

**Attitude and Perceptions of Crimean-Congo
Hemorrhagic Fever among Health Care
Workers in Al-Nasiriyah City Hospitals**

الاتجاهات والإدراك للإصابة بحمى القرم - الكونغو النزفية بين
العاملين في مجال الرعاية الصحية في مستشفيات مدينة
الناصرية

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المستخلص

الخلفية: حمى القرم- الكونغو النزفية هو مرض مهني يصيب في الغالب الأفراد مثل الجزارين وعمال المسالخ وعمال الماشية ومحترفي تربية الحيوانات والأطباء البيطريين والعاملين في مجال الرعاية الصحية الذين هم أكثر عرضة للإصابة بالمرض في الأماكن التي ينتشر فيها المرض ^(١). يتوزع المرض جغرافياً في المناطق التي يتواجد فيها ناقل القراد الصلب، في المقام الأول الهيلوما المارجناتوم، بما في ذلك أفريقيا وآسيا وأوروبا، وتشهد تركيا وإيران، الواقعة إلى شمال وشرق العراق، انتشاراً مرتفعاً لمرض حمى القرم - الكونغو النزفية ^(٢). أفادت وزارة الصحة العراقية عن تسجيل أكثر من ٢٥٠ حالة إصابة وأكثر من ٣٥ حالة وفاة بسبب الحمى النزفية في عموم محافظات البلاد منذ بداية عام ٢٠٢٣، وسجلت أعلى نسبة لحالات الإصابة بالحمى النزفية في محافظة ذي قار مع ٦٧ إصابة بينها ١٠ وفيات، ثم البصرة وميسان والرصافة والكرخ ببغداد والمثنى وواسط وبابل.

الطريقة: أجريت الدراسة بتصميم مقطعي وصفي لتحديد الاتجاهات والإدراك للمرضين فيما يتعلق بحمى القرم - الكونغو النزفية في مستشفيات الناصرية في العراق. أجريت الدراسة في المستشفيات التعليمية في الناصرية و تضمنت ردهات العزل، قسم الطوارئ، وحدة الانعاش، قسم الاستشارية، وقسم العمليات. وشملت العينة ٥٠٠ ممرض وممرضة كعينة من العاملين في مجال الرعاية الصحية. تم إجراء دراسة تجريبية لتحديد مدى موثوقية الاستبيان قبل تقديمه للمتخصصين للتأكيد. تكونت الاستبانة من ثلاثة أجزاء: الأول يتعلق بالخصائص الاجتماعية والديموغرافية، والثاني تناول اتجاهات المرضين حول المرض، والجزء الثالث تناول إدراك المرضين حول المرض.

النتائج: أظهرت الدراسة أن جميع المرضين والبالغ عددهم ٥٠٠ (١٠٠%) متوسط أعمارهم (٢٨,٨٣ ± ٥,٩٥٧) سنة، منهم (٧٢,٨%) ممن شاركوا في هذه الدراسة تتراوح أعمارهم بين (٢٠-٢٠).

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

٣٠ سنة، وتشكل (٣٦٤) ضمن المتوسط الكلي والانحراف المعياري. أما بالنسبة للجنس فمعظمهم من الإناث (n=٣١٨; ٦٣,٦%) مقارنة بالذكور (n=١٨٢; ٣٦,٤%). وفيما يتعلق بسنوات الخدمة فإن معظم المرضى كانت أعمارهم من (٤-٦) سنوات (n=147; 29.4%). وفيما يتعلق بالمستوى التعليمي للمرضى، فإن أعلى نسبة تشير إلى حصولهم على الدبلوم، كما أفاد (n=٢٢٣; ٤٤,٦%) منهم مصدر المعلومات حول المرض للمرضى، تشير أعلى نسبة إلى إنها من وسائل التواصل الاجتماعي (n=217; 43.4%). وأظهرت الدراسة وجود فروق ذات دلالة إحصائية بين اتجاهات المرضى تجاه حمى القرم - الكونغو النزفية مع الخصائص الديموغرافية المتعلقة بسنوات الخدمة للمرضى، وكانت هناك دلالة إحصائية بين إدراك المرضى تجاه المرض مع الخصائص الديموغرافية الخاصة بهم فيما يتعلق بسنوات الخدمة للمرضى أيضا.

