Open Access

Original Article

Perceptions and Practices of Sanitary Workers toward Hepatitis B Virus Infection and Vaccination in Tertiary Care Hospitals of Rawalpindi: A Cross Sectional Analytical Study

Naseer Alam Tariq, Bushra Ameer Saeed Awan, Samia Saleem, Muhammad Atif, Fatima Sahiba, Muhammad Musa, Mohammad Affaq Khan

Army Medical College/National University of Medical Sciences (NUMS) Rawalpindi Pakistan

ABSTRACT

Objective: The purpose of this study is to evaluate the sanitary staff at selected tertiary care hospitals of Rawalpindi.
Study Design: Cross-sectional analytical study.
Place and Duration of Study: Study was conducted at in four Tertiary Care Hospitals in Rawalpindi Pakistan, from Nov 2021 to May 2022.
Methodology: The sample size of 200 was calculated as per the reference study. Convenience sampling technique was used. Hospital cleaners over the age of 18 who worked daily in all clinical units and were involved in cleaning, waste collection and disposal.
Results: In this study majority of the participants were males 178(89%) and majority 75(38%) were of age group 35-44 years and 45-54 years 69(35%). More than two third 156(78%) were married. Almost equal proportion of participants had middle 83(42%) and primary 77(39%) education There was significant association of gender with knowledge of Hepatitis-B (*p*-value=0.004), knowledge of cure (*p*-value=0.001) and symptoms (*p*-value=00.02), transmission through blood transfusion (*p*-value=0.027). There was also significant association between age group and provision of HBV vaccination to the staff (*p*-value=0.009), knowledge of availability of HBV vaccination at hospital (*p*-value=0.001), screening for HBV (*p*-value=0.025), handling of sharps carefully (*p*-value=0.000), vaccination status for HBV (*p*-value=0.010), wearing gloves during work (*p*-value=0.017).
Conclusion: the study offers helpful information into potential idiosyncrasies of sanitary workers and hospital cleaners that may serve as the foundation for future, more extensive studies.

Keywords: Hepatitis B, Hospital cleaner, Knowledge, Perceptions, Practices, Sanitary worker, Vaccination.

How to Cite This Article: *Tariq NA, Awan BAS, Saleem S, Atif M, Sahiba F, Musa M, Khan MA. Perceptions and Practices of Sanitary Workers toward Hepatitis B Virus Infection and Vaccination in Tertiary Care Hospitals of Rawalpindi: A Cross Sectional Analytical Study. Pak Armed Forces Med J 2022; 72(Suppl-4): S767-772. DOI: https://doi.org/10.51253/pafmj.v72iSUPPL-4.9653*

INTRODUCTION

Hepatitis is an infectious condition that attacks the liver leading to both acute and chronic disease.[1] Millions of people are affected by Hepatitis-B virus (HBV) infection, in both resource-rich and resource-limited nations. Despite the introduction of the Hepatitis-B vaccine and effective anti-hepatitis B viral therapies, sub-Saharan Africa and Asian countries continue to carry the majority of the burden world-wide and onle 1% of the general population is infected in the Americas and Western Pacific region.[2] Pakistan has an HBV infection prevalence of 2–7%. Each year, it is predicted that more than 10 million people in Pakistan contract HBV infection.[3] The virus is spread by coming in contact with blood or other body fluids of an infected individual.[4] The spread of this disease in hospitals and throughout society can be stopped by healthcare workers (HCW) having a general under-standing of viral hepatitis, its spreads and prevention. In addition to suffering severe injury, infected HCWs can spread the infection to the patients,[5] Sanitary staff who clean and remove infectious/biomedical waste from hospitals are one of the main groups at greater risk of contracting these diseases in healthcare set-tings.[6] According to the Centers for Disease Control (CDC), handling sharp hospital waste expose them to more than 20 distinct types of blood-borne illnesses.[7] One of the most vulnerable groups with a higher risk of HBV infection is the sanitary workers. The sanitary workers are exposed to HBV-infected patients on the job, which puts them at risk for infection through mucocutaneous contact with blood and other body fluids, percutaneous injuries from needle or sharp objects, and other routes.[8] In this study, "sanitary staff/workers" refers to those employed by hospitals to clean, collect, and discard infectious as well as general garbage from inpatient and outpatient departments. The purpose of this study is to evaluate the sanitary staff at selected tertiary care hospitals of Rawalpindi Pakistan, regarding perceptions and practices of

