Knowledge and Practices on Preventive Measures of Blood Borne Diseases Among Non-Medical Attendants Working in Dhulikhel Hospital, Kathmandu University Hospital

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ABSTRACT

Background

Blood and certain body fluids pose the greatest threat to health due to sharp injuries spreading blood borne pathogens that cause serious illness when transmitted. Despite the high sickness rate, sanitation staff lacked awareness regarding protections from contacting soiled materials while handling biomedical wastes.

Objective

The study aims to find out the knowledge and practices on preventive measures of blood borne diseases among non-medical attendants.

Method

Descriptive cross-sectional study was conducted to find out the knowledge and practices on preventive measures on blood borne diseases among all the 53 non-medical personnel in Dhulikhel Hospital, Kathmandu University Hospital. Respondents scoring ≥50% on knowledge score were taken as having adequate knowledge. A Nepali version of pre-tested structured and semi-structured questionnaire was used to conduct interview. Participation in the study was voluntary and written consent was taken before inquiry. Outcomes were measured in both descriptive and inferential ways.

Result

The adequate knowledge was found among 86.8% of the respondents on the blood borne diseases whereas 50.9% of them had proper practice on it. Although, there is poor positive correlation between the mean knowledge score and literacy, the correlation was significant ($r = 0.341$, $p < 0.05$). Alike, the mean practice score and work experience demonstrated significant correlation ($r = 0.319$, $p < 0.05$).

Conclusion

Although knowledge score of male was high, female had higher practices score. Both knowledge and practice score increased due to the participation in the training programs and increment in experience. There was significant positive correlation between the mean knowledge score and literacy, and the mean practice score and work experience.

KEY WORDS

Blood borne diseases, knowledge, non medical personnel, practice

INTRODUCTION

Blood poses the greatest threat to health in a laboratory or clinical setting due to sharp injuries.[1] Blood borne pathogens can cause serious illness and death when transmitted from an infected individual to another individual through blood and certain body fluids.[2] Exposure to infected blood and body fluids is the main route of transmission of blood-borne pathogens.[3,4]

The risk of acquiring blood-borne infections such as hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus [HIV] from occupational exposure depends on the frequency of percutaneous and permucosal exposures to blood or body fluids.[5] Nevertheless, the HIV, HBV, and HCV do not spontaneously penetrate intact skin, and airborne transmission of these viruses does not occur.[6]

Despite the high sickness rate, sanitation staff lacked awareness regarding protection of their bodies and manual handling of biomedical wastes. Only few private hospitals offered regular courses on waste handling and management to create awareness among the staff member and workers.[7] The primary route of occupational exposure to blood borne pathogens is accidental needle stick or sharp injuries in the hospital setups.[8] Due to their poor socio-economic status, low levels of education and lack of awareness and any training in hazardous waste handling, sanitary workers in developing countries are the worst exposed to the waste.[9] Yet, inadequate waste management systems in the health institutions are posing a severe threat to public health and to the environment.[10] Thus, this study was conducted to examine the knowledge and practices on preventive measures of blood borne diseases.

METHODS

Descriptive cross sectional study was conducted to find out the knowledge and practices on preventive measures on blood borne diseases among non-medical personnel (sanitary workers, ward boys, maintenance staff and laundry staff) in Dhulikhel Hospital, Kathmandu University Hospital. All the 53 non medical personnel were included in the study. Structured and semi-structured Nepali version of questionnaire was used to carry out interview after pretesting in a similar setting and necessary modification of the survey tools was made. Data were collected during June - July 2012. The participation in the study was voluntary and they were allowed to withdraw from participation at any time of the research. The written consent was obtained explaining the purpose of the study from each respondent prior to the data collection. The study was conducted after the permission was taken from concerned authority.

The collected data were entered into the SPSS version 16. Both descriptive (percentage, mean, standard deviation) and inferential (X^2 test and correlation coefficient) statistics were measured.

