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Tri-center Survey of Awareness of Infectious Diseases among Senior Dental Students in Riyadh

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Abstract: ***It is mandatory for dentists to enhance their knowledge regarding the nature, associated hazards and infection control guidelines of BBV diseases.[7] Inability to gain relevant knowledge will result in reluctance to treat BBV infected patients, as shown by a study in which dental students were reluctant in treating AIDS patients because of lack of confidence in managing such patients.[5] In addition to knowledge, two other important traits of a dentist which influence the implementation of infection control guidelines and the treatment provided to BBV patients, are attitude and behavior of a dentist.***

Keywords: viruses, awareness, infectious, diseases, HIV

1. Introduction

Blood borne viruses (BBV) are heterogeneous group of viruses which share a unique characteristic of transmission between hosts via blood. A dentist is morally and professionally obliged to treat dental patients infected by BBV.[1] They comprise of blood-borne and other occupational microbial diseases that have a huge risk of transmission to dental health care workers and patients in everyday dental practice, such as, adenovirus, cytomegalovirus, epstein-barr virus, influenza virus and parainfluenza virus. [2] Refusal to treat such patients can result in disciplinary action against the dentist in certain parts of the world.[3] However, the practice of treating BBV infected patients is not a norm. BBV infected patients are usually denied treatment on the basis of their disease. [4]

Saudi Arabia (KSA) is not an exception in relevance to prevalence of BBV. HBsAg positivity in KSA has been shown to be around 8.3%.[5] Infectious diseases, such as HIV, are one of the most complex health problems in the 21st century. [6] The overall number of HIV positive Saudis by 2010 was reported to be 4019.[7] These studies did not incorporate prevalence of BBV in foreign nationals residing in KSA, which would further increase the overall prevalence of such diseases. As, the number of such patients continue to increase, it is mandatory for dentists to enhance their knowledge regarding the nature, associated hazards and infection control guidelines of BBV diseases.[7] Inability to gain relevant knowledge will result in reluctance to treat BBV infected patients, as shown by a study in which dental students were reluctant in treating AIDS patients because of lack of confidence in managing such patients.[5] In addition to knowledge, two other important traits of a dentist which influence the implementation of infection control guidelines and the treatment provided to BBV patients, are attitude and behavior of a dentist. Attitude is defined as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor".[8] While, behavior is defined as "internally coordinated responses (actions or inactions) of whole living organisms (individuals or groups) to internal and/or external stimuli".[9] It is pivotal to assess knowledge, attitude and behavior (KAB) of dentists towards BBV infected patients, so that, mandatory steps could be taken in the future to enhance the treatment quality of BBV infected patients and the confidence of dentist in managing such patients.

The awareness level of dentists towards infectious diseases is usually good but compliance to infection control protocols is globally suboptimal [10]Few studies of such nature have been conducted in Saudi Arabia. A study assessed the implementation of infection control protocol in private sector. [11]Another study assessed the awareness & attitude of dentists towards Hepatitis B vaccination. [12] Recently, a study assessed the knowledge & attitude of male dental students towards AIDS patients.[5]We took into consideration the finding of these studies and widened the scope of our study, by inclusion of dentists of varying specialties, from both government and private health care sectors. A saudi based study stated that there should be an infection control manual & educational program for dental sectors especially for private dental sectors [13]

As, dental students are to be the expected future dentists who will diagnose and treat numerous multi-cultural patients, thus, dental students awareness of infectious diseases must be assessed.

2. Materials & Methods

Study design

It is a cross sectional survey based study.

Sampling technique

The study utilizes a two stage convenience sampling method. The first stage is characterized by selection of dental schools. The dental schools were selected on the basis of availability of final year dental students within that particular school.

Study site
The locations in which this study will be conducted include Riyadh Colleges of Dentistry & Pharmacy located in King Fahad road and exit 8, King Saud University located in exist 2 and King Saud Bin Abdulaziz University for Health Sciences located in KashmAlaan road. All of these dental schools are located in the capital city of Saudi Arabia (Riyadh). The second stage is characterized by selection of subjects of the study.