الاستنتاجات: أظهرت اتجاهات المرضى ومستوى إدراكهم فيما يتعلق بحمى القرم - الكونغو النزفية (CCHF) أن ما ورد في الدراسة أقل من المتوقع.

التوصيات: هناك حاجة ملحة لترتيب دورات تعليمية في مجال السلامة المهنية لجميع مرضى المستشفيات التعليمية العاملين في المناطق الموبوءة في العراق لتشجيعهم على استخدام مصادر المعلومات الأكاديمية الحقيقية فقط. وفي الوقت نفسه، يتم إيلاء اهتمام خاص للمرضى ومقدمي الرعاية الصحية ذوي التعليم الأقل لتعزيز اتجاهاتهم وإدراكهم حول المرض.

الكلمات المفتاحية: حمى القرم والكونغو النزفية (CCHF)، الاتجاهات، الإدراك، العاملين في مجال الرعاية الصحية.

Abstract

Background: CCHF is an occupational disease that mostly affects individuals such as butchers, slaughterhouse workers, , livestock workers, animal husbandry professionals, veterinarians, and healthcare workers who are at high risk of contracting the disease in places where CCHF is prevalent ⁽¹⁾. The disease is geographically distributed in regions where the hard tick vector, primarily *Hyalomma marginatum*, is found, including Africa, Asia, and Europe, Turkey and Iran, located to the north and east of Iraq, have a high prevalence of Crimean-Congo Hemorrhagic Fever (CCHF) ⁽²⁾. The Iraqi Ministry of Health

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

reported that more than 250 cases and more than 35 deaths due to hemorrhagic fever have been recorded in all governorates of the country since the beginning of 2023, the highest percentage of cases of hemorrhagic fever was recorded in Dhi-Qar governorate with 67 injuries, including 10 deaths, then Basra, Maysan, Rusafa in Baghdad, Muthana, Wasit, Babil and Karkh in Baghdad.

Methods: The study was conducted by a descriptive cross-sectional design to determine nurses' attitudes and perceptions regarding Crimean-Congo Hemorrhagic Fever at Al-Nasiriyah hospitals in Iraq. The study was conducted in educational hospitals in Nasiriyah, it included Isolation wards, Emergency Department, Intensive Care Unit (ICU), Consulting Department, and Operations Department. The sample included 500 nurses as a sample of healthcare workers. A pilot study was carried out to determine the reliability of the questionnaire before it was given to specialists for confirmation. The questionnaire comprised three parts: the first concerned socio-demographic characteristics, and the second dealt with nurses' Attitudes about the CCHF, and third part dealt with nurses' Perceptions about the CCHF

Results: The study showed that all nurses, 500 (100%) with an average age of (28.83 ± 5.957) years old in which (72.8%) of them seen with who participated in this study aged (20-30)years old, and constituted (364)within the total mean and standard deviation. Concerning the gender, most are females ($n= 318$; 63.6%) compared to males ($n = 182$; 36.4%). Regarding the years of service, most of the nurses were from (4-6) years ($n =147$;29.4%). Regarding the level of education for nurses, the highest percentage indicates that they have a diploma, as reported by ($n= 223$; 44.6%) of them. Concerning the source of information about CCHF for nurses, the highest percentage indicates that they are social media, as reported by ($n = 217$;43.4%). The study showed significant differences association between nurses' attitudes toward Crimean-Congo

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

Hemorrhagic Fever with their Socio-demographic variables regarding to Nurses' years of services, and there were statistically significant between Nurses' Perception toward CCHF with their Socio-demographic variables regarding to Nurses' years of services.

Conclusions: Nurses' attitudes and perceptions level regarding Crimean-Congo Hemorrhagic Fever (CCHF) demonstrated that reported in the study is lower than expected.

