

A Survey of Nursing Students at a selected Saudi University to evaluate their familiarity with Blood-Borne infection Prevention

Fahad Ayed Alanazi^{1*}, Faisal Mohammed Alshehri², Ali Mohamed Al Qutam³, Hassan Ahmed Asiri⁴, Asim Ahmed Alhejji⁵

^{1,2,3,4,5} Nursing Technician, Prince Sultan Military Medical City, Riyadh KSA

Email: faalanazi.iw@gmail.com

Abstract - Transmission of infectious diseases via blood is known as blood borne pathogens. An infectious illness that may transmit from person to person by contact with contaminated blood or other bodily fluids. When healthcare personnel come into contact with infected patients, they are at high risk of contracting blood-borne pathogens via percutaneous exposure. The researchers in this study set out to determine how well nursing students at a few different schools in Riyadh, Saudi Arabia, understood how to avoid contracting blood-borne infections.

Keywords: Blood-Borne, Health, Saudi, Infections, Patients, Familiarity, Transmission.

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INTRODUCTION

The huge number of dangerous microorganisms that staff members in the healthcare industry may come into touch with puts them at a greater risk of developing blood-borne illnesses (BBIs). They are learning how to spot and prevent catching these ailments, which makes nursing students a crucial portion of the workforce in the healthcare industry. [1] Providing nursing students with sufficient information and training on the subject is the most effective method for lowering the probability of the spread of blood-borne diseases in healthcare settings. In this introduction, we will evaluate the amount of knowledge that nursing students at a selected Saudi school have with the prevention of blood-borne illnesses. We will emphasize the value of such information in safeguarding both healthcare personnel and patients. [2]

Transmission of blood-borne infections is most often accomplished by direct contact with tainted blood or other body fluids. There are a number of common pathogens, including the HIV virus, the hepatitis B and C viruses, and the hepatitis C virus. Considering that these infections have the potential to cause significant and long-lasting health issues, healthcare institutions should make infection prevention a top priority. [3] The occurrence of blood-borne diseases, particularly hepatitis, is a persistent source of worry for the Saudi Arabian public health system. Several initiatives, including vaccination programs, public awareness campaigns, and severe rules for medical personnel, have been implemented by the monarchy in order to

combat these disorders. In order for these programs to be effective, it is necessary for anyone working in the healthcare industry, particularly nursing students, to have a thorough understanding of infection control methods and to be rigorous about following them. [4]

Working in environments where they are at danger of contracting or transmitting blood-borne diseases is not an unusual occurrence for nursing students. Common activities that put patients at danger of being exposed to needles and other sharp items include the treatment of wounds, the administration of injections, and the use of sharp equipment. As a consequence of this, it is very necessary for these trainees to have a thorough understanding of how to prevent getting blood-borne complications. Conventional procedures, such as wearing protective clothing, washing one's hands correctly, and disposing of sharps in the appropriate manner, are vital to be acquainted with in order to limit the risk of infection. A knowledge of post-exposure measures is also essential in order to guarantee that any unintended exposures are dealt with in a prompt and appropriate manner. [5]

It is normal practice for nursing schools to include infection control and prevention as a subject within their curriculum. This training may be given varying degrees of importance by various institutions, and its effectiveness may also vary from one institution to another. Over the course of its history, the nursing curriculum in Saudi Arabia has seen a tremendous transformation, with an increased focus on the prevention of infections. Despite the progress that

has been made, previous research has shown that nursing students still have deficiencies in both their knowledge and their practice. [6]

In order to determine the extent to which nursing schools are educating their students on how to prevent blood-borne illnesses, one method is to quiz the students about their level of knowledge on the subject matter. Through the use of this tool, it is possible to determine which areas could need further training or resources. [7] For instance, if a significant number of students demonstrate that they are unable to correctly wash their hands or how to wear personal protective equipment, then particular interventions may be implemented in order to address the knowledge gaps that they have. In addition, getting an understanding of the viewpoints that nursing students have toward infection control may provide valuable insight into strategies that can be used to enhance adherence to preventive measures. [8]

As a consequence of this, the quality of healthcare in the Kingdom has increased since those who are interested in becoming nurses are better prepared to prevent the spread of illnesses that are transmitted by blood. In the event that nursing students get a higher level of education and are more conscientious in their attempts to prevent the transmission of infection, it is possible that the incidence of blood-borne infections may decrease, which would be beneficial to both patients and healthcare professionals. [9]

