathering information, with eight questions that refer to general information about cutaneous leishmaniasis and are divided into questions about knowledge of the disease, the source of the information about

cutaneous leishmaniasis, awareness (knowledge) about the transmission of cutaneous leishmaniasis, and awareness (knowledge) about the characters and places of reproduction of the vector causing the disease to achieve the objectives of this research, a questionnaire was used regarding knowledge and practice dimensions of leishmaniasis.

This tool consists of several components:

- Presentation: where information is presented about the university to which the student who conducted this study belongs.
- An explanation of the confidentiality of the survey.

- **The first part will consist of demographic data.**
- General data on the participants, such as gender and educational level.

- **The second part deals with the scale of leishmaniasis to describe the knowledge of pathogens and this tool used will be included in the thesis.**

- Using the Alpha Cronbach scale to collect information, the researcher obtained this questionnaire because it shows the extent of knowledge of the causes of leishmaniasis**..**

- **Finally, questions related to the disease under study.**

The questionnaire contains questions that are identified with two answer options: positive or negative. Considering a dichotomous scale for the knowledge and practice dimensions in leishmaniasis, assuming a numerical rating for each question:

- Yes = 2
- No = 1
- In May 2020, the first contact was made with the authorities of the health centers targeted for the study
- A dialogue with the directors of health centers to request permission to apply the survey on cutaneous leishmaniasis and its nursing staff.
- From May 22 to November 30, 2020, the questionnaire was applied, with prior consent of users, and it is a short introductory talk about the questionnaire.

3.11. Appendix 1: Interview form

Part 1: Demographic data:

Appendix 2: Nurses' information study on cutaneous leishmaniasis

Part II: General information on cutaneous leishmaniasis

4. RESULTS

The sample was selected by nurses working in primary health centers in Thi-Qar governorate, Nasiriyah region, Iraq, using a simple random sampling method.

The primary health centers from which the study samples were obtained are Al-Fida Health Center, Al-Alamein Health Center, Sumer Health Center, Imam Al-Mahdi Health Center, Al-Razi Health Center, Arido Health Center, Bekaa Health Center, Al-Bashaer Health Center, Imam Al-Reza Health Center, as in Figure 4.1

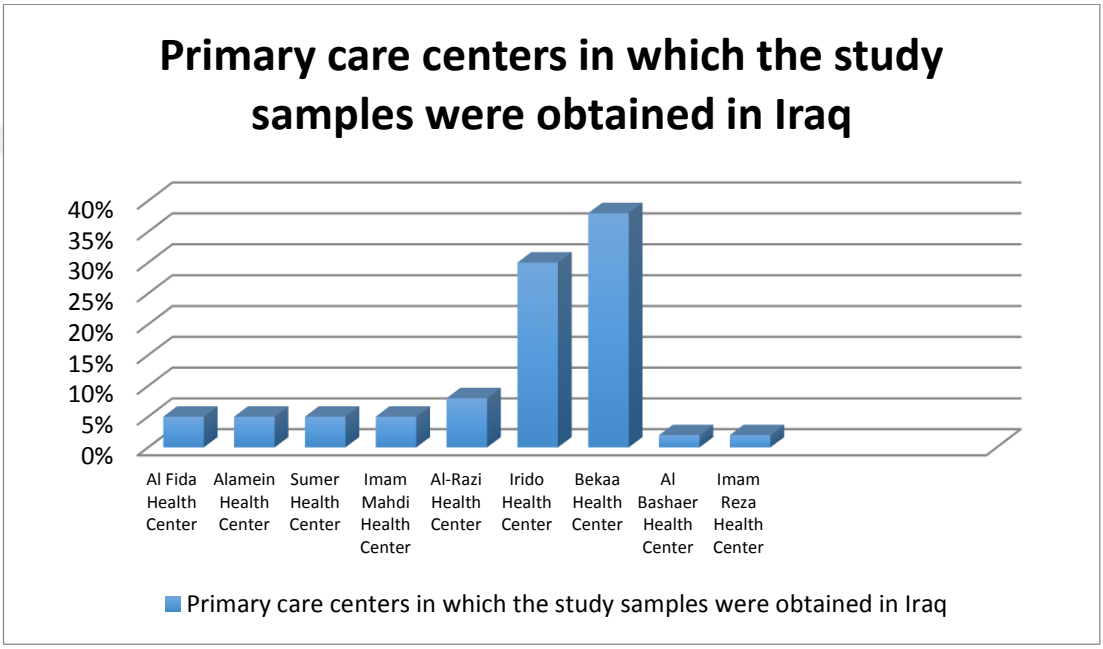

Figure 4.1: Relative distribution of the study population by primary health centers

The majority of the study sample (38%) is represented by the Bekaa Health Center, the rest is distributed to other primary health centers.