Recommendations: There is an urgent need to arrange educational courses in the field of occupational safety for all teaching hospital nurses working in endemic areas in Iraq to encourage them to use only genuine academic sources of information. Meanwhile, nurses and healthcare providers with less education are paid special attention to enhance their attitudes, and perceptions about the disease.

Keywords: Crimean-Congo Hemorrhagic Fever (CCHF), Attitudes, Perceptions, Health Care Workers.

Introduction

Crimean-Congo hemorrhagic fever (CCHF) is a common disease caused by the Nairovirus, a tick-borne virus from the Bunyaviridae family, it leads to severe epidemics of viral hemorrhagic fever, with a mortality rate ranging from 10% to 40% ⁽³⁾. The disease is geographically distributed in regions where the hard tick vector, primarily *Hyalomma marginatum*, is found, including Africa, Asia, and Europe, Turkey and Iran, located to the north and east of Iraq, have a high prevalence of CCHF ⁽²⁾. An outbreak of the disease develops during warm seasons when ticks are actively seeking hosts for blood feeding. Most cases of CCHF occurred between April and September, higher mean temperature, normalized differential vegetation index, savannah-type land coverage, and

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

habitat fragmentation were substantially associated with increased incidence of CCHF in affected areas ⁽⁴⁾. CCHF was initially identified in the Crimean region of the former Soviet Union in 1944, the virus was later isolated in 1969 in the Democratic Republic of Congo, leading to the current name of the disease ⁽⁵⁾.

The CCHF virus is transmitted through contact with infected ticks or animal blood, it can also be spread from person to person through contact with infectious blood or body fluids, particularly in healthcare environments ⁽⁴⁾. Sheep, goats, cattle, hares, and other wild and domestic animals can carry this lethal disease, consuming undercooked meat from infected animals has been documented as a means of transmitting CCHFV to people ⁽⁶⁾. Nosocomial infection can be caused by contaminated medical-surgical equipment, inadequate sterilization, and the reuse of injection needles ⁽⁷⁾. CCHF is an occupational disease that mostly affects individuals such as butchers, slaughterhouse workers, livestock workers, animal husbandry professionals, veterinarians, and healthcare personnel who are at high risk of contracting the disease in places where CCHF is prevalent ⁽¹⁾. CCHF considered is nosocomial infections (NI) elevate patients' morbidity, mortality, duration of hospitalization, and treatment expenses ⁽⁸⁾. CCHF can be acquired by a patient in a hospital for a condition unrelated to the infection, CCHF acquired in the hospital but manifesting, after discharge and infections among the facility staff due to their work ⁽⁹⁾. Healthcare providers are susceptible to contracting numerous infectious diseases ⁽¹⁰⁾. If frontline healthcare personnel are not supported physically, socially, financially, and psychologically, the global battle against the pandemic could result in significant consequences ⁽¹¹⁾. Healthcare personnel frequently encounter a variety of infections in the course of their employment ⁽¹²⁾. Healthcare practitioners are at greater risk and are responsible for administering health treatments. Therefore, they must possess expertise in diagnosing and managing clients, they must be properly taught,

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

monitored, and equipped with sufficient resources to maintain credibility in the healthcare system (¹³). Nurses are crucial in treating and avoiding the increasing trend of disease as the main caregivers for hospitalized patients (¹⁴).

Understanding CCHF infections is crucial for enhancing infection control tactics and developing effective preventive and therapeutic methods to reduce the incidence and fatality rate (¹⁵). CCHF infections seem to have a shorter time span between encounter and symptom onset, following the incubation period, general febrile symptoms may be similar to those of other viral hemorrhagic diseases, the typical signs of this viral illness are abrupt fever, headaches, tiredness, muscle pain, stomach discomfort, bruising, and small bleeding spots, some individuals exhibit significant hemorrhages, liver dysfunction, and other gastrointestinal problems (¹⁶). The Iraqi Ministry of Health reported that more than 250 cases and more than 35 deaths due to hemorrhagic fever have been recorded in all governorates of the country since the beginning of 2023, the highest percentage of cases of hemorrhagic fever was recorded in Dhi Qar governorate with 67 injuries, including 10 deaths, then Basra, Maysan, Rusafa in Baghdad, Muthana, Wasit, Babil and Karkh in Baghdad.