RESULTS

About fifty percent of the respondents fell under 20-29 age group which was the largest age group, the age group 30-39 years and 40-49 years comprised 30.2% and 7.5% respectively. The lowest age group <20 years and >50 years comprised only 5.7% of them. The mean age of the respondents was 30.42±8.45 years. Among them, above two third of them (67.9%) were male and remaining were female. Accordingly, all the respondents were literate, majority of them (45.3%) held primary level followed by secondary (30.2%), higher secondary and above (15.1%) and informal (9.4%). Nearly two fifth (37.7%) of the respondents were Newar, followed by Brahmin (22.6%) , Tamang (22.6%), Chhetri (15.1%) and Magar (1.9%). Around two fifth of them worked as Hygiene staff (41.5%), 20.8 % work as laundry staff, 18.9% and 13.2% work as ward boys and maintenance staff respectively and 5.7% work as Lab boys. Around one third of staff had been working for 5-9

Table 1. Socio-demographic Profile of Respondents. (n=53)

Variables	Frequency	Percent
Age group of respondent		
<20 years	3	5.7
20-29 years	27	50.9
30-39 years	16	30.2
40-49 years	4	7.5
>50 years	3	5.7
Sex of Respondent		
Male	36	67.9
Female	17	32.1
Caste		
Newar	20	37.7
Chhetri	8	15.1
Tamang	12	22.6
Brahmin	12	22.6
Magar	1	1.9
Occupation		
Hygiene	22	41.5
Maintenance	7	13.2
Ward boys	10	18.9
Laundry staff	11	20.8
Lab boys	3	5.7
Education		
Informal	5	9.4
Primary	24	45.3
Secondary	16	30.2
Higher secondary and above	8	15.1
Work experience		
<1year	10	18.9
1-4 years	13	24.5
5-9 years	17	32.1
>10 years	13	24.5
Total	53	100

years. Similarly, 24.5% of staff had been working for 1-4 years and for more than 10 years and 18.9% of staff had been working for less than a year (table 1).

All of the respondents had heard about blood borne diseases, among them, majority (94.3%) got information from health workers followed be 41.5% from reading books, 13.2% from media and only 11.3% of them got information from training. Every one of them answered HIV as a blood borne disease, whereas HBV and HCV was considered as blood borne disease only by 54.7% and 24.5% of them respectively. Each one of the respondents knew that sharing needles was the mode of transmission of blood borne diseases, followed by receiving contaminated blood (81.1%), and unprotected sexual intercourse/ multiple sex partners. About two third of them knew that Blood borne disease was transmitted from HIV mother to fetus and over one quarter (28.3%) of them perceived they were transmitted through breastfeeding from HIV/HBV positive mother respectively. All the respondents knew that using gloves when handling blood and body fluids was the safety precaution. About two fifth of them knew that avoiding drug addiction can prevent blood borne diseases. Most of the respondents (88.7%) knew that AIDS patients cannot be cured (table 2).

Table 2. Knowledge on blood borne diseases. (n=53)

Variables	Frequency	Percent
Sources of getting information (MR)		
From training	6	11.3
From media	7	13.2
From health worker	50	94.3
Reading books	22	41.5
Blood borne Diseases (MR)		
HIV is blood borne disease	53	100.0
HBV is the blood borne disease	29	54.7
HCV is the blood borne disease	13	24.5
Mode of Transmission (MR)		
Sharing needles is the mode of transmission	53	100.0
Unprotected sexual intercourse/ multiple sex partner	42	79.2
Receiving contaminated blood transmission	43	81.1
Breastfeeding from HIV/HBV positive mother	15	28.3
HIV positive mother to fetus transmission	37	69.8
Safety Precautions (MR)		
Using gloves when handling blood and body fluids	53	100.0
Avoiding drug addiction	21	39.6
Washing hands after contact to the patient	45	84.9
Vaccination	43	81.1
AIDS can be cured		
No	47	88.7
Yes	4	7.5
Don't know	3	3.8

Regarding the availability of vaccination against HIV, HBV and HCV, 28.3%, 92.5% and 22.6% of the workers affirmed positively (fig 1).

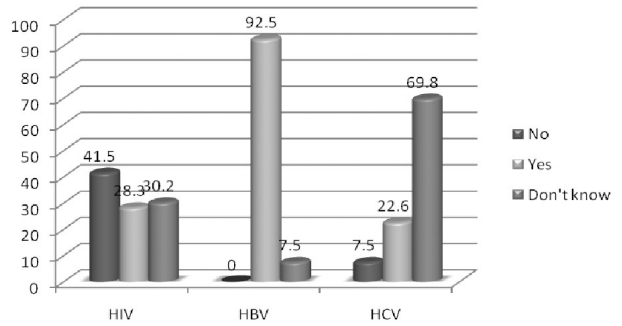

Figure 1. Knowledge on availability of vaccination in percentage.