Study subjects
The subjects will be final year dental students.

Sample size
The sample size will be 300. The sample size is based on the cumulative number of final year dental students available in these dental schools.

Data collection method
The subjects will be provided an online self-prepared, structured questionnaire which comprises of sections relevant to "knowledge of infectious diseases", "knowledge of mode of transmission of infectious diseases", "knowledge of clinical features of infectious diseases" and "knowledge and behavior towards infection control guidelines of infectious diseases". On completion, the questionnaire will be submitted online.

Statistical analysis
The data will be transferred to SPSS version 16 and later. Frequency distribution and multiple logical regression analysis via SPSS version 16 will be utilized for statistical analysis of the data.

3. Result

College					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	RCsDP	130	100.0	100.0	100.0

AttendSymp					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	69	53.1	53.1	53.1
	not sure	15	11.5	11.5	64.6
	yes	46	35.4	35.4	100.0
	Total	130	100.0	100.0	

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	72	55.4	55.4	55.4
	Male	58	44.6	44.6	100.0
	Total	130	100.0	100.0	

EducationOfInfDisease					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	18	13.8	13.8	13.8
	not sure	6	4.6	4.6	18.5
	yes	106	81.5	81.5	100.0
	Total	130	100.0	100.0	

EducationWasSufficient					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		2	1.5	1.5	1.5
	no	41	31.5	31.5	33.1
	not sure	27	20.8	20.8	53.8
	yes	60	46.2	46.2	100.0
	Total	130	100.0	100.0	

None of the students could accurately guess all the oral lesions in AIDS, namely, Kaposi's Sarcoma, Oral Candidiasis, Acute ulcerative gingivitis, Hairy Leukoplakia, Herpes Simplex infection, Xerostomia, Cytomegalovirus Infection

14 students (10.8%) rightly guessed oral manifestation of TB in the form of an ulcer

None of the students correctly diagnosed all the oral lesions of syphilis, namely, gumma, chancre, maculopapular rash and leukoplakia

None of the students correctly diagnosed all the oral lesions of HSV, namely, ulcer, vesicle, Gingivostomatitis and Labialis

Two students (1.5%) rightly stated all the oral lesions of HZV, namely, ulcer, vesicle, neuralgia

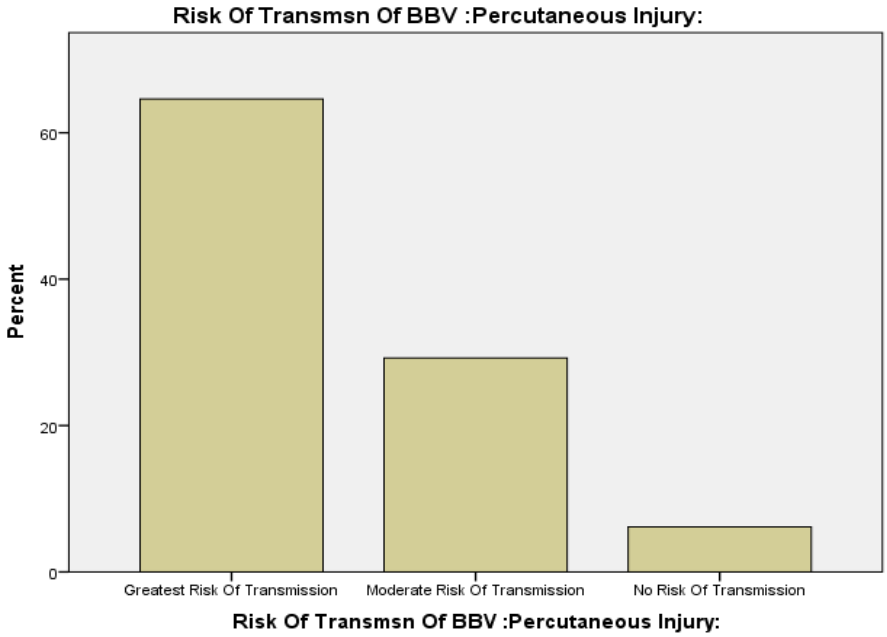
Only one student (0.7%) stated that HBV can transmit through saliva, sputum and blood

