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*Original Research Article*

# Principles Information About Knowledge's Among Nursing and Paramedical Students of Ebola Virus Disease in Baghdad City

Ayyed Mohammed Namoos
College of Health and Medical Technology /Baghdad
* E-mail: drnihadkhalawe@gmail.com

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## Abstract
Ebola Virus Disease (EVD) previously discerned as (Ebola hemorrhagic fever) is acute, frequency killer disease, with a situation mortality average of approximately 90 %. The knowledge about Ebola Virus Disease is very critical in the reply to the new diffusion and in command to predominance its circulate.
The objective of this study was to assess the knowledge of the nursing and paramedical students towards Ebola Virus Disease. This is across sectional descriptive study which was conducted on health science students in Nursing college Baghdad, Medical Institute Technical Al-Mansour and Medical Institute Technical Bab Al-Muadham of nursing and paramedical students. The study sample included 200 nursing and paramedical senior students of their last year of study. The duration of the study started from the first October 2015 to the end of February 2016. A pre tested structured questionnaire was designed and used to assess the knowledge about Ebola Virus Disease.
The findings revealed that most of participants were males, students' knowledge about the real causative agent of the disease was very good (87%). Regarding the knowledge of symptoms highest proportion of respondents (78%) mention correctly that fever is the main symptom of the disease. The correct mode of transmission and diagnosis were mentioned by more than half of them. While unacceptable knowledge was identified with regard correct diagnosis and symptomatology of the disease, about one fourth of them mentioned that they didn't know about these issues. Males and paramedical students had better knowledge but these differences didn't reach the significant level $p<0.05$.
This study is closed that the knowledge of Ebola Virus Disease was good in general with variations according to gender and type of studied.

**Key Words:** Knowledge, Ebola Virus Disease, nursing, paramedical, students.

## الخلاصة
فيروس ايبولا هو مرض كان يعرف سابقا بمرض(الحمى النزفية ايبولا) الحاد وهو مرض قاتل، وكانت معدل الوفيات حينئذ حوالي ٩٠% بمرض فيروس ايبولا. وكانت المعرفة حول مرض فيروس ايبولا محدودة للغاية على ما ينشر في الغالب. هو تقييم معرفة طلبة التمريض والطلبة الساندة للمهن الطبية حول مرض فيروس ايبولا. وأجريت دراسة مقطعية لطلبة كلية التمريض / بغداد والمعهد الطبي التقني المنصور / بغداد والمعهد الطبي التقني باب المعظم وكانت العينة (٢٠٠) طالب وبدأت الدراسة في الأول من شهر تشرين الأول عام ٢٠١٥ إلى نهاية الثلاثين من شهر شباط عام ٢٠١٦ وقد تم تصميم استبيان منظم للحصول على معلومات حول المعرفة بمرض فيروس ايبولا. وأظهرت النتائج حيث سجلت أعلى نسبة في حالة العوامل المسببة للمرض وإعراض المرض وطريقة انتقال العدوى والتشخيص والوقاية والحيوانات التي تنقل المرض والعلاج واللقاح والمكان حيث هي على التوالي (٨٧،٠%)، (٦٦،٠%)، (٨٠،٠%)، (٧٣،٥%)، (٥١،٥%)، (٦٩،٥%) بينما مستوى المعرفة الغير مقبول (نسبة الفشل) (٤٨،٥%) العامل المسبب (٤٧،٠%) التشخيص (٥٦،٥%) الحيوانات التي تنقل المرض، (٤٠،٠%) العلاج و اللقاح والمكان. أظهرت الدراسة إن المعرفة حول مرض فيروس ايبولا كانت جيدة بشكل عام على الرغم من وجود ضعف في المعلومات.