The World Health Organization (WHO) is focused on managing and reducing the impact of this pandemic through identifying, testing, and treating infected individuals, developing drugs, vaccines, and treatment protocols (¹⁷). The study aims to identify gaps in the literature regarding Nurses' attitudes, and perceptions of CCHF, which will aid in developing interventions to prevent nosocomial transmission, HCPs should be aware of the possibility for human-to-human nosocomial transmission and importation of CCHF from endemic locations, as well as the indicators by which patients would seek medical attention, It is essential that all HCPs who may be engaged in CCHF case

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

management have proper illness education ⁽¹⁸⁾. Inadequate comprehension and awareness of the condition, particularly among at-risk populations, are significant factors contributing to the high incidence of the disease and subsequent fatalities ⁽¹⁹⁾. **Methodology**

Study Design

This study was guided by a descriptive cross-sectional design to determine nurses' attitudes and perceptions of Crimean-Congo Hemorrhagic Fever in hospitals in Al-Nasiriyah city. Nurses were taken as a sample of healthcare workers.

The Setting of the Study

The study was conducted in educational hospitals in Al- Nasiriyah city, included (Al-Hussein Teaching Hospital, Al-Haboubi Teaching Hospital, and Muhammad Al-Moussawi Teaching Hospital, Al-Nasiriyah Teaching Hospital, and Bint Al-Huda Teaching Hospital). It included Isolation wards, Emergency Department, Intensive Care Unit (ICU), Consulting Department, and Operations Department.

Sample and Sampling

A non-probability convenience sample of 500 nurses from the teaching hospitals in the mentioned city of Nasiriyah who consented to participate in the research served as a representative subset of healthcare workers; study participants were recruited from the teaching hospitals.

Inclusion Criteria

Nurses working in teaching hospitals, with all levels of education, both male and female and Nurses who work morning and night shifts.

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

Exclusion Criteria

The study excluded the nurses selected in the pilot study.

The Study Instrument

The study instrument was developed after taking the permission from the original researcher and citing to him in the study (¹⁸). The instrument gather data with three sections assessing demographics, attitudes, and perceptions. The demographic section comprised gender, age, years of service at work, level of education, and one item about the major source of information regarding CCHF. The attitude section had six questions, and each item was recorded on a 5-point Likert scale (1 strongly disagree, 2 disagree, 3 neutral, 4 agree, 5 strongly agree). The attitudes demonstrated very good internal consistency reliability (Cronbach's alpha = .891). Likewise, the perception portion had six questions, each assessed on 5 points Likert scale (1 strongly disagree, 2 disagree, 3 neutral, 4 agree, 5 strongly agree). they displayed very good internal consistency reliability (Cronbach's alpha = .867). Statistical analysis was conducted in IBM SPSS 27.0 using whole numbers and percentages, while mean and standard deviation were used to define continuous variables. Spearman correlation was used to analyze the data statistically.

Results

Table 1: Distribution of Nurses by Socio-Demographic Variables

<i>SDVs</i>	<i>Classification</i>	<i>Freq.</i>	<i>%</i>
Age/years	20-30 years	364	72.8
	30-40 years	95	19.0

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

	40-50 years	39	7.8
	50-60 years	2	0.4
	Total	500	100.0
	Ms. \bar{X}S.D.	28.83\pm 5.957	
Sex	Male	182	36.4
	Female	318	63.6
	Total	500	100.0
Years of Services	More than 10 years	109	21.8
	From 7-9 years	95	19.0
	From 4-6 years	147	29.4
	From 1-3 years	99	19.8
	Less than year	50	10.0
	Total	500	100.0
Educational Level	Pre-graduate (Nursing, Midwife)	127	25.4
	Diploma	223	44.6
	Bachelor	141	28.2
	Master	9	1.8
	Total	500	100.0
You have information about	Yes	500	100.0
	No	0	0.0

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

CCHF?	Total	500	100.0
If yes, what is your source of information?	Continues Education in the hospital	114	22.8
	Academic Education	104	20.8
	Workshop	32	6.4
	Social media	217	43.4
	Media	33	6.6
	Total	500	100.0

N=Frequency, %= Percent, Arithmetic Mean and Std. Dev. (S.D.).