Correspondence: Dr Bushra Ameer Saeed Awan, Department of Community Medicine, Army Medical College, Rawalpindi, Pakistan

Hepatitis-B virus (HBV) infection. The study's findings will give the Infection Control Departments of health care facilities and policy makers a better under-standing of how well the existing training program is working to improve sanitary staff knowledge and behaviors of hepatitis-B. The information gathered will be utilized to analyze and improve the hospital's present sanitary staff' training program.

METHODOLOGY

This cross sectional analytical study was conducted from 15 November 2021 to 15 May 2022. In four Tertiary Care Hospitals in Rawalpindi Pakistan. Participants in the study were sanitary workers /cleaners who worked in the outpatient and indoor hospital departments, recruited through convenience sampling technique. The sample size of 200 was calculated as per the reference study "Factors Influencing Hospital Cleaners' Knowledge and Practices toward Hepatitis B prevention in Northern Province of Rwanda.[4] This study was approved by the Ethical Committee of Army Medical College Rawalpindi ,NUMS,(ERC/ID/26). All tertiary care hospitals were offering both outpatient and inpatient services in medicine, surgery, gynecology, obstetrics and pediatrics. The data collection tool had three sections first section contained questions regarding Sociodemographic information of participants, second section had question related to perceptions of sanitary workers about HBV disease and the third section had questions related to practices. The questionnaire was distributed among 207 sanitary workers and cleaning staff.

Inclusion Criteria: Hospital cleaners over the age of 18 who worked daily in all clinical units and were involved in cleaning, waste collection and disposal.

Exclusion Criteria: Sanitary workers who were already HBV infection were excluded from the study.

Participants in the study were informed of the goals and objectives prior to receiving questionnaires and participants gave their consent to participate. A self-administered questionnaire was given to every study participant who expressed a willingness to participate and who met the criteria for inclusion. A Data Analysis was done using computer software Statistical Package of Social Sciences (SPSS version 24). Frequency and proportions were calculated for categorical variables. Chi square test was applied to find out the association between the categorical variables.

RESULTS

Out of the 207 participants selected in the study, 200 participants gave consent and filled to the questionnaire and seven participants refused, making a response rate of 97 %. Among the study participants 178(89%) were males and 22(11%) were females. Majority of sanitary workers were of age group 35-44 years 75(38%) and 45-54 years 69(35%). More than two third 156(78%) were married. Almost equal proportion of participants had middle 83(42%) and primary 77(39%) education. Sociodemographic characteristics are all represented in this figure-I.

