International Journal of Medical Science and Clinical Research Studies

ISSN(print): 2767-8326, ISSN(online): 2767-8342

Volume 02 Issue 09 September 2022

Page No: 918-927

DOI: https://doi.org/10.47191/ijmscrs/v2-i9-04, Impact Factor: 5.365

Urinary Tract Infection in Health Care Workers in Personal Protective Equipment during Covid – 19 Care an Online Survey

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ABSTRACT

Background: COVID -19 the corona virus disease 2019 pandemic in India made lot of changes in each individuals especially challenges to the health care workers and system in country. The personal protective equipment undoubtedly provides a shield of protection for the health care workers fighting against the disease. However there have been various problems associated with the personal protective equipment. There is need to understand the possible influence of personal protective equipment's in health care workers leading to urinary tract infection during covid care.

Aim: To find the effect of personal protective equipment leading to urinary tract infection in health care workers during covid care.

Study design: Observational study.(0nline survey)

Method: Sample size of 160 was taken between age group of 18 – 45 years in health care workers on the basis of inclusion and exclusion criteria. Samples collected through Google form

Results: Statistical analysis of the data was done by using the software SPSS23.0 .Descriptive statistics were calculated and summarized. Which includes frequency, percentage, Mean and standard deviation. Personal protective equipment its not leading to urinary tract infection in health care workers during covid care.

Conclusion: The conclusion of the survey was based on the responses, received from the HCWs through the goggle form, personal protective equipment its not leading to urinary tract infection in health care workers during covid care they able to handle or manage while wearing PPE kit during the covid duty. Based on the result of this study around 50.4% participants have the urinary urgency to remove the PPE kit. The study showed that HCWs challenged themselves with the personal protection as well as the public health. Therefore, this study could not predict the risk of urinary tract infection in health care workers while wearing PPE kit during covid care.

KEYWORDS: covid care, Personal protective equipment, urinary tract infection.

ARTICLE DETAILS

Published On:
09 September 2022

Available on:
https://ijmscr.org/

INTRODUCTION

The corona virus disease COVID -19 Pandemic has emerged as a major health care challenge worldwide with over 4.8 million cases in India, Is the second worst affected country so far. [(1)]The worldwide outbreak of corona virus disease COVID 19 has already put Healthcare workers at a high risk of infection. The personal protective equipment kit gives the best protection against infection for the health care workers. [(2)]The personal protective equipment kit, they form a very important part of the protective amour for the healthcare warriors in their battle against the covid -19 pandemic [(3)]. Preventing spread of infection to and from health care workers (HCWs)and patients relies on effective use of personal protective equipment(PPE)- gloves, facemask, air – purifying ,respirators, goggles. face shield, gowns. [(4)] A major concern was running out of personal protective equipment, putting HCWs and patients at risk of infection. Globally the users have often found wearing personal protective equipment uncomfortable while working but the type and level of personal protective equipment used will depend on the level of protection required and risk should be assessed.[(3),] the most common problem using personal

protective equipment are like excessive sweating(100%) fogging of goggles, spectacles or face shield(88%), suffocation(83%), breathlessness(61%),fatigue (75%),headache due to prolonged use(28%)and pressure marks on the skin at one or more area on repeated use(19%)of personal protective equipment kit [3] (5)The use of personal protective equipment (PPE) is an important strategy to spread of pathogens to subsequent patients. However, optimal PPE use is difficult, and healthcare personal may alter delivery of care because of the PPE [6]Urinary tract infection (UTI) remains very common, as maximum no of people report having at least one UTI in their lifetime. UTI is the most common source of bacterium infection especially in all elderly population. [7]Un complicated urinary tract infections (UTIs) are among the most frequently encountered infection settings Uncomplicated UTIs include acute uncomplicated cystitis (AUC)and acute un complicated pyelonephritis(AUP).Recently ,the level of resistance of pathogens causing uncomplicated UTIs has risen significantly.[8]Complicated urinary tract infection occurs in individual with functional or structural abnormalities of the genitourinary tract, The management of complicated urinary tract infection is individualized depending on subject variables and the infecting organism[9]

On lower urinary tract symptoms,(LUTS) include symptoms of urinary frequency urgency nocturia and urinary incontinence(UI) that affects the lives of millions of population especially affects in 40% to 60% of women population with the rate of urgency and overactive bladder Chronic in frequent voiding may be a behavior risk factor for health care workers especially wearing personal protective equipment kit that, learned over time due to environmental influences and social norms infrequent voiding may also occur in the work environment due to wearing personal protective equipment kit to avoid infection from the environment(COVID PATIENT)this voiding leads to limitations while toilet access and availability having the autonomy to toilet when needed, hence the health care workers adapt the behaviors to avoid urine production such as fluid restrictions, These differences could also arise due to avoid to occupational activities that affects urinary holding behavior in each individual ,such as heavy lifting ,stressful job demands ,working in hot/cold environment, and having to wear a specific clothing that could limit the ability to toilet when needed [10] On this research, we aimed to find out the effect of personal protective equipment leading to urinary tract infection in health care workers during covid care.