Only one student (0.7%) stated that HCV can transmit through saliva, sputum and blood

Only one student (0.7%) stated that HDV can transmit through saliva, sputum and blood

Fourteen students (10.8%) stated that HIV spreads by direct contact and blood, while, one student (0.7%) stated that HIV spreads through saliva, sputum and blood

Only twenty seven students (20.8%) stated that MERS spreads through aerosol droplets



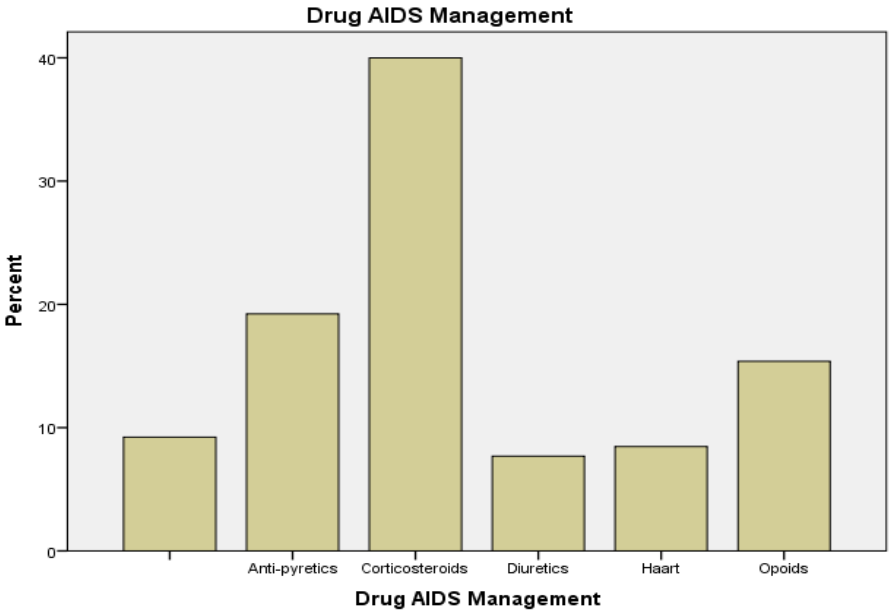
Note: 84 students (64.6%) stated that Percutaneous injury has greatest Risk Of Transmitting BBV infection, which is true

Which BBV Greatst Risk					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hepatitis B Virus	55	42.3	42.3	42.3
	Hepatitis C Virus	28	21.5	21.5	63.8
	HIV	47	36.2	36.2	100.0
	Total	130	100.0	100.0	

HCV Immunization					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		7	5.4	5.4	5.4
	No Vaccination Available	52	40.0	40.0	45.4
	Vaccination Available	71	54.6	54.6	100.0
	Total	130	100.0	100.0	

NOTE: Only 27 (20.8%) students knew that interferon is used for management of HBV infection

HBV Immunization					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		3	2.3	2.3	2.3
	No Vaccination Available	14	10.8	10.8	13.1
	Vaccination Available	113	86.9	86.9	100.0
	Total	130	100.0	100.0	