All the respondents used gloves when handling blood and body fluids of the patients. Among them, 90.6% used protective devices, 81.1% vaccinated against HBV, 34% of them received trainings, and 24.5% each experienced hospital-based needle stick injuries within a year and having post-exposure prophylaxis(fig 2).

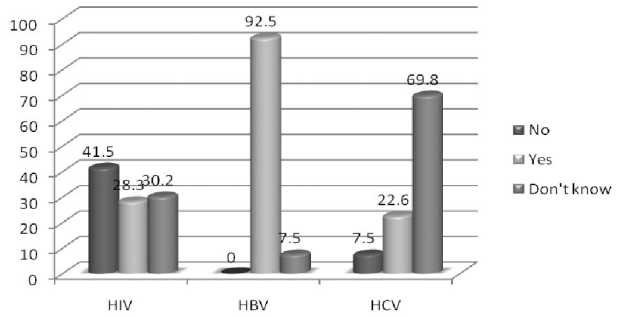

Figure 2. Practice on preventive measures in percentage.

None of the respondents had ever suffered from blood borne diseases but 60.4% of them had been exposed to blood and body fluids and majority of them were exposed for more than three times. The immediate action taken by majority (90.6%) of the respondents after exposure to blood or body fluids was washing hands with soap and water and about 68% of respondents also washed with alcohol (table 3).

Majority of the respondents (86.8%) had adequate knowledge on blood borne diseases whereas only 50.9% of the total respondents had acceptable practice on it (table 4).

The mean knowledge score of male was 10.88±2.16 and that of female was 10.35±1.65 and the mean knowledge score of hygienic staff was 10.68±1.72 and other than hygienic staff was 10.74±2.22. Similarly, the mean knowledge score of respondents receiving training program was 11.33±1.36 and those who hadn't received training program was 10.63±2.07. Likewise, the mean knowledge score of the respondents receiving informal education was

10.80±1.48, primary level was 10.00±2.24 and secondary level was 11.5 ± 1.59 and higher secondary level and above was 11.25 ± 1.59. Regarding work experience, the mean knowledge score of the respondents working for < 1 year was 10.42±2.69, 1 to 4 years was 10.42±2.69, 5 to 9 years was 11.47±1.32 and ≥ 10 years was 10.84±1.46. Similarly, mean practice score of respondents receiving informal education was 5.00 ± 1.00, primary level was 4.29±1.19, secondary level was 4.68 ± 0.94 and higher secondary and above was 4.00±1.15. The mean practice score of the respondents working for <1 year was 2.57±0.53, 1-4 years was 4.75±0.93, 5 - 9 years was 4.64±0.99 and ≥ 10 years was 4.76±1.01. And then, the mean practice score of male was 4.19±1.19 and that of female was 4.94±0.96. Likewise, the mean practice score of hygienic staff was 5.00±0.97 and that of other than hygienic staff was 4.03±1.13. In the same way, the mean practice score of the respondents receiving training program was 4.83±1.47 and those who hadn't received training program was 4.38±1.13 (table 4).

Although there was poor positive correlation between the mean knowledge score and literacy, the correlation was significant (r = 0.341, p < 0.05). The mean practice score and work experience demonstrated significant correlation (r = 0.319, p <0.05) (table 5).

Table 3. Practices after exposure to blood or body fluids (n=53).

Exposed to blood or body fluids		
No	20	37.7
Yes	33	62.3
Frequency of exposure to blood or body fluids		
None	20	37.7
One	1	1.9
Two	1	7.5
Three or more times	28	52.8
Immediate action after exposure to blood or body fluids		
Irrigate area with water	9	17.0
Wash hands with soap and water	48	90.6
Wipe off blood	3	5.7
Wash with alcohol	36	67.9
Precaution after injury		
Consult the health person or supervisor	12	92.3
Did not care about the injury	1	7.7
Doses of vaccination taken		
Zero	10	18.9
One	2	3.8
Two	13	24.5
Three	28	52.8

Table 4. Mean knowledge scores and practice scores. (n=53).