Table 4.1 : Distribution of the studied groups with comparisons significant (n: 179)

Basis Information	Groups	Frequency	Percent
Age Groups (years.)	20-25 years	69	38.54%
	26-30 years	54	30.16%
	31-35 years	8	4.46%
	36-40 years	30	16.75%
	41 years and over	18	10%
	Total	**179**	**100%**
Gender	Male	66	36.87%
	Female	113	63.12%
	Total	**179**	**100%**
Education Level	Secondary nursing school graduate	63	35.19%
	Nursing institute graduate	84	46.92%
	Nursing college graduate	31	17.31%
	Master of Nursing	1	0.55%
	Total	**179**	**100.0**
Marital status	Single	126	72%
	Married	50	27.93%
	Other	3	1.67%
	Total	**179**	**100.0**
No. of years of experience	1-5 years	87	48.60%
	6-10 years	43	24%
	11-15 years	22	12.29%
	16-20 years	16	8.93%
	21 years & more	11	6.14%
	Total	**179**	**100.0**
Adres	City	165	92.17%
	Village	14	7.82%
	Total	**179**	**100.0**

Table 4.1 indicated that the majority of the study sample (63.12%) are females, and the rest are males, and most of them are between 20-25 years old and represent (38.54%). Only 8 nurses were in the age group 31-35 years, at a rate of (4.46%). With regard to the issue of marital status, the majority of the sample members were single and constituted (72%) of the total sample.

As for their educational level, the largest number of them is graduates of a nursing institute, and they constituted 46.92% of the sample and 35.19% of high school graduates of nursing.

Regarding the number of years of experience, the majority of the sample (48.60%) has 1-5 years experience in primary care centers, while (11%) have experience (21 years and more) in primary care centers, and the number of 165 male and female nurses was from the sample. That is, (92.17%) live in the city, while 14 of them live in the village, (7.82%) of the total sample.

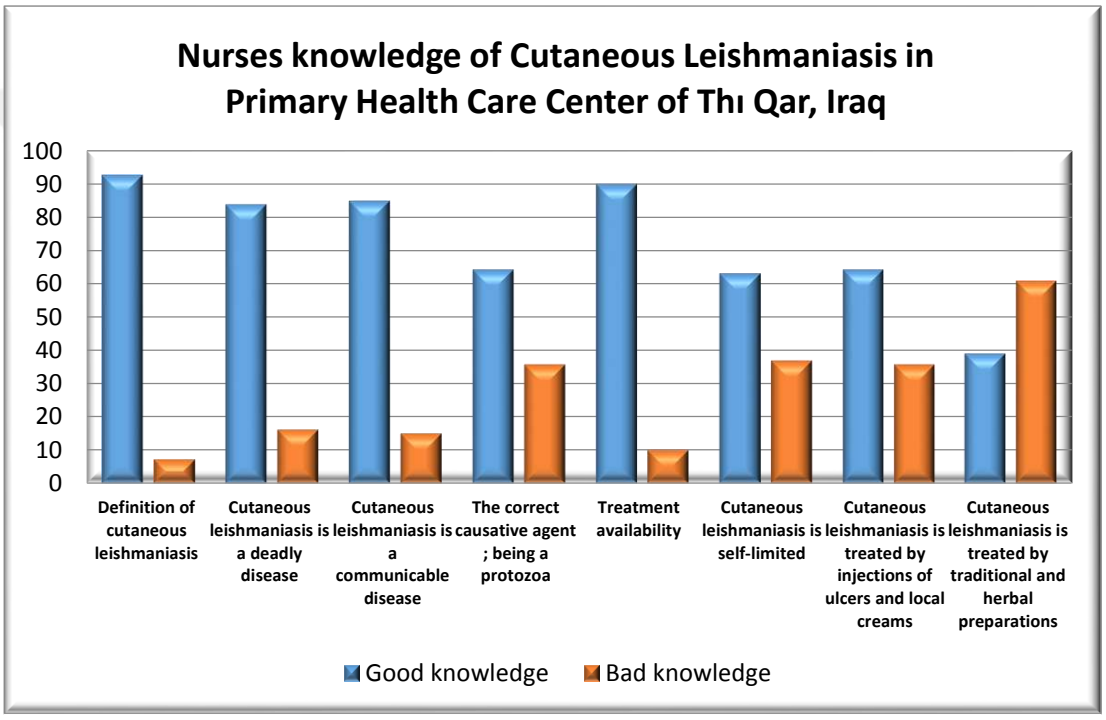

Figure 4.2: Nurses knowledge of Cutaneous Leishmaniasis in Primary Health Care Center of Thi-Qar, Iraq

Figure 4.2 shows the knowledge that nurses possess about cutaneous leishmaniasis Primary care centers in Thi-Qar, Iraq, 2020, surveyed, 179. It is evident in this study that more than half of the respondents have good knowledge

Table 4.2: Descriptive statistics of Nurses Knowledge of cutaneous leishmaniasis in primary health care center of Thi-Qar (n:179)

Information on	**n (%)**
Definition of cutaneous leishmaniasis (hearing or reading about it) Yes No	 166 (92.73) 13 (7.26)
Cutaneous leishmaniasis is a deadly disease (False) Yes No	 150 (83.79) 29 (16.20)
Cutaneous leishmaniasis is a communicable disease (True) Yes No	 152 (84.91) 27 (15)
The correct causative agent ; being a protozoa (true) Yes No	 115 (64.24) 64 (35.75)
Treatment availability (true) Yes No	 161 (89.94) 18 (10)
Cutaneous leishmaniasis is self-limited (true) Yes No	 113 (63.12) 66 (36.87)
Cutaneous leishmaniasis is treated by injections of ulcers and local creams (true) Yes No	 164 (91.62) 15 (8.37)
Cutaneous leishmaniasis is treated by traditional and herbal preparations (false) Yes No	 109 (60.89) 70 (39)

Through the results of table 4.2, we find that (92.73%) of the study sample learned about cutaneous leishmaniasis through hearing and reading, and a percentage (7.26%) did not recognize it through hearing and reading. This means that the majority of the sample knows leishmaniasis.