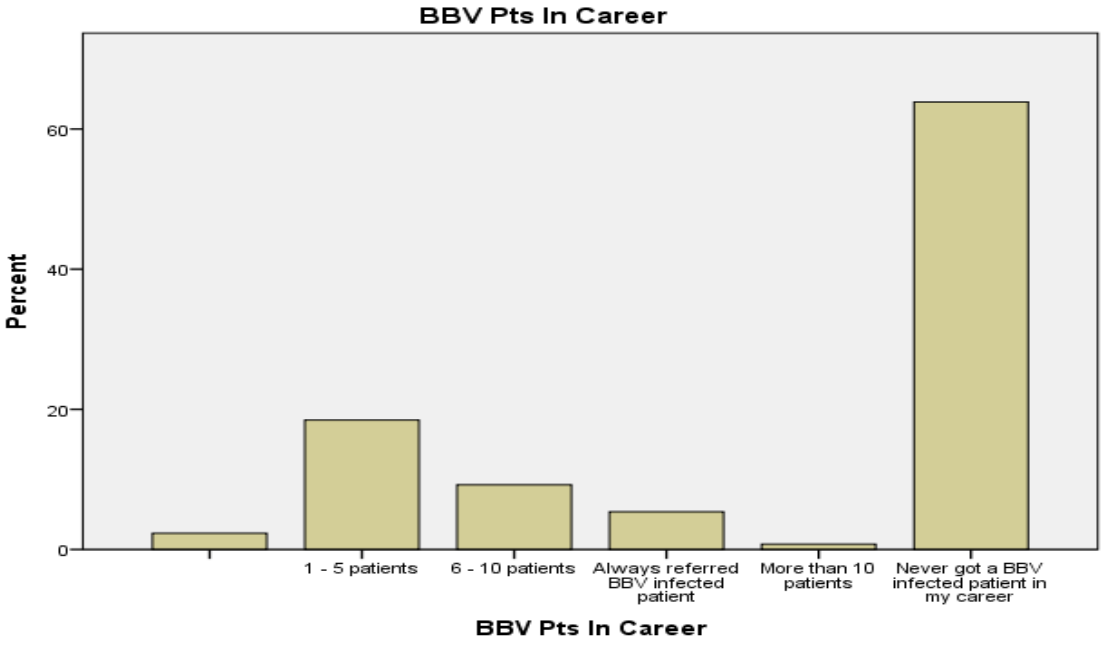


NOTE: Only 11 students (8.5%) knew that HAART are class of drugs used for management of AIDS

You Got HBV Vaccine					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1	.8	.8	.8
	no	**39**	**30.0**	30.0	30.8
	yes	90	69.2	69.2	100.0
	Total	130	100.0	100.0	

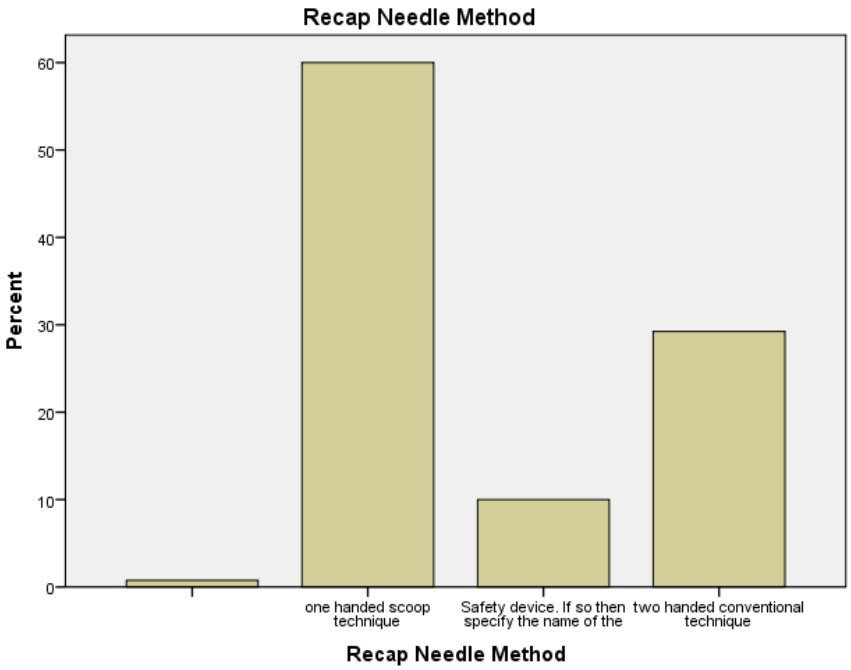
NOTE: 39 students (30%) didn't get HBV vaccination and they are practicing dentistry?