(Table 1) shows data on 500 nurses who participated in the study. The average age of the participants was (28.83±5.957) years old, with of them aged between 20 and 30 years old(n=364,72.8%) its high percentage. Regarding gender distribution, there are females (n=318,63.6%) and males (n=182,36.4%). Most nurses had 4-6 years of service, accounting for (n=147,29.4%) of the total. The majority of nurses (n=223,44.6%,) hold a diploma as their highest level of education. The primary source of knowledge regarding CCHF for nurses is social media, as reported (n=217,43.4%) of the sample.

Table 2: Attitude of Nurses Towards CCHF and Differences in Responses by Socio-demographic Characteristics:

Attitudes Questions	SD	D	N	A	AD	Age	Sex	Years of Service s	Educ ation level	Sourc e of infor mation
1-The early diagnosis can lead to rapid resolution of symptoms of hemorrhagic fever	20 4%	24 4.8%	83 16.6 %	241 48.2%	132 26.4%	.066	.965	.001	.022	.073

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

2-The severity of disease can be decreased through the management of electrolyte and fluid imbalance and provision of supportive care through blood plasma and platelet replacement	7 1.4%	302 60.4%	73 14.6%	67 13.4%	51 10.2%	.673	.564	.679	.981	.967
3-The lack of effective isolated building facilities poses a significant risk to health professionals dealing with infected individuals	10 2%	17 3.4%	84 16.8%	204 40.8%	185 37%	.375	.872	.092	.844	.953
4-You will feel concerned in dealing with infected individuals Keeping in mind the contagious nature of the infectious agent	149 29.8%	203 40.6%	64 12.8%	34 6.8%	50 10%	.722	.398	.997	.575	.233
5-The health care system is effectively equipped to provide isolated body fluid collection and testing setup for Congo-infected individuals	125 25%	170 34%	69 13.8%	67 15.2%	60 12%	.460	.030	.987	.084	.629
6-There should be an isolated room for CCHF-confirmed patient	13 2.6%	15 3%	45 9%	178 35.6%	249 49.8%	.646	.911	.473	.837	.074
Total						P = 0.13 Sig. = NS	P=0.23 Sig. = NS	P=0.05 Sig. = S	P=0.87 Sig.=N S	P=0.39 Sig.= NS

Abbreviations: SD strongly disagree, D Disagree, N Neutral, A Agree, SA Strongly agree, P= Probability, Sig= Significance, N. S= Not significant, S= Significant. Note: Bold values shown significant association

Findings demonstrated that there were significant differences association between nurses' attitudes toward Crimean-Congo Hemorrhagic Fever with years of services at ($p\text{-value} = 0.054$) and no significant with their socio-demographic variables concerning (Age, Gender, Level of Education, and Source of information). Spearman correlation tests revealed that there is a strong linear positive correlation between attitude and socio-demographics ($r = 0.551, p < 0.001$).

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

Table 3: Perception of Nurses Towards CCHF and Differences in Responses by Demographic Characteristics:

Perceptions Questions	SD	D	N	A	AD	Age	Gender	Years of Services	Educational level	Source of information
1-Nurses should be equipped with isolated observing skills necessary to protect themselves from contracting the disease while working with infected individuals.	22 4.4%	13 2.6%	60 12%	153 30.6%	252 50.4%	.139	.613	.001	.026	.249
2-You have a valuable source of information to look up to in case of confusion in relation to dealing with infected individuals.	52 10.4%	218 43.6%	55 11%	81 16.2%	94 18.8%	.890	.152	.428	.584	.988
3-In your opinion healthcare professionals should go for mandatory CCHF testing during extreme outbreaks	34 6.8%	43 8.6%	146 29.2	195 39%	82 16.4%	.005	.163	.119	.214	.313
4-Having birds and animals at home could be make a risk factor for infection with CCHF	16 3.2%	22 4.4%	74 14.8%	217 43.4%	171 34.2%	.925	.898	.401	.203	.333
5-Having birds and animals at home could be make a risk factor for infection with CCHF	16 3.2%	48 9.6%	99 19.8%	206 41.2%	131 26.2%	.816	.159	.491	.707	.954
6-Herders of animals, individuals working with livestock, and slaughterhouse workers are at a higher risk of CCHF infection	4 0.8%	17 3.4%	68 13.6%	167 33.4%	244 48.8%	.309	.143	.001	.335	.234
Total						p = 0.848 Sig. = NS	p = 0.433 Sig. = NS	p=0.06 Sig. = S	p = 0.96 Sig.= NS	p = 0.56 Sig.=NS

Abbreviations: SD strongly disagree, D Disagree, N Neutral, A Agree, SA Strongly agree, P= Probability, Sig= Significance, N. S= Not significant, S= Significant. Note: Bold values shown significant association.

Findings demonstrated that there were significant differences association between nurses' Perceptions toward CCHF with years of services at

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

($p\text{-value} = 0.062$) and no significant with their socio-demographic variables concerning (Age, Gender, Level of Education, and Source of information).

Discussion

The study revealed that the largest age group of nurses involved in the research was between 20 and 30 years old, included ($n=364,72.8\%$) out of a sample size of 500 nurses. The study conducted in Pakistan found that the greatest age group was 26-33 years old, with participants ($n=172,36\%$) out of a sample size of 478 ⁽¹⁸⁾. The study revealed that female nurses ($n=318,63.6\%$) and male nurses ($n=182,36.4\%$) participated. The study's findings consistent with those of comparable research carried out in Pakistan and Turkey. In Pakistan, the study results indicated that there were girls ($n=327,68.4\%$) and males ($n=151,31.6\%$) out of a total sample size of (478). In Turkey, the study results indicated that there were girls ($n=72,66.1\%$) and males ($n=37,33.9\%$) out of a total of (109) participants ⁽²⁰⁾.

The results of the study concerning the years of service of the participating nurses showed that the nurses whose service lasted from (4-6) years amounted to ($n=147,9.29\%$), which

is the greatest percentage. The conclusion was comparable with the results of a study conducted in Turkey, which revealed that the years of employment for nurses are 1-5 years, representing (33.6%) of a sample size of 109 ⁽²⁰⁾. The results of another study in Pakistan showed that the number of years of service is (4-6) years, which is the greatest percentage ($n=138,28.9\%$) ⁽¹⁸⁾. The study found that the majority of participating nurses held a diploma representing ($n=223,44.6\%$) of the total. The study found that all participating nurses were knowledgeable about Crimean-Congo hemorrhagic fever, regardless of the accuracy of their information. In a study conducted in Turkey, 78.9% of the 86

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

healthcare workers surveyed considered their knowledge about CCHF was adequate. However, 58.1% of them stated that they would choose not to care for patients with CCHF ($P = 0.608$)⁽²⁰⁾. The study revealed that social networking sites were the primary source of information regarding Crimean-Congo hemorrhagic fever for the participating nurses, with the highest percentage of ($n=217,43.4\%$). The result was corroborated by research conducted in Pakistan, which revealed that 40% of the study participants sourced information from social networking sites⁽¹⁸⁾. Research in Turkey found that the percentage of continuing education in hospitals was 8.60%, higher than the 8.44% on social networking sites⁽²⁰⁾.