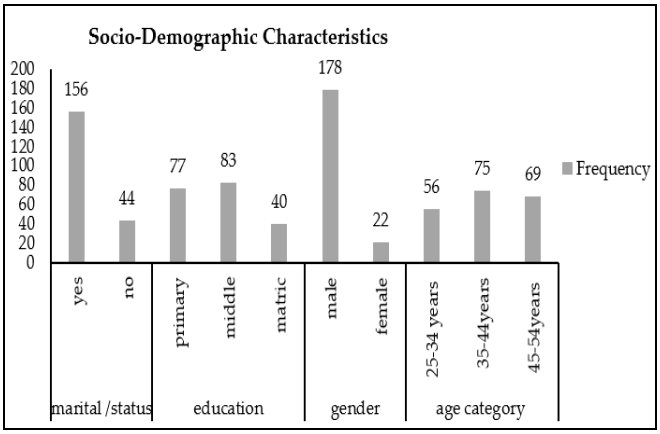

Figure-1: Sociodemographic Information Of Sanitary Workers

Almost two third of participants 124(62%) had heard of Hepatitis B, only a small number identified virus as a cause 37(19%) and one third 76(38%) identified liver as the organ damaged by HBV. More than one third 80(40%) perceived HBV as curable. More than two third were not screened for HBV 146(73%) and half 102(51%) didn't know of any vaccination against HBV. Almost two third 120(60%) would be concerned if they had casual contact with HBV patient. Many participants 100(50%) wrongly perceived cleaning and cooking food thoroughly could prevent infection. Majority 155(78%) perceived lack of knowledge as cause of hesitancy toward vaccination. A greater number of participants handled syringes carefully 112(56%) whereas one third 63(31%) didn't know that syringes should be handled carefully. A greater proportion of participants 82(41%) always wore gloves while handling waste whereas 41(21%) never wore gloves. Responses of the participants are shown in figure-2

There was significant association of gender with knowledge of hepatitis B (p=0.004), knowledge of cure (p=0.001) and symptoms (p=0.021), transmission through blood transfusion (p=0.027). Regarding practices there was significant association of gender with screening of HBV (p=0.012). (Table-I)