**الكلمات المفتاحية:** معرفة، فيروس ايبولا، طلبة التمريض والطلبة الساندة للمهن الطبية.

## Introduction
The Ebola Virus Disease (EVD), previously named. As Ebola hemorrhagic fever, was firstly discriminated in rural Zaire in 1976. The illness had generally been closed to comparatively diminutive spread in rural settings, till the 2014 spread, which stroke urban region in Liberia Leone, and Guinea, homiciding approximately 8, 700 people by

start 2015. The illness is a largely contagious and deathly illness influencing humans and animals such as monkeys, gorillas, chimpanzees, bats, birds [1]. The illness causative agent is Ebola virus. The Ebola virus are one of two type of the family Filoviridae. The symptoms of Ebola incidence inequalities from situation to situation, but overall include fever, headache, joint or muscle agonies, Canker throat, vomiting, diarrhea, bleeding, shock and neurological symptoms. Patients typically death six to nine days after the facet of the firstly symptoms. At the time when of writing there founds no curing anti-disease [2]. Ebola virus infections among healthcare workers and patients have raised questions about our understanding of Ebola virus transmission [3]. Knowledge about human-to-human EVD transmission is based mainly on epidemiological evidence from previous outbreaks [4]. Ebola virus (EVD) has been isolated from bodily fluids including blood, stool, semen, saliva, and breast milk [5, 6]. The majority of patients in previous epidemics have been infected by direct contact [7]. By increasing population and international connectivity through airlines since the first detection of EVD in 1976, the dynamics of human-to-human secondary transmission in contemporary outbreaks would be very different compared to those of the past [8]. The pandemics of Ebola could show an obvious independency from any season. Generally, human is susceptible to the EVD irrespective of gender or age [9, 10]. Globally research gaps on Ebola remain, In Iraq no previous study was conducted, this study was conducted to assess the knowledge of Iraqi future health care providers on this fatal disease. Previous studies have shown that people's knowledge about Ebola might have been affected by education level of people [11, 12]. It is widely believed that inadequate knowledge has contributed to the emergence and spread of Ebola outbreak, which is a current problem in the world [13]. Improving the knowledge about EVD is very important in order to inhibit its further transmission through adjacent. Researchers have identified a lack of knowledge among other issues as serious challenge in the response to EVD outbreak [14].

## Materials and methods:

**Setting of study**: This study was conducted in Nursing college/Baghdad, Medical Institute Technical Al-Mansour and Medical Institute Technical Bab AL-Muadham. Design of study:- A cross sectional study of students' knowledge on Ebola Virus in Baghdad city. The study which was conducted on health science students in Nursing college Baghdad, Medical Institute Technical Al-Mansour and Medical Institute Technical Bab Al-Muadham of nursing and paramedical students.

**Data collection**:- The data collected by using special pretested questionnaire which was designed by the researcher depending on previous studies, the questionnaire was examined by experts in public health and survey designs it includes demographic, variables such as: age, gender, and information on types of students as well as the knowledge on symptoms, mode of transmission and tools of diagnosis of EVD, the response is classified into three levels Likert score; yes, no and I don't know. Sample size and duration:- The sample was selected conveniently, sample size was (200) nursing students and paramedical. The study started from first October 2015 till the end of February 2016.

**Statistical analysis**:- Descriptive statistics was applied using frequencies and percentages to display the results. Chi square was used to find out any association between variables, p value less than 0.05 considered as statistically significant.

Administrative and ethical considerations: Approvals were obtained from the ethical research of our college, the acceptance of nursing college/Baghdad University and the medical technology institutes were also officially obtained before starting the study. Oral informed consents were obtained from each participant enrolled in this survey after informing them about the purpose of the study. Only voluntary participants were recruited . All the information obtained from the study participants were kept confidential.

**Results:**

Table (1) shows the frequency and Percentage of the study sample by gender, the highest percentages are male students in both groups (nursing and paramedical (59.50%).

Table (2) shows that the highest proportion of the study sample know correctly the causative agent of this disease (87.7%), the highest correct response in females (87.7%) but this difference does not reach the significant level p>0.05.

Table (3) shows that the highest percentage of the students have identified precisely the correct causative agent, the highest correct answer is among paramedical students (88.2%) compared to nursing group but this does not reach the statistically significant level (p>0.05).