The study findings revealed in (**Table 2**) on nurses' attitudes regarding Crimean-Congo hemorrhagic fever disease demonstrated that prompt diagnosis can result in quick alleviation of symptoms associated with hemorrhagic fever, In the study nurses ($n=241,48.2\%$) that showed statistically significant with (age, years of services, educational level, and source of information). A study conducted in Pakistan on nurses' attitudes regarding the early diagnosis can lead to rapid resolution of symptoms of hemorrhagic fever Their percentage was ($n=232,48.54\%$) from total sample (478), and their answer was "agree," which was the highest percentage that showed statistically significant with age and years of services⁽¹⁸⁾. The nurses in the study disagreed that the severity of the disease can be reduced by managing electrolyte and fluid imbalance and providing supportive treatment through blood plasma and platelet replacement. They accounted which represented ($n=302,60.4\%$) of the total that showed no statistically significant with sociodemographic. A study conducted in Pakistan on nurses' attitudes regarding the severity of the disease can be reduced by managing electrolyte and fluid imbalance and providing supportive treatment through blood plasma and platelet replacement their percentage was ($n=236, 49.37\%$) from total sample (478), and their answer was "agree" which is the

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

highest percentage that showed no statistically significant with sociodemographic (age, years of services, educational level, and source of information) ⁽¹⁸⁾.

In the study, nurses expressed agreement with the lack of effective isolated building facilities poses a significant risk to health professionals dealing with infected individuals, this opinion was shared by nurses representing (n=204,40.8%) of the participants, the largest percentage in the study that revealed statistically significant with years of services. A study conducted in Pakistan on nurses' attitudes regarding the lack of effective isolated building facilities poses a significant risk to health professionals dealing with infected individuals, their percentage was (n=223,46.65%) from total sample (478), and their answer was "agree," which is the highest percentage that revealed statistically significant with sociodemographic (age, years of services, educational level, and source of information) ⁽¹⁸⁾. The nurses in the study showed concern about interacting with infected persons due to the contagious nature of the infectious agent by selecting "Disagree." which accounted for (n=203,40.6%) that revealed no statistically significant with sociodemographic. When dealing with individuals infected with CCHF, it is crucial to use insect repellent containing (DEET) on exposed skin and clothing to repel ticks, wear gloves and other protective clothing, avoid contact with the blood and body fluids of infected individuals or livestock, and healthcare workers should follow standard infection control precautions, including basic hand hygiene, use of personal protective equipment, safe injection practices, and safe burial practices.

Concerning the health care system being adequately equipped to provide isolated body fluid collection and testing setup for Congo-infected persons, the nurses participating in the survey answered "Disagree" Their number was,

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

which (n=170,34.0%) was the highest percentage, that revealed statistically significant with gender and educational level. A study conducted in Pakistan on nurses' attitudes regarding the health care system being adequately equipped to provide isolated body fluid collection and testing setup for Congo-infected persons, their percentage was (n=194,40.59%) from total sample (478), and their answer was "agree," which is the highest percentage that revealed statistically significant with sociodemographic (age, years of services, educational level, and source of information) (¹⁸). Regarding to the question there should be an isolated room for CCHF-confirmed patient, the nurses participating in the study answered "Strongly Agree" There was (n=249 ,49.8%) It was the highest percentage, that revealed statistically significant with source of information. Patients with probable or confirmed Crimean-Congo Hemorrhagic Fever (CCHF) should be isolated and cared for using strict barrier-nursing techniques, which include the use of masks, goggles, gloves, gowns, and proper disposal of contaminated articles It's important to follow these guidelines to prevent the spread of the disease. Findings revealed that there were significant differences association between nurses' attitudes toward CCHF with years of services at ($p = 0.054$) and no significant with (Age, Gender, Level of Education, and Source of information). Spearman correlation tests revealed that there is a strong linear positive correlation between attitude and socio-demographics. A study conducted in Ethiopia on nurses' attitudes revealed that statistically significant with working experience and the educational level of HCWs (P value 0.016 and 0.037) (²¹).