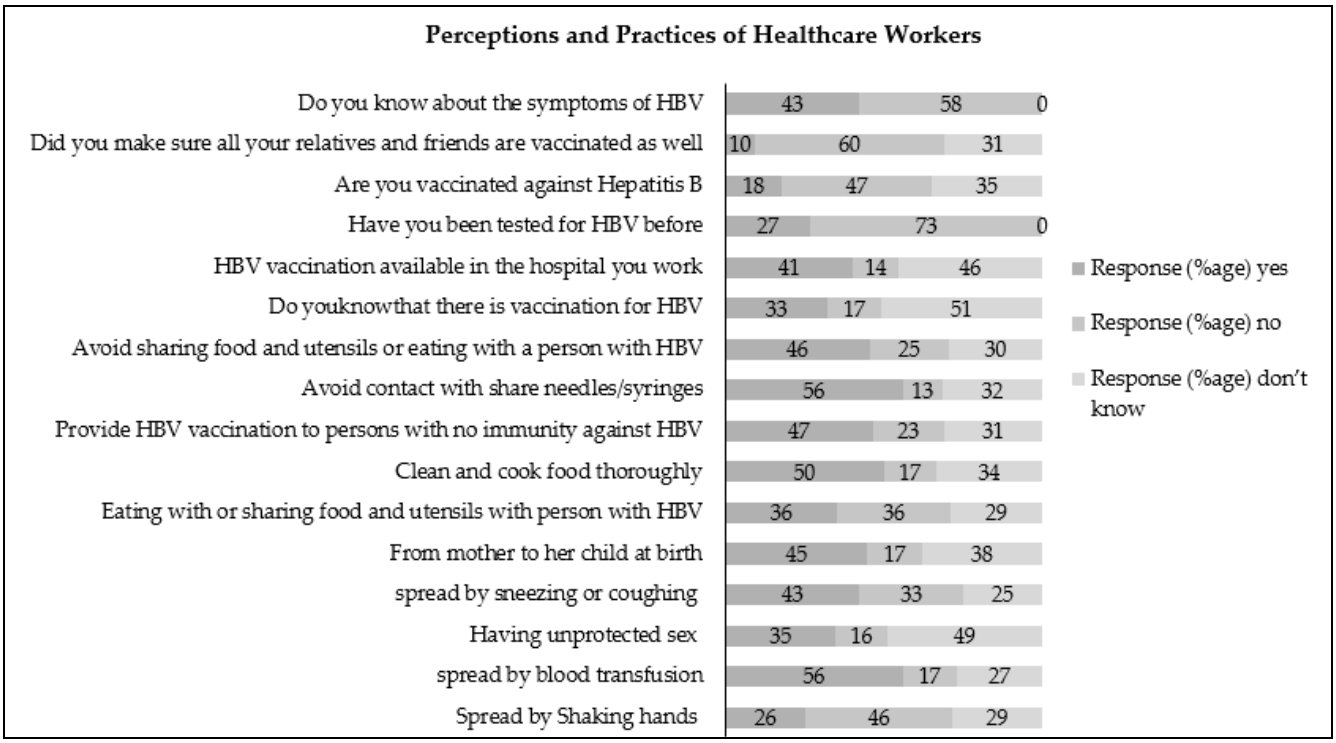

Figure-2: Perceptions and Practices of Healthcare Workers

Table-I: Association of Gender with Screening of HBV

Variable	Male	Female	Total	*p*-value
Heard about Hepatitis-B				
Yes	117	7	124	.004
No	24	8	32	
Dont know	37	7	44	
Cure of Hepatitis B				
Curable	70	10	80	.001
Incurable	64	0	64	
Dont know	44	12	56	
Spread by Blood Transfusion				
Yes	101	11	112	.027
No	26	8	34	
Dont know	51	3	54	
Screened for Hepatitis B				
Yes	53	1	54	.012
No	125	21	146	
Concerned if Casual Contact with HBV Patient				
Yes	111	9	120	.045
No	67	13	80	

There was a significant association between age groups and correct knowledge of organs damaged by HBV(p=0.015), cure of infection (p=0.001), transmission by blood transfusion(p<0.05), spread of HBV by shaking hands (p=0.015), sneezing and coughing (p=0.012), thorough cleaning and cooking of food to prevent HBV infection (p=0.001), Do you know that there is vaccination for HBV p=0.04 not sharing utensils with the infected patient (p=0.003). provision of HBV vaccination to the staff (p=0.009), knowledge of availability of HBV vaccination at hospital (p=0.001), screening for HBV (p=0.025), handling of sharps carefully (p<0.05), vaccination status for HBV (p=0.010), concerned if casual contact with HBV patients in the hospital p=0.019. (Table-II)

Chi square test also revealed significant association between marital status and perception of spread by blood transfusion (p=0.001), by shaking hands (p=0.002), sharing food and utensils (p-value=0.018), cooking food thoroughly to avoid infection (p=0.001) avoid sharing food and utensils with infected persons (p=0.004) and wearing gloves during work (p=0.038).

Significant association was also found between education of sanitary workers and knowledge of organs damaged by HBV(p<0.05), cure of infection (p-value=0.013), heard of disease (p<0.05), symptoms (p= 0.037), perception of spread by blood transfusion (p= 0.006), unprotected sex with infected and from mother to child (p<0.05), false perception that cleaning and cooking of food prevent infection (p<0.05) by shaking hands (p=0.003), coughing and sneezing (p=0.001) and availability of vaccination in the hospital (p<0.05). concerned if casual contact (p=0.005), cause of hesitancy (p<0.05) Attributes related to practices of sanitary workers were also significantly associated a shown in Table-III

Table-II: Association between Marital Status and Perception of Spread

Variable	24-34 years	35-44 years	45-54 years	Total	*p*-value
Handle Sharps Carefully					
yes	27	52	33	112	<0.05
no	3	2	20	25	
dont know	26	21	16	63	
Avoid Sharing Food and Utensils a Person with HBV					
yes	22	39	30	91	.003
no	11	12	27	50	
dont know	23	24	12	59	
Screened for HBV					
yes	14	28	12	54	.025
no	42	47	57	146	
dont know	0	0	0	0	
Concerned for Family and Friends Regarding HBV Vaccination					
yes	7	7	5	19	.031
no	30	54	35	119	
dont know	19	14	29	62	
Cause of Hesitancy toward HBV Vaccination					
religious belief	0	5	0	5	<0.05
social stigma	0	9	0	9	
lethargy	4	1	26	31	
lack of knowledge	52	60	43	155	
Do you Wear Gloves during Work					
always	26	23	33	82	.017
never	16	13	12	41	
sometimes	14	39	24	77	

Table III: Association of Education with Perception and Practices of Sanityary Workers

Variable	Primary	Middle	Secondary	Total	*p*-value
Avoid Contact with Share Needles/ Syringes					
Yes	41	36	35	112	<0.05
No	9	13	3	25	
Dont know	27	34	2	63	
Avoid Sharing Food and Utensils with HBV Patient					
Yes	28	33	30	91	<0.05
No	20	22	8	50	
Dont know	29	28	2	59	
Knowledge of Vaccination for HBV					
Yes	19	38	8	65	<0.05
No	25	4	4	33	
Dont know	33	41	28	102	
Availability of HBV Vaccine at Work					
Yes	25	24	32	81	<0.05
No	20	7	1	28	
Dont know	32	52	7	91	
Are you Vaccinated Against Hepatitis B					
Yes	12	16	8	36	.042
No	35	33	26	94	
Dont know	30	34	6	70	