It is vital to evaluate the knowledge of nursing students on the preventative measures for blood-borne illnesses in order to ensure the safety of employees working in healthcare as well as patients. In order to get information that may be used to guide efforts to improve nursing education and training, the goal of this survey is to collect information on the current knowledge and practice of nursing students attending one Saudi institution. It is possible that the findings of the survey may assist enhance healthcare infection control methods, which will, in turn, benefit public health. This can be accomplished by filling in any gaps. [10]

RESEARCH METHODOLOGY

In this investigation, a descriptive research strategy was used. A professional college in Riyadh, Saudi Arabia, was the site of the research. The data was acquired only after receiving ethical permission from the relevant authorities. Using inclusion criteria as a basis, 110 undergraduates were chosen for the sample using purposive sampling approaches. The study's participants were chosen from among first-, second-, third-, and fourth-year undergraduates. This research makes reference to High levels of awareness of the affected person and thorough understanding among students are necessary for effective preventive methods of blood-borne illnesses.

- **Methods and Equipment**

According to the goals of the research, participants with certain demographic features were asked to fill out a structured knowledge questionnaire on how to avoid blood-borne diseases. The following percentages were used to create the blueprint: 16.66% for clinical manifestation and diagnosis, 12.53% for pathology, 16.66% for vaccination, 8.33% for needle sticks, 16.66% for hand washing, 8.33% for waste management, and 20.83% for personal protective equipment. There were a total of twenty-four questions. To ensure that the data collection tool is valid, it is necessary to send five experts a draft of the problem statement, objectives, demographic performa, and knowledge questionnaire. They will also receive a letter asking for their suggestions on how to validate the tool, an acceptance form, and a criteria checklist. Undergraduates' traits were evaluated using the baseline Performa. The five elements on the form were the respondent's age, gender, academic year, prior knowledge, and information source. The knowledge questionnaire has twenty-four questions. Ten things had unanimous agreement, seven had 80% agreement, and six had 60% agreement. The finished tool included 24 items after topic guide recommendations was taken into account while making changes to the items.

To get the final score, we added up all of the correct answers and used that total as our basis. There was a maximum possible score of 24. A student's final grade is based on their cumulative score. Average knowledge is a score below 50%, good knowledge is 51–75%, and excellent knowledge is 75% or above. Once the institutional ethics committee gave its approval, data gathering could begin. The research could not proceed without first obtaining the necessary authorization from the relevant authorities. After the participants introduced themselves, the researchers asked whether they would want to take part in the study. All participants were briefed on the study's goals and objectives before their informed permission was obtained. All participants received reassurance that their information would be kept secret. Descriptive and inferential statistics were used to examine the data in light of the study's aims.

- **Analyzing Data**

The statistical package for the social science software package version 23 was used for data entry and analysis. A chi-square test was employed to determine the association between socio-demographic variables and knowledge scores about the prevention of blood-borne infections, with a significance level of $p < 0.05$ being considered.

RESULTS AND DISCUSSION

According to the study's demographic breakdown, 54.5% of the participants were between the ages of 19 and 21, 27.7% were between the ages of 17 and 19, and 18.18% were between the ages of 21 and

23. Additionally, the majority of the participants were female (77.27%), while 22.72% were male.

Table 1: Study population

Characteristic	Category	Number (n)	Percentage (%)
Age Group (years)	19-21	60	54.5
	17-19	30	27.7
	21-23	20	18.18
Gender	Female	85	77.27
	Male	25	22.72

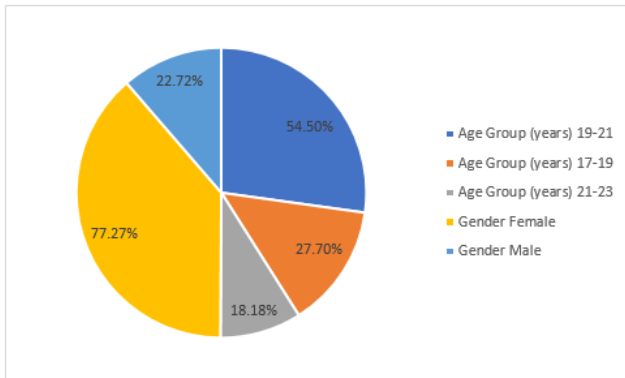


Figure 1: Study population

The sample's demographics were defined by its age, gender, academic year, prior knowledge, and information source. Table and Figure show the results. This part discusses the proportion and frequency of individuals in each demographic characteristic.