**Table (1):** Distribution of the study sample according to gender

| Gender | Nursing | | Paramedical | | Total | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| Males | 60 | 61.22 | 59 | 57.84 | 119 | 59.50 |
| Females | 38 | 38.78 | 43 | 42.16 | 81 | 40.50 |
| Total | 98 | 100.00 | 102 | 100.00 | 200 | 100.00 |

Chi- sequer =237 df =1 p= 0.226.

**Table (2**): Distribution of the study sample according to knowledge of causative agent by gender.

| Knowledge of causative agent | Gender | | | | | |
|---|---|---|---|---|---|---|
| | Male | | Female | | Total | |
| | Number | % | Number | % | Number | % |
| Parasite | 7 | 5.9 | 7 | 8.6 | 14 | 7.00 |
| Bacteria | 9 | 7.6 | 3 | 3.7 | 12 | 6.00 |
| Virus | 103 | 86.5 | 71 | 87.7 | 174 | 87.00 |
| Total | 119 | 100.00 | 81 | 100.00 | 200 | 100. |

Chi- sequer =1.727 df=2 p= 0.422

**Table (3**): Distribution of students according to knowledge of causative agent by types of students.

| Knowledge of causative agent | Nursing | | Paramedical | | Total | |
|---|---|---|---|---|---|---|
| | Number | % | Number | % | Number | % |
| Parasite | 9 | 9.2 | 5 | 4.9 | 14 | 7.00 |
| Bacteria | 5 | 5.1 | 7 | 6.9 | 12 | 6.00 |
| Virus | 84 | 85.7 | 90 | 88.2 | 174 | 87.00 |
| Total | 98 | 100.00 | 102 | 100.00 | 200 | 100.00 |

Table 4 reveals the frequency distribution and percentages of knowledge about symptoms information of Ebola virus by type of students, in paramedical students' knowledge about symptoms is higher than nursing students but does not reach significant levels.

Table 5 depicts that frequencies and percentages of knowledge about mode of transmission of Ebola virus by type of students, the highest percent (80.61%) nursing students of knowledge about this issue in using contaminated sharp instruments followed by contact with animals. body fluid, contacting infected person and blood respectively.

Table 6 shows that distribution frequency and percentage about diagnosis information of Ebola virus , the highest percent of students (79.5%) mention correctly that blood testing is the diagnostic tool.

Table 7 explains the score of knowledge of nursing and paramedical students, the level of knowledge among paramedical students about this disease is better in general but does not reach the significant difference.

Table 8 shows that male students have good level of awareness about Ebola Virus Disease than female students with no statistical difference.

**Table (4)**: Distribution of the study sample according to the knowledge of symptoms by types of students.

| | | Nursing | | Paramedical | | Total | | |
|---|---|---|---|---|---|---|---|---|
| **Knowledge of Symptoms** | | **Number** | **%** | **Number** | **%** | **Number** | **%** | **P. Value.** |
| **Fever** | **Don't know** | 23 | 23.47 | 18 | 17.65 | 41 | 20.50 | 0.529 |
| | **No** | 1 | 1.02 | 2 | 1.96 | 3 | 1.50 | |
| | **Yes** | 74 | 75.51 | 82 | 80.39 | 156 | 78.00 | |
| **Rash** | **Don't know** | 39 | 39.80 | 30 | 29.41 | 69 | 34.50 | 0.198 |
| | **No** | 13 | 13.27 | 21 | 20.59 | 34 | 17.00 | |
| | **Yes** | 46 | 46.94 | 51 | 50.00 | 97 | 48.50 | |
| **Renal failure** | **Don't know** | 50 | 51.02 | 39 | 38.24 | 89 | 44.50 | 0.182 |
| | **No** | 22 | 22.45 | 27 | 26.47 | 49 | 24.50 | |
| | **Yes** | 26 | 26.53 | 36 | 35.29 | 62 | 31.00 | |
| **Bleeding** | **Don't know** | 47 | 47.96 | 36 | 35.29 | 83 | 41.50 | 0.130 |
| | **No** | 11 | 11.22 | 19 | 18.63 | 30 | 15.00 | |
| | **Yes** | 40 | 40.82 | 47 | 46.08 | 87 | 43.50 | |
| **Diarrhea** | **Don't know** | 35 | 35.71 | 27 | 26.47 | 62 | 31.00 | 0.055 |
| | **No** | 4 | 4.08 | 13 | 12.75 | 17 | 8.50 | |
| | **Yes** | 59 | 60.20 | 62 | 60.78 | 121 | 60.50 | |
| **Joints pain** | **Don't know** | 33 | 33.67 | 24 | 23.53 | 57 | 28.50 | 0.129 |
| | **No** | 3 | 3.06 | 8 | 7.84 | 11 | 5.50 | |
| | **Yes** | 62 | 63.27 | 70 | 68.63 | 132 | 66.00 | |