When the sample was asked that cutaneous leishmaniasis is a fatal disease, it answered (83.79%) they had bad knowledge, and (16.20%) answered that cutaneous leishmaniasis was a non fatal disease meaning that they had good knowledge.

Also (84.91%) of the sample had good knowledge about leishmaniasis infection, while (15%) has bad knowledge about leishmaniasis infection. Regarding the availability of treatment, the majority of the sample answered correctly. As for the correct causative factor, being protozoa, (64.24%) answered a correct answer and (35.75%) an incorrect answer. Thus, more than half of the sample had good knowledge about the causative factor. (89.94%) have good information about the availability of a treatment for leishmaniasis, and (10%) have bad information as they do not know of the existence of a treatment for leishmaniasis. When the sample was asked that cutaneous leishmaniasis was self-limited, (63.12%) answered the correct answer, meaning that they had good information, while (36.87%) answered the wrong answer, meaning that they had bad information.

Regarding the treatment of cutaneous leishmaniasis by injecting ulcers and topical creams, (91.62%) had knowledge and answered the correct answer, and (8.37%) had poor knowledge as they did not know that cutaneous leishmaniasis by injecting ulcers and topical creams. While (60.89%) of the sample answered that cutaneous leishmaniasis is also treated with traditional and herbal preparations.

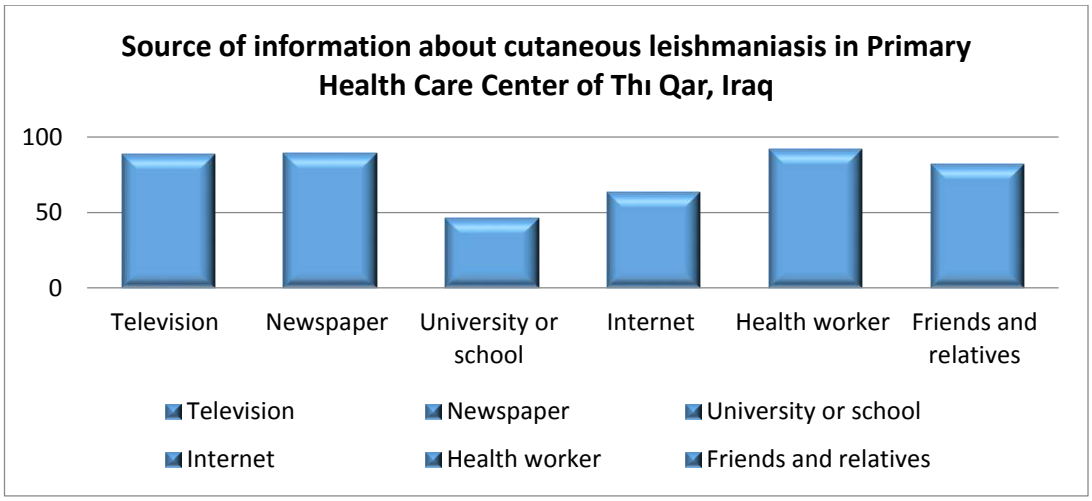

Figure 4.3: Source of information about cutaneous leishmaniasis in Primary Health Care Center of Thi-Qar, Iraq

Table 4.3: Descriptive statistics on the source of information on cutaneous leishmaniasis at the Thi-Qar Primary Health Care Center (n:179)

Source of information on cutaneous leishmaniasis	**n (%)**
Television	
Yes	159 (88.82)
No	18 (10.61)
Newspaper	
Yes	160 (89.38)
No	19 (10.61)
University or school	
Yes	83 (46.36)
No	96 (53.63)
Internet	
Yes	113 (63.12)
No	66 (36.87)
Health worker	
Yes	164 (91.62)
No	15 (8.37)
Friends and relatives	
Yes	147 (82.12)
No	17 (31)
Books	
Yes	148 (82.68)
No	31 (17.31)

From the results listed in table 4.3, it is found out that more than half of the respondents obtained information about cutaneous leishmaniasis from various means as follows: (88.82%) from television, (89.91%) from the newspaper, (46.36%) from the university or school, (63.12%) from the Internet, (91.62%) a health worker, (82.12%) from friends and relatives, (82.68%) from books, and a small percentage did not get it from multiple sources.

Table 4.4: Descriptive statistics on awareness of the mode of transmission of cutaneous leishmaniasis (information) at the Thi-Qar Primary Health Care Center (n:179)

Information on	**n (%)**
Bite by a tinny flying insect (Sand fly) Yes No	 111 (62) 68 (37.98)
Bite by mosquito bite (false) Yes No	 71 (39.66) 108 (60.33)
Bite by house fly (false) Yes No	 115 (64.24) 64 (35.75)
Sneezing or coughing from infected person (false) Yes No	 89 (49.72) 90 (50.27)
Consumption of raw or inadequately cooked meat (Salami, pastrami, luncheon, sausages, burgers, minced meats) (false) Yes No	 129 (72) 50 (27.93)
Consumption of unwashed vegetables and fruits (false) Yes No	 115 (64.24) 64(35.75)
Blood Transfusion (True) Yes No	 119 (66.48) 60 (33.51)
Physical contact (true) Yes No	 111 (62) 68 (37.98)
Don't know Yes No	 118 (65.92) 61 (34)

According to table 4.4, regarding the characteristics of knowledge about the mode of transmission of cutaneous leishmaniasis in primary care centers in Thi-Qar, Iraq, it can be observed that (62%) of the sample have good knowledge that a bite of small flying insects (sand fly) is from methods of transmission of cutaneous leishmaniasis and (37.98%) of the sample had poor knowledge as they could not know it.