51 (39.2%) students were concerned about increase in personal risk due to treating BBV patients



BBV Pts In Career

Disinfecting Dental Clinic					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1	.8	.8	.8
	Agree	121	93.1	93.1	93.8
	Disagree	5	3.8	3.8	97.7
	Undecided	3	2.3	2.3	100.0
	Total	130	100.0	100.0	



Recap Needle Method

NOTE: 78 students (60%) practice one handed scoop technique when they recap needles, which is a good thing. While, 38 (29.2%) use the two handed technique

CHI SQUARE TEST RESULTS

Gender * Transmission Of HCV

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	55.465[a]	30	.003
Likelihood Ratio	71.202	30	.000
N of Valid Cases	130		
a. 58 cells (93.5%) have expected count less than 5. The minimum expected count is .45.(assumption has been violated. A fisher's exact test can be performed here)			

NOTE: A significant proportion of female students stated that HCV transmits through blood and saliva while most male students stated that blood is the only route of transmission

Gender * Transmission Of MERS

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	39.138[a]	23	.019
Likelihood Ratio	49.607	23	.001
N of Valid Cases	130		
a. 39 cells (81.3%) have expected count less than 5. The minimum expected count is .45.(assumption has been violated. A fisher's exact test can be performed here)			

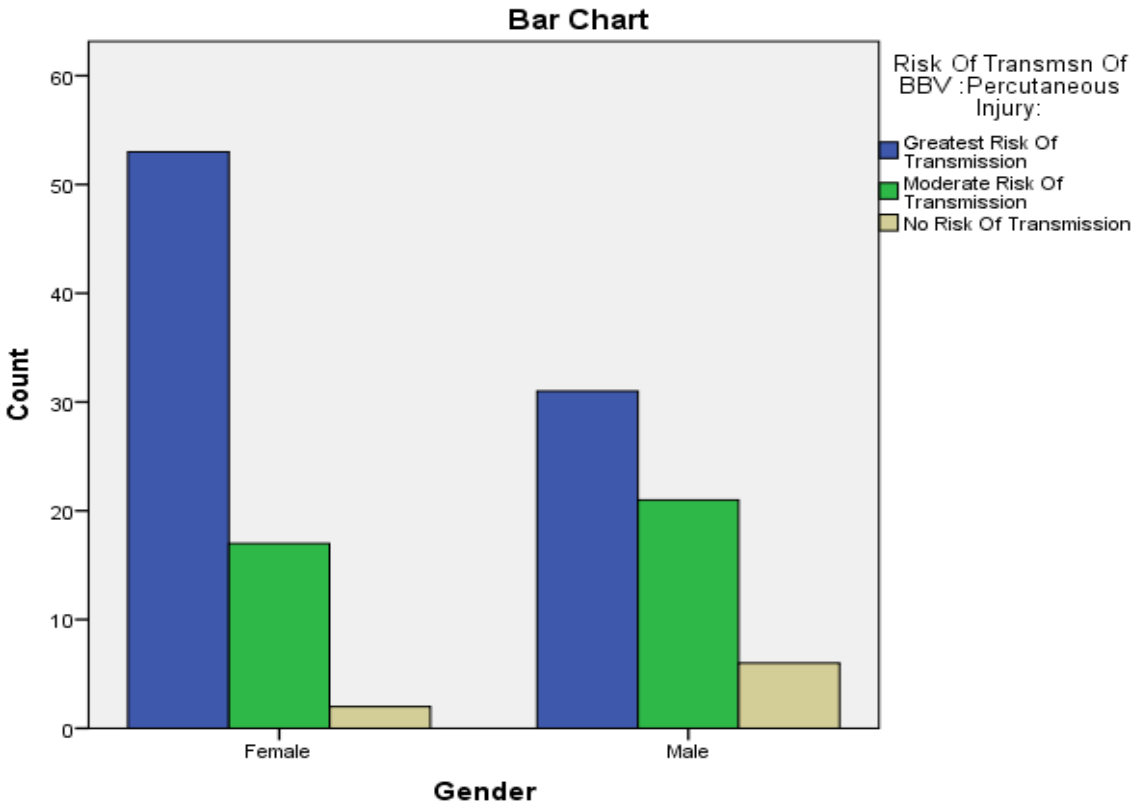
NOTE: Most of the female students stated that MERS transmits by aerosol droplets while only few male students answered the same