**Table (5)**: Distribution of the study sample according to knowledge of transmission.

| Knowledge of Transmission | | Nursing | | Paramedical | | Total | | |
|---|---|---|---|---|---|---|---|---|
| | | No. | % | No. | % | No. | % | P.V. |
| **Blood** | **Don't know** | 34 | 34.70 | 25 | 24.51 | 59 | 29.50 | 0.017* |
| | **No** | 9 | 9.18 | 24 | 23.53 | 33 | 16.50 | |
| | **Yes** | 55 | 56.12 | 53 | 51.96 | 108 | 54.00 | |
| **Body fluid** | **Don't know** | 32 | 32.65 | 23 | 22.55 | 55 | 27.50 | 0.043* |
| | **No** | 4 | 4.08 | 13 | 12.75 | 17 | 8.50 | |
| | **Yes** | 62 | 63.27 | 66 | 64.70 | 128 | 64.00 | |
| **Infected animal** | **Don't know** | 27 | 27.55 | 20 | 19.60 | 47 | 23.50 | 0.229 |
| | **No** | 7 | 7.14 | 13 | 12.75 | 20 | 10.00 | |
| | **Yes** | 64 | 65.31 | 69 | 67.65 | 133 | 66.50 | |
| **Infected person** | **Don't know** | 34 | 34.70 | 26 | 25.49 | 60 | 30.00 | 0.010* |
| | **No** | 5 | 5.10 | 19 | 18.63 | 24 | 12.00 | |
| | **Yes** | 59 | 60.20 | 57 | 55.88 | 116 | 58.00 | |
| **Sharp instrument** | **Don't know** | 17 | 17.35 | 14 | 13.73 | 31 | 15.50 | 0.222 |
| | **No** | 2 | 2.04 | 7 | 6.86 | 9 | 4.50 | |
| | **Yes** | 79 | 80.61 | 81 | 79.41 | 160 | 80.00 | |

**Table (6):** Distribution of the study sample according to knowledge of diagnosis .

| Knowledge of Diagnosis | | Nursing | | Paramedical | | Total | | |
|---|---|---|---|---|---|---|---|---|
| | | No. | % | No. | % | No. | % | P.V. |
| **Blood** | **Don't know** | 17 | 17.35 | 14 | 13.73 | 31 | 15.50 | 0.393 |
| | **No** | 3 | 3.06 | 7 | 6.86 | 10 | 5.00 | |
| | **Yes** | 78 | 79.59 | 81 | 79.41 | 159 | 79.50 | |
| **GSE** | **Don't know** | 42 | 42.86 | 27 | 26.47 | 69 | 34.50 | 0.001* |
| | **No** | 11 | 11.22 | 34 | 33.33 | 45 | 22.50 | |
| | **Yes** | 45 | 45.92 | 41 | 40.20 | 86 | 43.00 | |
| **GUE** | **Don't know** | 39 | 39.80 | 29 | 28.43 | 68 | 34.00 | 0.001* |
| | **No** | 8 | 8.16 | 30 | 29.41 | 38 | 19.00 | |
| | **Yes** | 51 | 52.04 | 43 | 42.16 | 94 | 47.00 | |
| **Saliva** | **Don't know** | 34 | 34.69 | 28 | 27.45 | 62 | 31.00 | 0.0001* |
| | **No** | 5 | 5.10 | 28 | 27.45 | 33 | 16.50 | |
| | **Yes** | 59 | 60.20 | 46 | 45.10 | 105 | 52.50 | |