Variables	Knowledge mean ±SD scores	Practice mean ±SD scores
Knowledge score according to gender		
Male	10.88±2.16	4.19±1.19
Female	10.35±1.65	4.94±0.96
Knowledge score according to job category		
Hygiene staffs	10.68±1.72	5.00±0.97
Other than hygiene staffs	10.74±2.22	4.03±1.13
Knowledge score according to participation in training programs		
Yes	11.33±1.36	4.83±1.47
No	10.63±2.07	4.38±1.13
Knowledge score according to educational level		
Informal	10.80±1.48	5.00±1.00
Primary	10.00±2.24	4.29±1.19
Secondary	11.50±1.59	4.68±0.94
Higher secondary	11.25±1.59	4.00±1.15
Knowledge score according to work experience		
< 1 year	10.42±2.69	2.57±0.53
1 - 4 years	9.93±2.48	4.75±0.93
5 - 9 years	11.47±1.32	4.64±0.99
≥ 10 years	10.84±1.46	4.76±1.01

Table 5. Karl Pearson's correlation coefficient between different variables.

Variables	Correlation coefficient (r)	p- value
Work experience and knowledge score	0.198	0.156
Literacy and knowledge score	0.319	0.020*
Work experience and practice score	0.341	0.013*
Literacy and practice score	0.019	0.892
Knowledge score and practice score	0.184	0.187

*Significant at 0.05 level of significance

DISCUSSION

This descriptive cross-sectional study has enabled the researcher to identify the knowledge and practice on preventive measures of blood borne diseases among non medical personnel in the hospital.

Only very few studies were conducted to assess the awareness on blood borne disease among non-medical personnel. In the current study, among 53 subjects, the knowledge on blood borne disease was found to be nearly 87% which was about the same in comparison to the study done by Lakbala P in Iran in which 84% of the respondents had the knowledge on blood borne disease.[11] But in contrast, only about 40-60% of the ward boys and housekeepers, 29% of the entire population were aware on this according to the researches done by Saraf Y et al respectively in India.[12,13]

In the study, the good practice for prevention of blood borne disease among non-medical personnel was found to be nearly 51% which was a bit higher (46.3%) in comparison to the study done in Egypt by Hanafi et al.[14]

Regarding the knowledge on mode of transmission of the blood borne pathogens, all the respondents knew that sharing needles was the mode of transmission. Around 40% of the respondents were aware that the unprotected sexual intercourse, receiving contaminated blood and mother to fetus transmission were the mode of transmission. These findings were similar to the study done in Manipal by Sidiqqui , which showed that 95% knew about Needle stick injury and 79% said that contact with infected blood/blood products as mode of transmission.[13] In contrast to this study, a study done in Malabar area of Kerala state, India by Niju et el revealed that majority of the sanitary workers were not aware of the correct mode of transmission.[15]

In present study, 47.2% of the respondents had received training program and most those who received training programs were sanitary workers. The study done in Iran by Lakbala unveiled that 83% had attended educational programs on waste management and injury prevention at their hospital.[11] But in contrast, in the study done in Pakistan by Chaudhry, none of the sanitary workers received any training program in handling of hospital wastes.[9]

This study revealed that about 25% of the respondents had needle stick injury in the hospital in past one year and majority of them (92%) had consulted with the health personnel after exposure. In contrary to current study, the studies done in Pakistan and Iran revealed that only 48% and 33% of the participants respectively, looked for medical treatment after an injury.[9,11]

Though about 80% of the total respondents were vaccinated for HBV, only 53% of them were fully vaccinated. Although the workers were engaged in hazardous activity that expose them to biological, physical and toxic wastes of all sorts, there was no routine of their medical inspections.

Although the knowledge score of male was high with high variation among them (male = 10.88±2.16 and female 10.35±1.65), female demonstrated higher practices score (female = 4.94±0.96 and male = 4.19±1.19). The knowledge score was seen high in the workers other than the hygiene staff (other staffs = 10.74±2.22 and hygiene staffs = 10.68±1.72), but the practice score was high in hygiene staffs (hygiene staffs = 5.00±0.97 and other than hygiene staffs = 4.03±1.13). Participation in the training programs had increase both knowledge and practices scores. In contrast, the knowledge score increased as per the increment of educational level, but the practices score decreased while educational level enhanced. On the other hand, both knowledge score and practice score increased according to the rise in the working years.