DISCUSSION

This research seeks to assess the knowledge, attitudes, and behaviors of hospital sanitary staff who, due to the nature of their employment, are always at danger of contracting blood-borne illnesses In this study majority of the participants were males 178(89%) and majority 75(38%) were of age group 35-44 years and 45-54 years 69(35%). More than two third 156(78%) were married. Almost equal proportion of participants had middle 83(42%) and primary 77(39%) education. These findings corroborate with findings of a study conducted in a tertiary care hospital of in Muzaffar-abad Pakistan.[9] However these are contrary to a research conducted in a northern province of Rwanda where more than half (55%) had only primary level of education.[10] Almost two third of participants 124(62%) had heard of Hepatitis-B only a small number 37(19%) identified virus as a cause of HBV infection liver 76 (38%) is the organ damaged by HBV Study from Rawanda revealed similar results.[11] This difference may be attributed to prominent media coverage of HBV in the last couple of decades.[12] lack of awareness regarding HBV testing and signs of HBV infection similar to evidence from North Vietnam revealed,[13] in agreement with findings of our study, another survey from Pakistan revealed that most people (86.2%) were knowledgeable about HBV prevention and trans-mission methods,[14] Lack of awareness of transmission of HBV infection, this increases chance of transmission to others strongly supports rigorous pre-employment screening.[15] The participants perceived HBV vacci-nation necessary to prevent transmission to findings of this study also exposed a number of respondents' myths and misconceptions, such as 54%'s belief that they may contract HBV through sharing food and utensils with HBV patients.[16] The stigmatization of HBV patients is a widespread practice in many societies, 80.2% of participants responded that they would steer clear of HBV Such behavior may harm the patients' mental health, which may cause their con-dition to deteriorate will boost the preventive meas-ures even more in their homes and workplaces. Evidence from Southeast Asia or Western Pacific regions indicated the similar results.[17]

Sanitary workers in this study showed vague idea of risks of needle stick injuries idea that they can get needle pricks from the discarded needles/syringes and it can cause harm to the primary issue is inefficient operation, risk unawareness, and unskilled workers engaging in unethical behavior.[18]

Findings of this study indicated that only little more than a quarter 54(27%) were screened and more than one third 36(18%) sanitary workers/cleaners were vaccinated. Participants regularly monitor preventative measures against HBV infection spread These findings are contrary to Study conducted in two tertiary care hospitals of Sindh Pakistan also documented two-third of the HCWs were completely vaccinated in secondary care hospitals in Sindh, Pakistan.[19]

According to the study's findings, gender, age, marital status, and educational level were all strongly associated sanitary workers' perceptions and practices regarding hepatitis-B. In agreement with findings of a study among HCWs in the Sudanese White Nile state revealed a substantial relationship between occupation and educational attainment and knowledge level.[12] Despite the fact that there is a safe and effective HBV vaccination accessible worldwide, HCWs in underdeveloped nations continue to be at risk because the majority of participants are not HBV-vaccinated, There was also significant association between age group and provision of HBV vaccination to the staff, knowledge of availability of HBV vaccination at hospital, screening for HBV, handling of sharps carefully, vaccination status for HBV. These findings are in congruence with evidence from Tanzania.[20] A statistically significant association was found between perception of sanitary workers toward Hepatitis-B and its prevention and immunization in congruence with evidence documented in Ethiopia.[21]

Attributes related to practices of sanitary workers were also significantly associated like avoid sharing food with infected person, handle sharps carefully, and vaccination of sanitary workers and age of health care workers as well as level of education. A study by Hardofa *et al*. also reported similar findings.[22] Significant association was also found between education of sanitary workers and knowledge HBV infections, its symptoms, modes of spread, cure and vaccination which is in agreement with a research conducted in Cameroon.[23]

ACKNOWLEDGMENT

The authors would like to sincerely thank all the sanitary workers of for their cooperation and support throughout the study

LIMITATIONS OF STUDY

However, some caution should be used when interpreting the study's results. Recall and temporal bias may have entered the sample as a result of the cross-sectional study design. Additionally, the study was conducted in selected tertiary care hospitals presents some difficulties in generalizability

RECOMMENDATIONS

there is a pressing need for cleaners to receive training on the transmission, risks, prevention, and other relevant aspects of hepatitis B infection.