**Table (7):** Distribution of students according to types of students and score of knowledge.

| student | Score | | | | | |
|---|---|---|---|---|---|---|
| | Poor | | Good | | Total | |
| | No. | % | No. | % | No. | % |
| Nursing | 34 | 52.3 | 64 | 47.4 | 98 | 49.0 |
| Paramedical | 31 | 47.7 | 71 | 52.6 | 102 | 51.0 |
| Total | 65 | 100.0 | 135 | 100.0 | 200 | 100.0 |

**Table (8)**: Distribution of students according to score of knowledge by gender.

| Students | | Score | | | | | |
|---|---|---|---|---|---|---|---|
| | | poor | | Good | | Total | |
| | | No. | % | No. | % | No. | % |
| Gender | Males | 33 | 50.77 | 86 | 63.70 | 119 | 59.50 |
| | Females | 32 | 49.23 | 49 | 36.30 | 81 | 40.50 |
| | Total | 65 | 100.00 | 135 | 100.00 | 200 | 100.00 |

## Discussion:

This study is the first time that a study demonstrates knowledge, among students at nursing school and medical technology institutes in Baghdad province- Iraq, towards Ebola virus disease. The findings can be considered the first step in providing data on knowledge regarding Ebola outbreak and will aid in the assessment of present educational curricula, to provide insight in designing future interventions to bridge the gaps as an effort against Ebola outbreak.

The public health significance of EVD lies in its lack of effective treatment and prophylactic measures and its potential to cause very high morbidity and mortality especially during outbreaks [15]. Collected these issues demonstrated through their study knowledge on Ebola Virus Disease from nursing and paramedical students the highest percentage is in knowing the accurate causative agent and symptoms (87.0%), (78.0) respectively. while the failures in knowledge percentage is (48.5%) in skin manifestations, this findings agree with the findings of other studies [16, 17].

In this study the highest percentage of correct knowledge according to mode of transmission is (66.5%), this finding in our study goes in line with the finding of other researchers [18].

The current study reveals that the highest proportion of the study sample has very good knowledge about the diagnosis of Ebola Virus Disease (79.59%). While failure about diagnosis is reflected in the percentage (47.0%) this finding disagrees with the findings of other investigators who found in their quantitative descriptive study among (30) nursing students selected by non-probability convenience sampling technique from Narayana Nursing Institutions that 70% has inadequate and 30% has moderately adequate knowledge. The study shown that the level of knowledge on Ebola virus relived that, student nurses had inadequate knowledge on Ebola virus [19]. But this finding consistent with the findings reported by who studied the knowledge, attitude and practice of students regarding this disease among health since students in Tehran University, the highest level of knowledge was found among master of public health students [20]. Jenifer *et al* [21] found that students have an adequate knowledge about the disease. This finding agrees with the finding of our study. A specific method was utilized to discover the knowledge of nursing and paramedical students on Ebola Virus Disease. There is a require to uptrend teaching acknowledging between nursing

students to secures that they are good learned concern Ebola Virus Disease. WHO found that the students 54.75% had well knowledge about Ebola Virus Disease and few than middle of the student's 45.3% had weak knowledge [22]. This findings is similar to the finding of our study our study. This study shows a decline in knowledge among students in nursing college where less than half of them have good knowledge, this finding is similar to the finding of other researchers in Nigeria [23]. Limitations in our study should be taken into account in interpretation of findings and conclusions. This type of observational descriptive study with a self-administered questionnaire depends very much upon information given by respondents' over-reporting of desirable knowledge or under-reporting of undesirable ones. Anonymous completion of the questionnaires and confidentiality would minimize the over- and under-reporting [24]. Despite these limitations, the present findings provide important information for evaluating and improving knowledge, attitude and practice towards Ebola virus disease.

## Conclusion

This study conclude that the knowledge of the Ebola Virus Disease was good in general in spite of found that interstice between the information. With non-significant variations with regard gender and types of students.

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