(39.66%) reported that the disease can be caused by mosquito bite meaning that they have bad information as a mosquito bite does not cause it, while (60.33%) said that a mosquito bite does not cause cutaneous leishmaniasis.

As for the bite of house flies, (64.24%) of the sample answered incorrectly that it is one of the causes of cutaneous leishmaniasis, meaning that they have bad information, and (35.75%) of the sample answered correctly that house fly bite does not cause cutaneous leishmaniasis, meaning that they have good information. Also, (72%) of the sample answered the wrong answer, as each of them expected that the consumption of raw or cooked meat is insufficient (salami, pastrami, luncheon, sausage, burger, ground meat) and this means that they have bad information about leishmaniasis. While (27.93%) answered correctly, meaning that they have good information.

In addition to their wrong answer regarding disease transmission through not washed fruits and vegetables, (64.24%) of the sample has bad information, and (35.75%) of the sample answered that the disease was not transmitted by not washed fruits and vegetables, meaning that they had good information. (66.48%) They answered correctly that leishmaniasis is transmitted through blood transfusion, that is, they have good information, and (33.51%) answered that it is not a means of transmission of the disease, that is, they have bad information.

At the end, (34%) of the sample answered that they do not have information about the modes of transmission of leishmaniasis, and (65.92%) had good information about the modes of transmission of leishmaniasis.

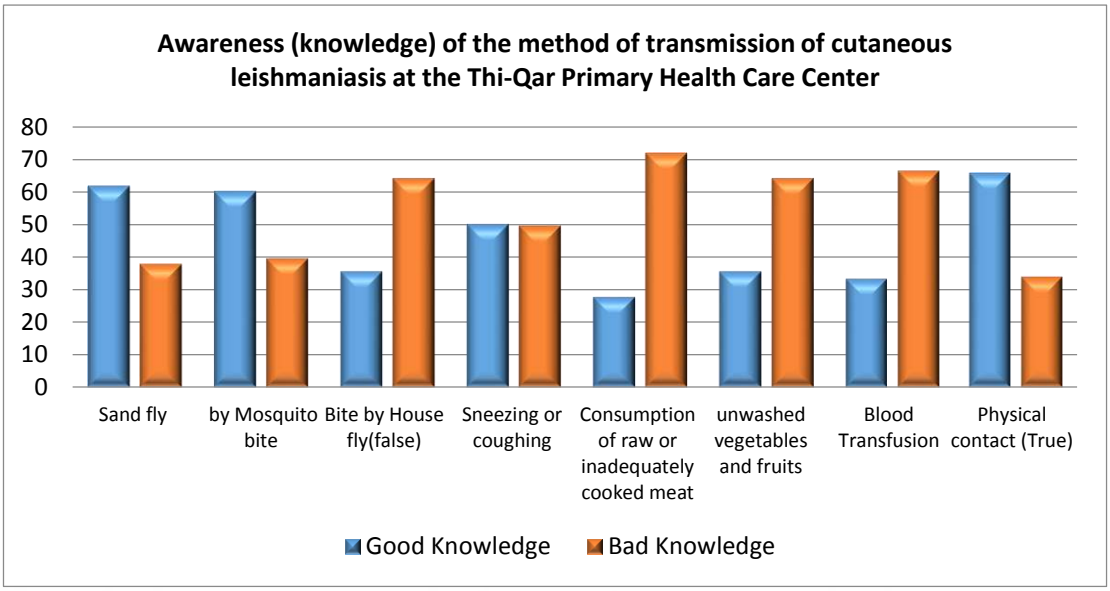

Figure 4. 4: Awareness (knowledge) of the method of transmission of cutaneous leishmaniasis at the Thi-Qar Primary Health Care Center

Table 4.5: Descriptive statistics about awareness (knowledge) of characters and places of reproduction of the causal vector at the Thi-Qar Primary Health Care Center

Information on	**n (%)**
Water ponds (false) Yes No	 111 (62) 68 (37.98)
Garbage collection (false) Yes No	 71 (39.66) 108 (60.33)
Caves, animal burrows, cracked walls, tree-holes (true) Yes No	 115 (64.24) 64 (35.75)
Don't know breeding places Yes No	 90 (50.27) 89 (49.72)
The activity time of the insect is usually diurnal (false). Yes No	 129 (72) 50 (27.93)
The activity time of the insect is usually nocturnal (true) Yes No	 115 (64.24) 64 (35.75)
Don't know activity time Yes No	 119 (66.24) 60 (33.51)

It is noticed from table 4.5 (about the characters and places of reproduction of the vector that causes the disease) that (62%) answered the wrong answer that water ponds are places of reproduction for the vector that causes the disease, and this means that they have bad information, and that (37.98%) of the sample they replied that the water basins have nothing to do with carrier breeding, meaning that they have good information.

Also, (60.33%) of the sample answered that garbage collection is considered one of the breeding places for the vector that causes the disease, meaning that they have bad information about the disease, and (39.66%) of the sample answered that it does not, meaning that they have good information about local disease. Reproduction of the leishmaniasis vector. A percentage (64.24%) of the target sample answered that the places of reproduction of the vector causing echinoderms are caves, animal burrows, cracked walls, and tree holes, and this means that they have good information about the places of reproduction of the vector causing this disease, while (35.75 %) Of the sample answered the wrong answer, i.e., these places have nothing to do with the proliferation of the vector that causes the disease, that is, they have wrong information about the disease

It was also observed that (50.27%) do not have information about the places of reproduction of the vector causing the disease, and (49.72%) of the target sample have information about it.