CONCLUSION

However, the study offers helpful information into potential idiosyncrasies of sanitary workers and hospital cleaners that may serve as the foundation for future, more extensive studies. It gives research and policy hospital cleaners in hepatitis B infection management among health workers a basis for attention.

Conflict of Interest: None.

Author's Contribution

Following authors have made substantial contributions to the manuscript as under:

NAT: Conception, Design, Write up, Review of manuscript & approval for the final version to be published.

BASA: Analysis and interpretation, Write up, Review of manuscript & approval for the final version to be published.

SS: Data Collection and Entry, Analysis & approval for the final version to be published.

MA: Data colllection, Entry analysis & approval for the final version to be published.

FS: Data collection and Entry referencing, Analysis & approval for the final version to be published.

MM: Data collection and Entry analysis, Interpretation & approval for the final version to be published.

MAK: Data collection and Entry analysis and write up manuscript & approval for the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

REFERENCES

1. Aniaku JK, Amedonu EK, Fusheini A. Assessment of knowledge, attitude and vaccination status of hepatitis B among nursing training students in Ho, Ghana. Ann. Glob. Health 2019; 85(1), 85(1): 18. doi: 10.5334/aogh.750.
2. Hepatitis B key facts. World Health Organization, updated June 24, 2022 Accessed October 12,2022, [Internet] available at: https: //www.who.int/news-room/fact-sheets/detail/hepatitis-b
3. Ullah N, Khan I, Kakakhel MA, Xi L, Bai Y, Kalra BS,et al. Serological prevalence of hepatitis B virus (HBV) in Mardan district, Khyber Pakhtunkhwa, Pakistan,Braz J Biol 2021; 82(1): e245813. doi: 10.1590/1519-6984.245813.
4. Ahmadi Z, Hosseni Ms, Yaghmaei F, Anisian A. Knowledge, attitudes and practices of cleaning staff regarding hepatitis B virus, Adv Nur Midwif 2022; 17(57): 43-49.
5. Gorar ZA, Butt ZA, Aziz I. Risk factors for bloodborne viral hepatitis in healthcare workers of Pakistan: a population based