METHODOLOGY

Research design: survey study

Study sample: 160 healthcare workers, working during covid 19 pandemic

Sampling method : convenient sampling

Sample size : Total sample was collected is 160 out of 133 were selected to the study based on the inclusion criteria.

Settings: health care workers those who done covid duty during pandemic.

INCLUSION CRITERIA

Age group 18-45

Male and Female health care workers in wearing personal protective equipment.

(Doctors, Nurse, Post graduates students

Sample collectors, Housekeeping attendees, Ward boys)

With no previous history of urinary tract infections,

With minimum duty hours – 6 hours per day in personal protective equipment

EXCLUSION CITERIA

More than age of 45.

Already having UTI's less than 6 hours of duty hours.

Health care workers not wearing personal protective equipment.

Pregnant women

RESULT

DATA ANALYSIS AND INTERPRETATION

Statistical analysis of the data was done by using the software SPSS23.0 .Descriptive statistics were calculated and summarized. Which includes frequency, percentage, Mean and standard deviation.

Table 1: Showing average age of health care workers

	N	Minimum	Maximum	Mean	Std. Deviation
Age in years	133	18.00	45.00	25.8571	6.24153

The study consists of 133 health care workers with average age of 25.85±6.241 years with minimum age of 18 years to maximum of 45years.

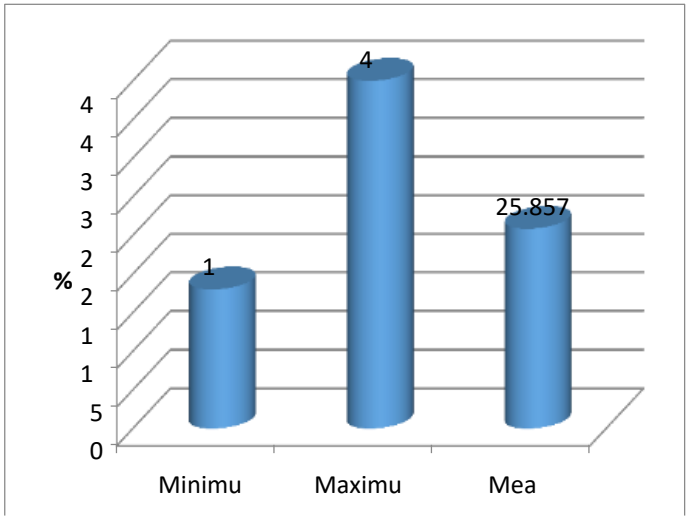


Table 2: Showing distribution of health care workers on the basis of gender

Gender	Frequency	Percent
Female	81	60.9
Male	52	39.1
Total	133	100.0

The above table shows a majority of 81(60.9%) of health care workers are women and 52(39.1%) of the health care workers are men.

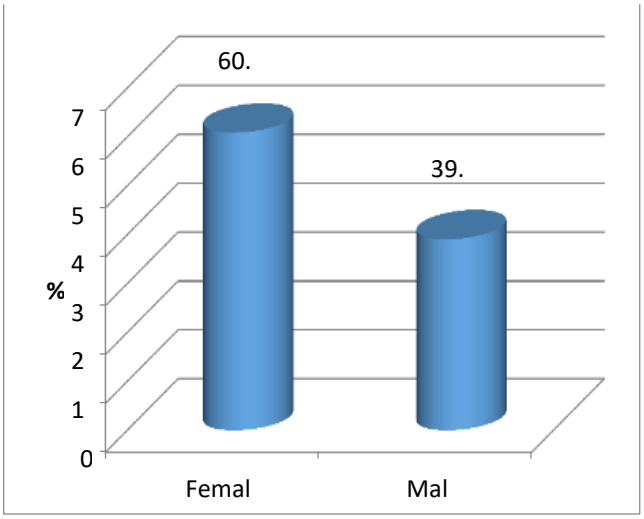


Table 3: Showing occupation of health care workers

	Frequency	Percent
DOCTORS	10	7.5
NURSE	45	33.8
OTHERS	33	24.8
PG / INTERNS	26	19.5
PHYSIOTHERAPIST	19	14.3
Total	133	100.0

The above table depicts occupation of health care workers. A majority of 45(33.8%) of the health care workers are nurses followed by 24.8% others,19.5% PG/intersns,14.3% physiotherapist and 7.5% of doctors.