Gender * Risk Of Transmsn Of BBV :Percutaneous Injury:

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.754[a]	2	.034
Likelihood Ratio	6.834	2	.033
N of Valid Cases	130		
a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 3.57.(assumption has been violated. A fisher's exact test can be performed here)			

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.228	.034
	Cramer's V	.228	.034
N of Valid Cases		130	

Anything above .157 is considered to have a good impact

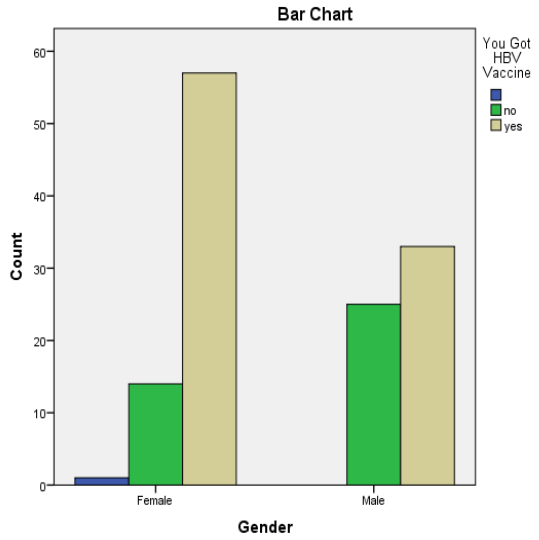


Gender * You Got HBV Vaccine

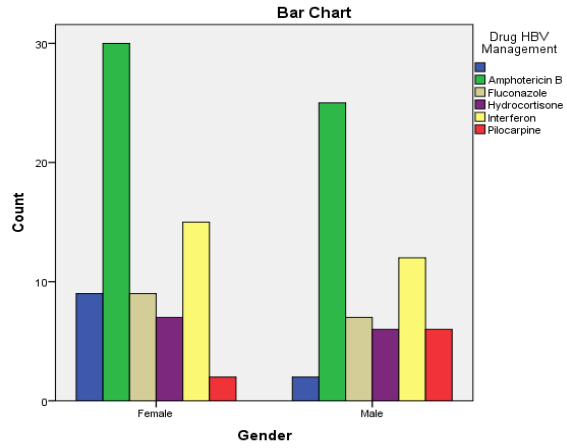
Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.100[a]	2	.011
Likelihood Ratio	9.499	2	.009
N of Valid Cases	130		
a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is .45.(assumption has been violated. A fisher's exact test can be performed here)			

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	.265	.011
	Cramer's V	.265	.011
N of Valid Cases		130	

Anything above .157 is considered to have a good impact

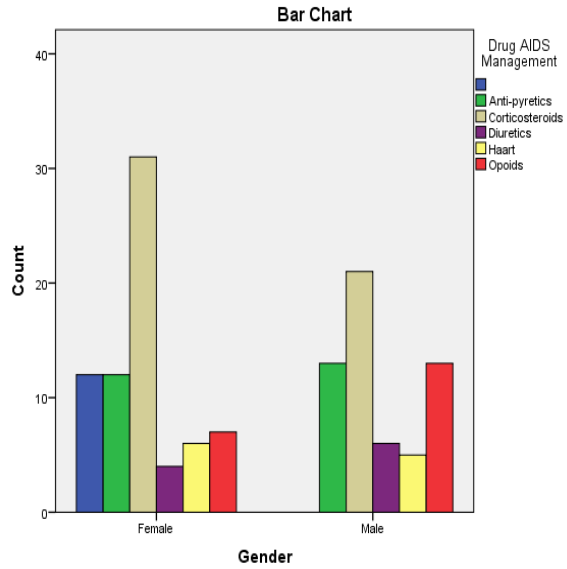


Gender * Drug HBV Management



NOTE: No statistically significant difference but interesting specially the green highlighted bar which shows Amphotericin B which is wrong

Gender * Drug AIDS Management



NOTE: No statistically significant difference but interesting specially the brown highlighted bar which shows Corticosteroids which is wrong

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