Table 2: overall assessment of competency

Rating	Percentage (%)	Number (n)
Average	63.3%	70
Good	34.5%	38
Excellent	1.8%	2

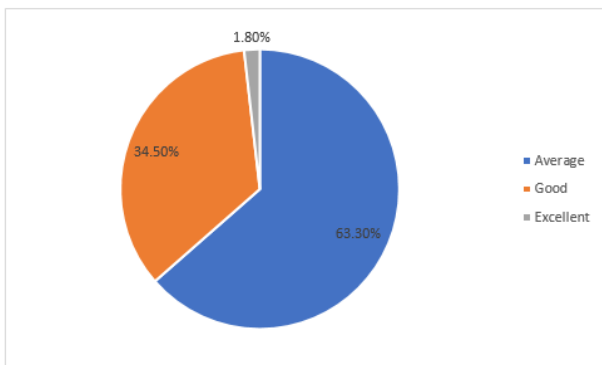


Figure 2: overall assessment of competency

Figure 1 demonstrates that when it came to knowledge of blood-borne infections and how to avoid them, the majority (63.3%) had mediocre, 34.5 % good, and 1.8 % excellent. "The data in the table showed that the participants had an average knowledge of how to avoid blood-borne infections, with a mean score of 11.52 ± 2.86 and a mean percentage of 48. The median score of 12 suggests that the majority of the values were centered around the middle, suggesting that the majority of the test takers scored around average. The majority of the participants had excellent understanding of how to recognize and handle common safety measures for preventing blood-borne diseases.

Table 3: Results for N=110 in terms of average, median, and standard deviation of general knowledge test scores

Description	Mean	Mean%	SD	Median
Overall knowledge score	11.52	48	2.86	12

The table shows that at the 0.05 level of significance, there is a significant correlation between age and gender with the chosen demographic data, but no significant association was identified with the other variables.

Table 4: Relationship between certain demographic variables and undergraduates' understanding of blood-borne illness prevention
 The spreadsheet N=110

Demographic variable	Median (≤ 12)	Median (> 12)	χ^2	Df	P-value	Inference
Age in years						
17-19	20	7				
19-21	32	28	9.06	4	0.04	Sig
21-23	15	2				
Gender						
Male	20	4	6.69	2	0.03	Sig
Female	47	33				
Year of study						
1 st year	20	6				
2 nd year	14	12	9.43	6	0.15	NS
3 rd year	13	13				
4 th year	20	6				

Previous knowledge on standard precautions						
Yes	60	33	0.26	2	0.87	NS
No	7	4				
Source of information						
Curriculum	36	27				
Seminar	6	1	9.37	8	0.31	NS
Books	17	4				
Online sources	8	4				

The majority of the subjects were female (76.4%) and the majority of the participants were between the

ages of 19 and 21, according to the results of the research that included 1 graduate student from each of the four years of a Bachelor of Science in Nursing program. Preventing blood-borne illnesses was something that 89.4% were already familiar with, and the majority (61.5%) had learned about in class. The majority (87.1%) had prior information on how to avoid blood-borne infections, according to a corroborating research carried out in Malaysia [11].

According to the results of this survey, 64.4% of the students had average knowledge and 33.7% had high understanding of blood-borne infections and how to avoid them. The average knowledge score was 11.52 with a standard deviation of 2.86, and the average percentage of total knowledge was 48. Research done in Bengalkot corroborated the findings. Sixty-six percent had ordinary understanding and 34 percent had high knowledge of universal precautions. Among the medical staff at a Jamaican university hospital, 64% were familiar with the concept of universal precautions, according to another research [12]. Students' age and gender are significantly associated with their knowledge scores on blood-borne infection prevention ($P=0.05$), but there is no correlation between students' overall knowledge score and their year of study ($p=0.15$), prior knowledge on standard precaution ($p=0.87$), or information source ($p=0.31$), according to the current study. [13]

An ancillary investigation found that age is significantly associated with a higher hepatitis B knowledge score ($p=0.00$). There is a statistically significant correlation between gender and hepatitis prevention knowledge, according to another research [14] ($p=0.02$). There is no statistically significant correlation between needle stick injury knowledge and the use of mass media to disseminate information about safety precautions ($p=0.42$),” according to a research [15]. The research only included one nursing college, and all the information was gathered via a pre-made questionnaire. No further steps were taken to confirm the practice.

CONCLUSION

Infectious diseases such as hepatitis B, hepatitis C, and HIV are examples of blood-borne infections. Effective measures for preventing blood-borne diseases need heightened awareness of the affected person and comprehensive understanding among healthcare providers and the general public. Because of this, knowing how to avoid contracting blood-borne illnesses should be a fundamental priority. The results of this research show that nursing students generally understand what causes blood-borne illnesses. Preventing the spread of blood-borne illnesses requires competent understanding.

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Corresponding Author

Fahad Ayed Alanazi*

Nursing Technician, Prince Sultan Military Medical
City, Riyadh KSA

Email: faalanazi.iw@gmail.com