case–control study. BMJ open 2014; 4(7): e004767. https://doi.org/10.1136/bmjopen-2013-004767.
6. Khan RA, Ahmed W, Alam SE, Arif A. Screening of HBsAg and anti HCV from tertiary care, private and public sector hospitals. P J Med Res 2011; 50(1): 20-23.
7. Noreen N, Kumar R, Shaikh BT. Knowledge about hepatitis B vaccination among women of childbearing age: a cross-sectional study from a rural district of Punjab, Pakistan. East Mediterr Health J 2015; 21(2): 129-331. doi: 10.26719/2015.21.2.129.
8. Nguyen TT, Pham TT, So S, Hoang TH, Nguyen TT,et al. Knowledge, attitudes and practices toward hepatitis B virus infection among students of medicine in Vietnam. nt. J. Environ. Res. Public Health 2021; 18(13): 7081.
9. Khan MJ, Hamza MA, Zafar B, Mehmod R, Mushtaq S. Knowledge, attitude and practices of health care staff regarding hospital waste handling in tertiary care hospitals of Muzaffarabad, AJK, Pakistan. Int JSci Rep 2017; 3(7): 220-226 doi: http://dx.doi.org/10.18203/ issn.2454-2156.IntJSciRep20173094
10. Nkurikiyintwali JM, Nizeyimana F, Okova R, Rutayisire E. Factors Influencing Hospital Cleaners' Knowledge and Practices toward Hepatitis B prevention in Northern Province of Rwanda Int. J. Public Health 2021, [Internet] available at: https://doi.org/10.14302/issn.2641-4538.jphi-21-3950
11. Rudraswamy S, Sampath N, Doggalli N. Staff's attitude regarding hospital waste management in the dental college hospitals of Bangalore city, India. Indian J Occup Environ Med 2012; 16(2): 75-78. doi: 10.4103/0019-5278.107077
12. Mursy SMM, Mohamed SOO. Knowledge, attitude, and practice towards Hepatitis B infection among nurses and midwives in two maternity hospitals in Khartoum, Sudan. BMC Public Health 2019; 19(1): 1597. doi: 10.1186/s12889-019-7982-8.
13. Hang Pham TT, Le TX, Nguyen DT, Luu CM, Truong BD, Tran PD. Knowledge, attitudes and medical practice regarding hepatitis B prevention and management among healthcare workers in Northern Vietnam. PLoS One 2019; 14(10): e0223733. doi: 10.1371/journal. pone.0223733.
14. Abeje G, Azage M. Hepatitis B vaccine knowledge and vaccination status among health care workers of Bahir Dar City Administration, Northwest Ethiopia: a cross sectional study. BMC Infect Dis 2015; 15: 30. doi: 10.1186/s12879-015-0756-8.
15. Moussa AA, Abdi AA, Abdullahi SA. Assessment of knowledge, attitude and practice of healthcare workers towards Hepatitis B virus infection in Mogadishu, Somalia: A Cross-Sectional Study. Res Sq 2020 preprint version. doi https://doi.org/10.21203/rs.2.23628/v1]
16. Al-Gethamy M, Adetunji H, Abbas S, Al-Qatabi D, Karar H. Assessment of Knowledge, Attitude and practices (KAP) towards hepatitis b, c and HIV among sanitary staff at a tertiary care hospital in MAKKAH city, Saudi Arabia. Eur J Pharm Med Res 2016; 3(11): 116-127.
17. Smith-Palmer J, Cerri K, Sbarigia U, Chan EKH, Pollock RF, Valentine WJ, et al. Impact of Stigma on People Living with Chronic Hepatitis B. Patient Relat Outcome Meas 2020; 11(1): 95-107. doi: 10.2147/PROM.S226936.
18. Wang C, Huang L, Li J, Dai J. Relationship between psychosocial working conditions, stress perception, and needle-stick injury among healthcare workers in Shanghai. BMC Public Health 2019; 19(1): 1-11.
19. Soomar SM, Siddiqui AR, Azam SI, Shah M. Determinants of hepatitis B vaccination status in health care workers of two secondary care hospitals of Sindh, Pakistan: a cross-sectional study. Hum. Vaccines Immunother. 2021; 17(12): 5579-5584. doi: 10.1080/21645515.2021.1986332.
20. Aaron D, Nagu TJ, Rwegasha J, Komba E. Hepatitis B vaccination coverage among healthcare workers at national hospital in Tanzania: how much, who and why? BMC Infect Dis 2017; 17(1): 786. doi: 10.1186/s12879-017-2893-8.
21. Biset Ayalew M, Adugna Horsa B. Hepatitis B Vaccination Status among Health Care Workers in a Tertiary Hospital in Ethiopia. Hepat Res Treat 2017; 2017(1): 647065
22. 22 Hordofa MA, Hassan AH. Hepatitis B Vaccination Status and Associated Factors Among Healthcare Professionals Working in Health Centers at Akaki Kality Subcity of Addis Ababa, Ethiopia: A Cross-Sectional Study. Risk Manag Healthc Policy 2021; 14(1): 1575-1582. doi: 10.2147/RMHP.S287579.
23. Ngekeng S, Chichom-Mefire A, Nde P, Nsagha D, Nkuigue A, Tiogouo K, et al. Hepatitis B prevalence, knowledge and occupational factors among health care workers in fako division, south west region Cameroon Int J Microbiol Res 2018; 23(4): 1-9. doi: 10.9734/MRJI/2018/40445

.....