The percentage of (72%) answered that the time of the insect's activity is daytime, and this means that they have bad information about the time of activity of the insect that causes leishmaniasis, and (27.93%) of the sample answered that the insect's activity is not during the day, meaning that they have good information.

When asked about the time of the spread of the insect at night, (66.24%) of the sample answered correctly, meaning that they had good information about the disease.As for knowing the time of activity, (66.24%) of the sample answered that they know the activity times of the insect, while (35.51%) do not know that.

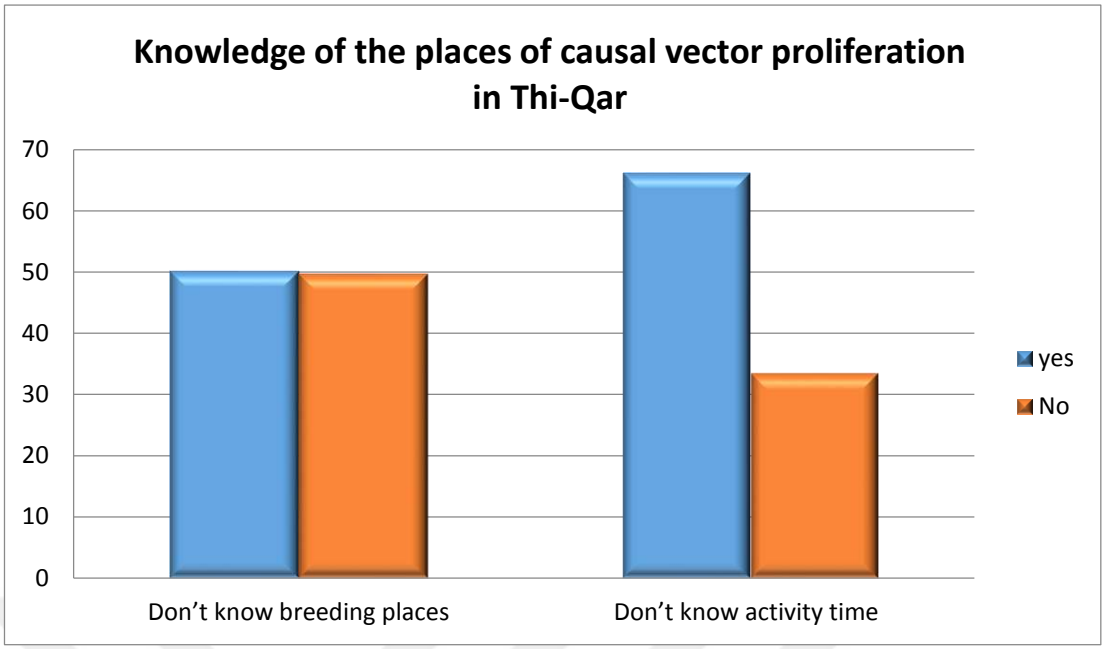

Figure 4.5: Knowledge of the places of causal vector proliferation in Thi-Qar Primary Health Care Center

Table 4.6: Descriptive statistics on awareness of clinical symptoms of cutaneous leishmaniasis at the Thi-Qar Primary Health Care Center (n:179)

Information on	**n (%)**
Children are most often affected (Correct) Yes No	 139 (77.65) 40 (22.34)
Most often adults are affected (False) Yes No	 123 (68.71) 56 (31.28)
The face and limbs (exposed areas) are most commonly affected (Correct) Yes No	 154 (86) 25 (13.96)
Chest and abdomen are most commonly affected (False) Yes No	 149 (83.24) 30 (16.75)
Blister / Papule / Ulcer is seen (Correct)	

Yes No	129 (72) 50 (27.93)
Fever (False) Yes No	 143 (79.88) 36 (20)
Jaundice (False) Yes No	 151 (84.35) 28 (15.64)
Diarrhea (False) Yes No	 156 (87.15) 23 (12.84)
Constipation (False) Yes No	 164 (91.62) 15 (8.79)

Table 5.4 displays the knowledge of clinical manifestations of cutaneous leishmaniasis in primary care centers in Thi-Qar, 2020, and with regard to this table, (77.65%) believe that children are the most common in the disease, meaning that they have good information about the clinical manifestations of it, while (68.71%) believe that adults are the most common in the disease, meaning that they have poor information about the disease, and (86%) were able to know the places most affected by the disease, and they answered that the exposed areas are the most affected, while he answered (83.24%) that the places where the disease spreads, the chest and abdomen, meaning that they have wrong information about the places most affected. Also (72%) were able to know the symptoms of the disease, and (27.93%) could not know its clinical symptoms.

5. DISCUSSION

According to the general goal of determining the assessment of nurses' knowledge of leishmaniasis in primary health care centers in Thi-Qar governorate in 2020 table 4.2 shows that 179 participants (92.73%) heard or read about it and that more than half of the sample had regular knowledge of it. Whereas, regarding knowledge of infection, (84.91%) of the sample had good knowledge of leishmaniasis infection and (15%) had poor knowledge of leishmaniasis.