Although There was poor positive correlation between the mean knowledge score and literacy, the correlation was significant ($r = 0.341$, $p < 0.05$). Alike, the mean practice score and work experience demonstrated significant correlation ($r = 0.319$, $p < 0.05$).

CONCLUSION

The knowledge and practice on preventive measures of blood borne diseases among non-medical personnel was analyzed. Overall knowledge regarding blood borne diseases among non medical personnel was above 50% whereas only half of the respondents had good practice on it. Although the knowledge score of male was high with high variation among them, female established higher practices score. The knowledge score was seen high in the workers other than the hygiene staff, but the practice score was high in hygiene staffs. The participation in the training programs had increased both knowledge and practices scores. In contrast, the knowledge score increased as per the increment of educational level, but the practices score decreased while educational level enhanced. On the other hand, both knowledge score and practice score increased as work experience extended.

There was significant positive correlation between the mean knowledge score and literacy, and the mean practice score and work experience.

REFERENCES

1. Staying Safe from Blood borne Pathogens In Health-Care Settings. Kentucky Community and Technical College System. Available from: www.westkentucky.kctcs.edu/en/Academics/Academic_Divisions/~/media/WestKentucky/Academics/Nursing/BloodBornePathogens.ashx.
2. Muhammad S, Mirza UK, Sarwar MA. Review and Status of Solid Waste Management Practices in Multan, Pakistan. *Electronic Green Journal*. 2006;2(24).
3. Cardo D, Culver DH, Ciesielski CA, Srivastava PU, Marcus R, Abiteboul D. A case-control study of HIV seroconversion in healthcare workers after percutaneous exposure. *N Engl J Med* 1997;337:1485-90.
4. Canadian Centre for Occupational Health and Safety (CCOHS). Needle-stick injuries OSH Answers Needlestick injuries. Available: 2005:www.ccohs.ca/osanswers/diseases/needlestick.
5. Center for Diseases Control. Immunization of Health-Care Workers. MMWR. *Recommendations and Reports*. 1997;46(18):1-35.
6. Beltrami E, Williama IT, Shapiro CN, Chamberland ME. Risk and Management of Blood-Borne Infections in Health Care Workers. *Clinical Microbial Reviews*. 2000;13(3):385-407.
7. Pruss A, Giroult E, Rushbrook P. World Health Organization. Safe management of wastes from health care activit. Geneva. 1999.
8. Thomas P. To assess the effectiveness of structured teaching programme on knowledge of infection control among the class iv workers in selected hospital at Bangalore. ST Philomenas college of nursing. 2009.
9. Chaudhry M, Hyat A, Qureshi SM, Najmi SA. A Health Hazards Of Hospital Waste To Sanitary Workers At Combined Military Hospital, Rawalpindi. *Dept of Community Medicine.* 2004(2).
10. Ullah J, Khan MA. Proposed Model for Healthcare Waste Management. *Pak J Med Sci.* July - September 2011 27 (4):901-5.

11. Lakbala P, Ebadi F, Kamali H. Needlestick and sharps injuries among housekeeping workers in hospitals of Shiraz, Iran. *Bio Med Central The Open Access Publisher*. 2012;5(276).

12. Saraf Y, Shinde M, Tiwari SC. Study of awareness status about hospital waste management among personnel and qualification. *Indian J of Comm Medi*. 2006;31(2).

13. Siddiqui U, Acharya V. The awareness of and compliance with universal precautions among class IV hospital workers. Available: 2009;www.med.cmb.ac.lk/.../Page%2022-26%20:22-6.

14. Hanafi M, Mohamed AM, Kassem MS, Shawki M. Needlestick injuries among health care workers of University of Alexandria hospitals. *Eastern mediterranean health Journal.* 2011;17(1):26-35.

15. Niju M, Jayakumary M, Jayadevan S, Venugopalan P. HIV/AIDS awareness among the waste handlers in a tertiary care hospital in north Malabar area of Kerala state, India. 16th International AIDS Conference. 2006;Conference No: WEPE0453.