According to (**Table 3**) about nurses' perception about Crimean-Congo hemorrhagic fever disease, the results of the study showed nurses should be equipped with isolated observing skills necessary to protect themselves from contracting the disease while working with infected individuals, the nurses participating in the study answered "Strongly Agree" There was (n=252

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

,50.4%) it was the highest percentage, that revealed statistically significant with years of services and educational level. A study conducted in Pakistan on nurses' perceptions regarding should be equipped with isolated observing skills necessary to protect themselves from contracting the disease while working with infected individuals, their percentage was (n=268,56.07%) from total sample (478), and their answer was "agree," which is the highest percentage that revealed statistically significant with years of services (¹⁸). Concerning use preventive medicines when dealing with patients suffering from highly contagious diseases, the nurses participating in the study answered "Disagree" There was (n=218 ,43.6%) it was the highest percentage that revealed no statistically significant with sociodemographic (age, years of services, educational level, and source of information). When dealing with patients suffering from Crimean-Congo Hemorrhagic Fever (CCHF), there is no specific preventive medicine recommended for healthcare workers. However, it's crucial to follow strict infection control precautions, including the use of personal protective equipment (PPE) such as gloves, masks, protective clothing, goggles, disposable clothing, and face shields to prevent nosocomial infections.

Regarding you have a valuable source of information to look up to in case of confusion in relation to dealing with infected individuals, the nurses participating in the study answered "Agree" There was (n=195 ,39.0%) it was the highest percentage, that revealed statistically significant with age. A study conducted in Pakistan on nurses' perceptions regarding you have a valuable source of information to look up to in case of confusion in relation to dealing with infected individuals, their percentage was (n=258,53.97%) from total sample (478), and their answer was "agree," which is the highest percentage that revealed statistically significant with gender and years of services (¹⁸). Concerning the opinion of healthcare professionals should go for mandatory CCHF testing during extreme outbreaks, the nurses participating in the study

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

answered "Agree" There was (n=217 ,43.4%) it was the highest percentage, that revealed statistically significant with age. Healthcare professionals are at the forefront of managing infectious diseases like Crimean-Congo Hemorrhagic Fever (CCHF). The World Health Organization (WHO) provides guidelines on the clinical management of CCHF, which includes the use of personal protective equipment (PPE) and testing blood samples for CCHF virus using PCR and ELISA (IgM) methods.

Regarding having birds and animals at home could be make a risk factor for infection with CCHF, the nurses participating in the study answered "Agree" There was (n=206 ,41.2%) it was the highest percentage, that revealed no statistically significant with demographic characteristics , A study conducted in Pakistan on nurses' perceptions regarding having birds and animals at home could be make a risk factor for infection with CCHF, their percentage was (n=23148.33%) from total sample (478), and their answer was "Agree," which is the highest percentage, that revealed statistically significant with age and years of services ⁽¹⁸⁾. having animals at home can be a risk factor for infection with CCHF if the animals are infected. Environmental factors and the presence of certain ticks also play a significant role in the transmission of CCHFV to livestock and humans ⁽²²⁾.

Concerning herders of animals, individuals working with livestock, and slaughterhouse workers are at a higher risk of CCHF infection, the nurses participating in the study answered "Strongly Agree" There was (n=244 ,48.8%) it was the highest percentage, that revealed statistically significant with years of services. A study conducted in Pakistan on nurses' perceptions regarding herders of animals, individuals working with livestock, and slaughterhouse workers are at a higher risk of CCHF infection, their percentage was (n=245,51.26%) from total sample (478), and their answer was "Agree,"

Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

which is the highest percentage, that revealed statistically significant with age and years of services (¹⁸). Findings revealed that there were significant differences association between nurses' Perceptions toward CCHF with years of services at ($p\text{-value} = 0.062$) and no significant with (Age, Gender, Level of Education, and Source of information). A study conducted in Pakistan regarding perceptions of health care workers about CCHF that revealed statistically significant with age and level of education (²¹).

Conclusions

Nurses' attitudes and perceptions level regarding Crimean-Congo Hemorrhagic Fever (CCHF) demonstrated that reported in the study is lower than expected.

Recommendations

There is an urgent need to arrange educational courses in the field of occupational safety for all teaching hospital nurses working in endemic areas in Iraq to encourage them to use only genuine academic sources of information. Meanwhile, nurses and healthcare providers with less education are paid special attention to enhance their knowledge about the disease.

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Attitude and Perceptions of Crimean-Congo Hemorrhagic Fever among Health Care Workers in Al-Nasiriyah City Hospitals

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