If the nursing staff does not acquire the necessary knowledge about the disease, they will not achieve a change in behavior favorable to their health and the health of the patients, and the risk of developing the disease is high. Therefore, ignorance about disease, whether it is regular or bad, has negative consequences, such as the risk of disease infection and thus serious physical and emotional health complications due to the presence of chronic wounds, deformities in the body, exposed areas of the body as well another consequence is social isolation due to rejection, people withdraw from their environment, and the patient's own shame.

A large percentage of the study sample does not know how leishmaniasis is transmitted and does not recognize the vector insect. This means that nursing does not know the origin and development of leishmaniasis (causing the disease), and acquiring a disease that carries serious complications such as social isolation that causes anxiety and depression due to the deformation of the face, permanent scars in exposed areas of the body such as the face, upper and lower limbs, in some cases a distortion of the nose and ear, and severe malnutrition, which leads to low self-esteem, and this in turn deteriorates the quality of life of these patients.

These results are similar to those of El-Mouhdi et al (2020) in their thesis “The knowledge and experiences of health professionals in the peripheral management of leishmaniasis in Morocco (El-Hajeb), 2020”, who found that 41 caregivers' knowledge about leishmaniasis and the clinical manifestations of each form. Health professionals' knowledge of leishmaniasis, disease vectors, and reservoirs: Doctors (n = 41), nurses (n = 73), midwife (n = 21), health technicians (n= 8). They recognized the presence of leishmaniasis in Morocco as a vector disease and 41% of them consider that its current prevalence is increasing. This means, on the one hand, that caregivers are aware of the epidemiology of these diseases (El-Mouhdi et al., 2020).

These two models were recognized by our participants, and an analysis of the results showed that they identified the clinical features of each form. As a result, the CL from *L. tropica* appears as a single cutaneous lesion (62%) and dry (35%), while the CL resulting from *L. major* appears as multiple skin lesions (40%) and hydrated (6%). Whereas, visceral leishmaniasis (VL) usually manifests itself in an enlarged spleen (73%), hepatomegaly (61%), and wasting (59%).

In terms of knowledge of the carrier, reservoirs and mode of transmission, skin shapes are most common across the country. It is caused by three different parasites and is transmitted by different sandfly vectors. Also, CL due to *L. tropica*, CL due to *L. major*, and CL due to infant Leishmania whose reservoirs are, respectively, a man, a rodent, and a dog. The visceral form is due to infantile leishmaniasis, which contains the confirmed reservoir for the canine parasite. Health professionals do not differentiate between the reservoirs of each form of leishmaniasis. Hence, rodents, dogs and humans were categorized as CL and VL reservoirs with percentage differences. The rodents were assigned to men as reservoirs of CL (86%) and VL (74%). The dog was designated as a reservoir for VL (39%) and CL (22%). Man was indicated as a reservoir of CL (12%) and VL (4%). These results demonstrate the caregiver 'poor knowledge of the lackes, which may adversely affect the educational messages and outreach activities conveyed to the population and, consequently. The IEC (Information, Education and Communication) program axis for the population in relation to the vector, it is clear that the sand fly is the only insect known (El-Mouhdi et al., 2020).

Infection with leishmaniasis in Africa requires further understanding of the vectors, reservoirs, and mode of transmission. In summary, on the one hand these results reflect good knowledge of health professionals about the clinical signs of cutaneous and visceral forms of leishmaniasis, and on the other hand, the insufficient knowledge of health-care workers about other aspects of the disease (El-Mouhdi et al., 2020).

The Gelaye et al., (2020) study "Low Knowledge and Attitude Towards Visceral Leishmaniasis Among Migrants and Seasonal Farm Workers in Northwest Ethiopia" the results of the study were that 33.2% and 30.2%. They had good knowledge and positive attitude towards VL, respectively. Moreover, factors associated with positive

attitude include having health information, previous history of VL, good knowledge (Gelaye et al., 2020).

6. CONCLUSIONS

The knowledge of the etiology of cutaneous leishmaniasis in nursing in primary care centers in Thi-Qar, 2020 is a regular occurrence in nearly half of the respondents. What is needed to be improved through education is the recognition of the disease , disease transmitted by the carrier and the form of transmission. This means that counseling and training of nurses about the origin and development of the disease and the consequences it brings to health human beings.

The practices related to preventive measures for cutaneous leishmaniasis in the primary care centers in Thi-Qar 2020 are sufficient because more than half of the respondents perform preventive measures against sand fly bites, and a high percentage of the study population has inappropriate practices for this reason. What must be improved in practice is protection from sand fly and cleaning around their homes to be avoided spreading the vector that transmits leishmaniasis.

6.1. Recommendations

- Extending the investigation of this thesis to the authorities and multidisciplinary health personnel to conduct media campaigns.
- Involving the employees of primary health care centers in educational sessions about the origin and development of the disease.
- Conducting preventive campaigns and visits to primary health care centers.
- Establishing a technical team to direct the work of analyzing the health status of primary health care centers in Thi-Qar governorate, Iraq, due to the outbreak.
- In a future research, separating two variables (knowledge and practices) for the application of the tow tools and the ability to link them.

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Ek 1: Ethical approval from the ÇANKIRI KARATEKİN ÜNIVERSİTESİ

T.C.