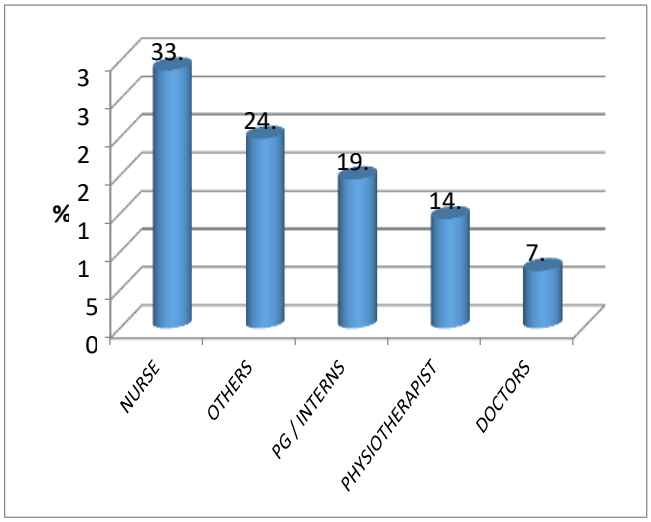


Table 4: Showing days of covid duty allotted

	Frequency	Percent
> A WK	52	39.1
>2WK	81	60.9
Total	133	100.0

Majority 81(60.9%) had >2 weeks duty and 52(39.1%) had > a week duty.

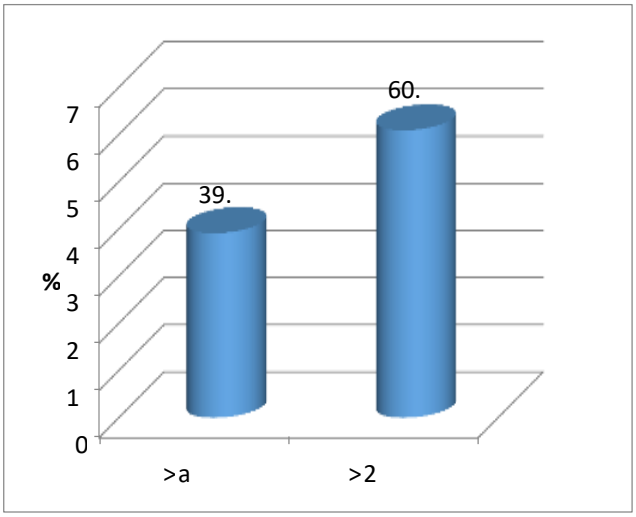


Table 5: Showing urinary urgency while treating covid patients in PPE kit.

		Frequency	Percent
Valid	NO	66	49.6
	YES	67	50.4
	Total	133	100.0

Table shows 67(50.4%) had urinary urgency when they were in PPE kit while treating the patients whereas 66(49.6%) had no urinary urgency.

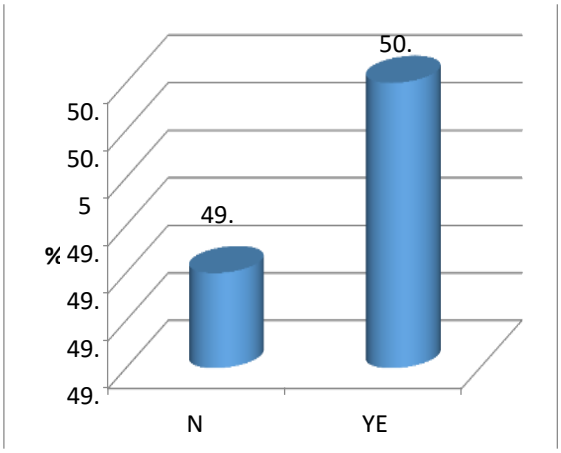


Table 6: Showing working hours per day to treat covid patients.

	Frequency	Percent
<3 HRS	24	18.1
4 TO 6 HOURS	56	42.2
>6 HRS	53	39.7
Total	133	100.0

56(42.2%) worked 4 to 6 hours per day, 53(39.7%) worked >6 hrs. per day and 24(18.1%) worked <3 hours per day.