ÇANKIRI KARATEKİN ÜNİVERSİTESİ

ETİK KURUL DEĞERLENDİRME FORMU

Toplantı No:	304
Karar No:	304
Araştırmanın Yürütücüsü:	Abdulhadi Jabbar Shareef AL-ASHOOR
Araştırmanın Başlığı:	Thi Qar İdari Bölgesi'nde Birincil Sağlık Merkezlerindeki Hemşirelerin Leishmaniasis Hakkındaki Bilgilerinin Değerlendirilmesi
Kurula Geldiği Tarih:	10.10.2020 14:18:45
Kurulda İncelendiği Tarih:	28.9.2020 14:01:59
Karar Tarihi:	20.10.2020 15:41:01
Kurul Görüşü:	Başvuru Kriterlere Uygun.

SONUÇ:

Kabul. Araştırmanın/ Projenin uygulanabilirliği konusunda bilimsel araştırmalar etiği açısından bir sakınca yoktur.

Başkan
Prof. Dr. Murat ARI

Üye
Prof. Dr. Ali YİĞİT

Üye
Doç. Dr. Ela CANBOLAT

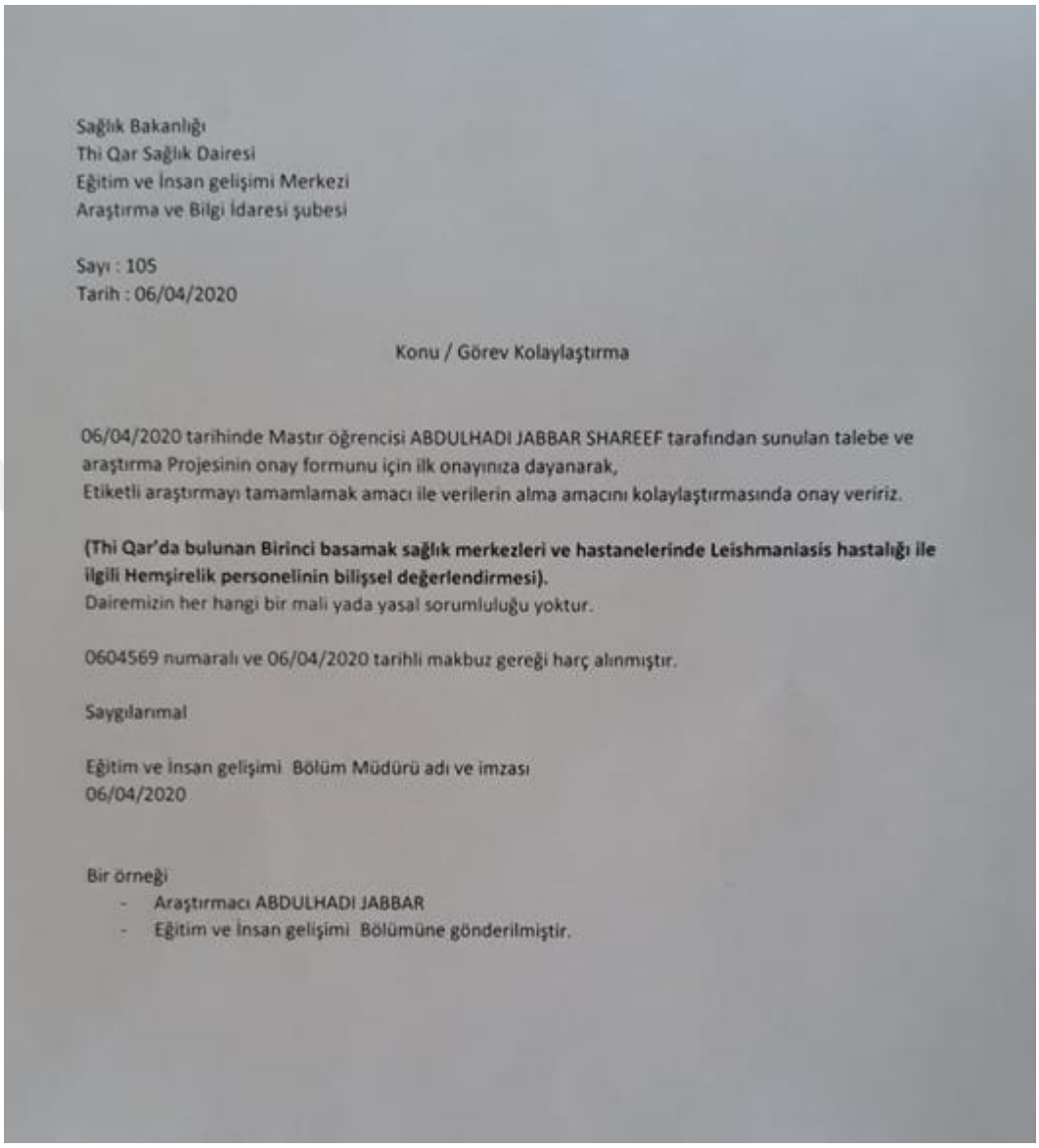
Üye
Dr. Öğr. Üyesi Haydar KOÇ

Üye
Dr. Öğr. Üyesi İlknur GÖL

Üye
Dr. Öğr. Üyesi İbrahim AKYOL

Üye
Avukat Mehmet ÇAKMAK

Ek 2: Ethical approval from Iraq



Sağlık Bakanlığı
Thi Qar Sağlık Dairesi
Eğitim ve İnsan gelişimi Merkezi
Araştırma ve Bilgi İdaresi şubesi

Sayı : 105
Tarih : 06/04/2020

Konu / Görev Kolaylaştırma

06/04/2020 tarihinde Mastır öğrencisi ABDULHADI JABBAR SHAREEF tarafından sunulan talebe ve araştırma Projesinin onay formunu için ilk onayınıza dayanarak,
Etiketli araştırmayı tamamlamak amacı ile verilerin alma amacını kolaylaştırmasında onay veririz.

(Thi Qar'da bulunan Birinci basamak sağlık merkezleri ve hastanelerinde Leishmaniasis hastalığı ile ilgili Hemşirelik personelinin bilişsel değerlendirmesi).
Dairemizin her hangi bir mali yada yasal sorumluluğu yoktur.

0604569 numaralı ve 06/04/2020 tarihli makbuz gereği harç alınmıştır.

Saygılarımal

Eğitim ve İnsan gelişimi Bölüm Müdürü adı ve imzası
06/04/2020

Bir örneği
- Araştırmacı ABDULHADI JABBAR
- Eğitim ve İnsan gelişimi Bölümüne gönderilmiştir.

Ek 3: Görüşme formu

❖ **Kısım I : Demografik veriler:**

1. Yaş

2. Cinsiyet

- Erkek
- Kadın

3. Eğitim seviyesi

- Hazırlık
- Enstitü
- Fakülte
- Lisansüstü

4. Hizmet Süresi (Yıl)

- 1-5
- 6-10
- 11-15
- 16-20
- 21 ve üstü

5. Adres

- Şehir
- Kırsal

6. Medeni hali

- Evli
- Bekar

Ek 4: Kütanoz leishmaniasis üzerine hemşire bilgileri konusunda yapılan çalışma

Kısım II : Kütanoz leishmaniasis üzerine genel bilgiler:

1. Aşağıdakiler hakkındaki bilgiler:

No	Kalemler	Evet	Hayır
1.	Kutanöz leishmaniasis tanımı (hakkında işitme veya okuma)		
2.	Kutanöz leishmaniasis ölümcül bir hastalıktır (Yanlış)		
3.	Kutanöz leishmaniasis bulaşıcı bir hastalıktır (Doğru)		
4.	Nedensel ajan; protozoadır (Doğru)		
5.	Tedavisi var (Doğru)		
6.	Kutanöz leishmaniasis kendinden sınırıdır (Doğru)		
7.	Kutanöz leishmaniasis ülser ve yerel krem enjeksiyonları ile tedavi edilir (Doğru)		
8.	Kutanöz leishmaniasis geleneksel ve bitkisel preparatlarla tedavi edilir (Yanlış)		

2. Kutanöz leishmaniasis hakkındaki bilgilerin kaynağı:

No	Kalemler	F.
1.	Televizyon	
2.	Gazete	
3.	Üniversite veya okul	
4.	İnternet	
5.	Sağlık çalışanı	
6.	Arkadaşlar ve akrabalar	
7.	Kitaplar	

3. Kutanöz leishmaniasis bulaşma şekli hakkında farkındalık (bilgi):

No	Kalemler	Evet	Hayır
1.	Küçük bir uçan vektör sinek tarafından ısırılma (Kum		

	sineği)		
2.	Böcek tarafından ısırılma (Yanlış)		
3.	Karasinek tarafından ısırılma (Yanlış)		
4.	Enfekte kişiden hapşırma veya öksürme (Yanlış)		
5.	Çiğ veya yetersiz pişmiş et tüketimi (Salam, Pastırma, öğle yemeği, sosis, hamburger, kıyma) (Yanlış)		
6.	Yıkanmamış sebze ve meyvelerin tüketimi (Yanlış)		
7.	Kan Nakli (Doğru)		
8.	Fiziksel temas (Doğru)		
9.	Bilmiyorum		

4. Nedensel vektörün karakterleri ve üreme yerleri hakkında farkındalık (bilgi):

No	Kalemler	Evet	Hayır
1.	Su göletleri (Yanlış)		
2.	Çöp toplama (Yanlış)		
3.	Mağaralar, hayvan yuvaları, kırık duvarlar, ağaç delikleri (Doğru)		
4.	Üreme yerlerini bilmiyorum		
5.	Vektörün aktivite zamanı genellikle gündüzdür (Yanlış).		
6.	Vektörün aktivite zamanı genellikle gecedir (Doğru).		
7.	Aktivite zamanını bilmiyorum		

5. Kutanöz leishmaniasis'in klinik belirtileri hakkında farkındalık (bilgi):

No	Kalemler	Evet	Hayır
1.	En sık çocuklar etkilenmektedir (Doğru)		
2.	En sık yetişkinler etkilenmektedir (Yanlış)		
3.	En sık yüz ve uzuvlar (maruz kalan alanlar) etkilenmektedir (Doğru)		
4.	En sık göğüs ve karın etkilenmektedir (Yanlış)		
5.	Blister / Papül / Ülser görülür (Doğru)		

6.	Ateş (Yanlış)		
7.	Sarılık (Yanlış)		
8.	Diyare (Yanlış)		
9.	Kabızlık (Yanlış)		

.

Ek 5: **C.V**

Personal data

-Name: Abdulhadi Jabbar Shareef

-Social status : Married

Educational qualification

-College: College of Nursing, University of Kufa

-Specialization: Academic nurse specialist

Other certificates

-TOT certified

-certificate first aid

Skills

-Dealing with computer programs (word, excel, and power point)

-Dealing with Internet programs

Languages

-Arabic language

-English language

-Turkish language