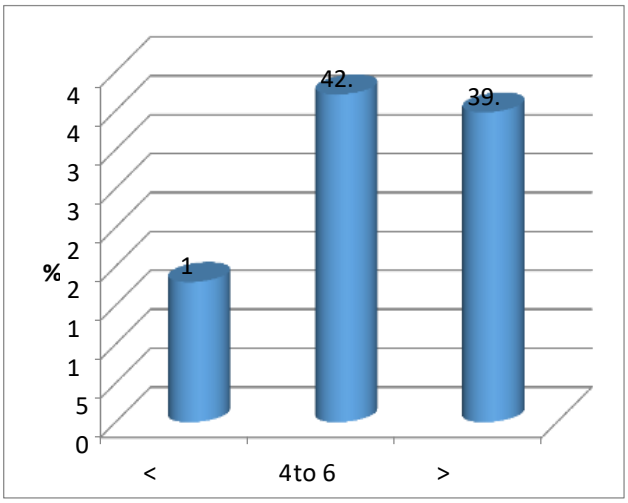


Table 7: Showing frequency of urination.

	Frequency	Percent
A little	30	22.6
A Lot	2	1.5
Moderately	47	35.3
Not at all	54	40.6
Total	133	100.0

Majority 54(40.6%) reported of not having frequent urination followed by 47(35.3%) with moderate, 30(22.6%) with little and 2(1.5%) with a lot.

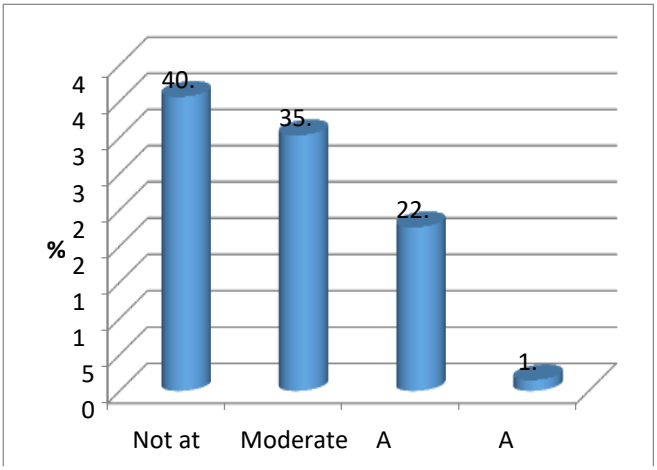


Table 8: Showing urgency of urination

	Frequency	Percent
A little	40	30.1
A Lot	2	1.5
Moderately	28	21.1
Not at all	63	47.4
Total	133	100.0

63(47.4%) reported of no Strong and uncontrollable urge to urine followed by 40(30.1%) with little urge, 28(21.1%) with moderate and 2(1.5%) with a lot urge.

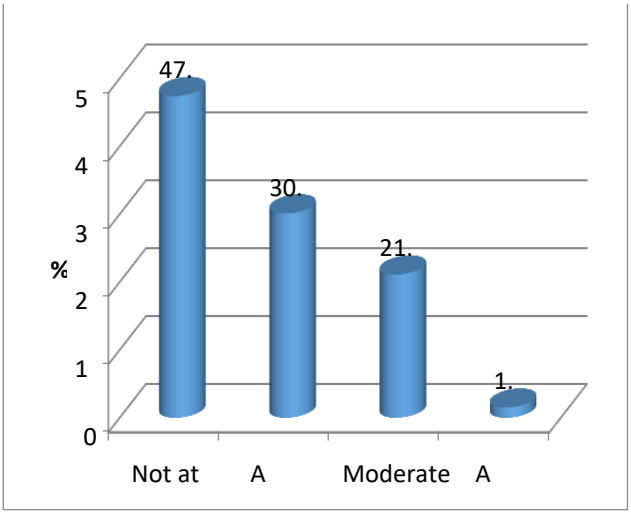


Table 9: Showing pain or burning while passing urine

	Frequency	Percent
A little	28	21.1
A Lot	1	.8
Moderately	8	6.0
Not at all	96	72.2
Total	133	100.0

96(72.2%) reported of no pain or burning while urinating followed by 28(21.1%) with little, 8(6%) with moderate and 1(0.8%) with a lot pain and burning while urinating.

Table 10: Showing ability to empty the bladder

	Frequency	Percent
A little	29	21.8
A Lot	1	.8
Moderately	11	8.3
Not at all	92	69.2
Total	133	100.0

92(69.2%) reported of not at all able to empty the bladder,29(21.8%) reported of a little,11(8.3%) reported of moderately able to empty and 1(0.8%) reported of a lot.

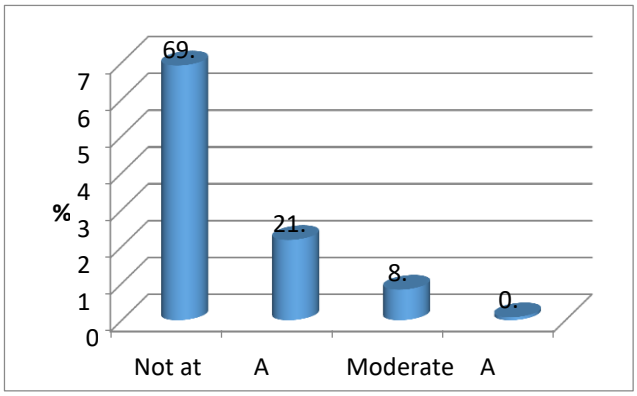


Table 11: Showing low back pain due to UTI

	Frequency	Percent
A little	24	18.0
A Lot	1	.8
Moderately	6	4.5
Not at all	102	76.7
Total	133	100.0

102(76.7%) reported of no low back pain due to UTI, 24(18.0%) reported a little,6(4.5%) reported moderate and 1(0.8%) reported of a lot low back pain due to UTI.

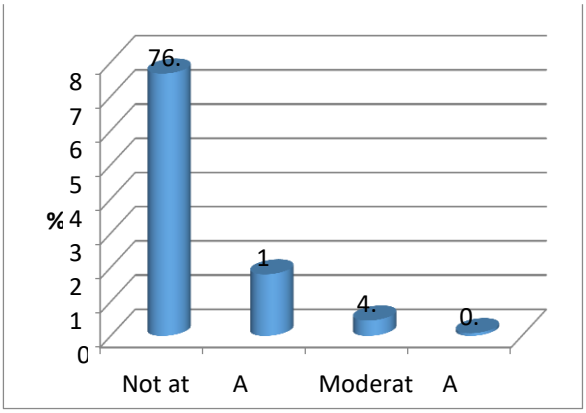
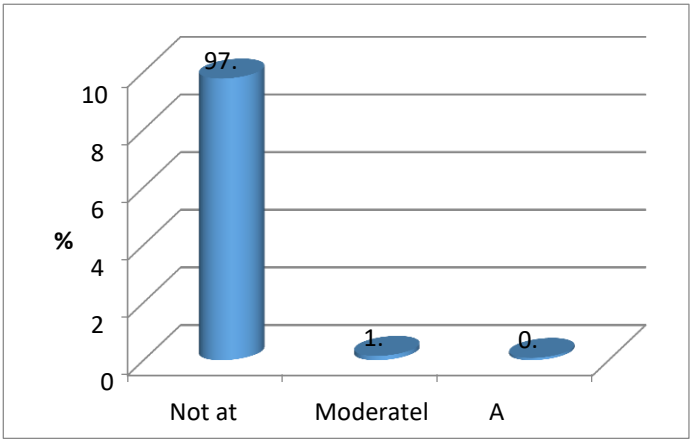


Table 12: Showing report of blood in urine

	Frequency	Percent
A little	1	.8
Moderately	2	1.5
Not at all	130	97.7
Total	133	100.0

130(97.7%) reported of no blood stains in urine, 2(1.5%) reported of moderate level of bleeding and (0.8%) reported a little blood in urine.



DISCUSSION

The worldwide outbreak of corona virus disease COVID 19 has already put Healthcare workers at a high risk of infection. The personal protective equipment kit gives the best protection against infection for the health care workers. (2)

The current study was to find the effect of personal protective equipment leading to urinary tract infection in health care workers during covid care. Study was conducted through the online survey through the wattsup, instagram, telegram & email with all other social media. For the participants who did covid duty in the pandemic with the concern of the individual, received data's are highly confidential.

The form contains with demographic data and few questions related to the covid care followed by UTISA (Urinary tract infection symptoms assessment Was used in the study.

UTISA (Urinary tract infection symptoms assessment) first developed in 2005.

The questionnaire has been validated in English and showed good validity and responsiveness to changes of UTI severity. This study helps in evaluate the reliability and validity of a Chinese version of the UTISA. (11)

The study was conducted among 160 participants through web based survey using Google form out of which 133 participants respond was taken for the study based on the inclusion criteria and statistically analyzed and 27 participants responses was associated with the exclusion criteria.

The study conducted to find out effects of urinary tract infection in health care workers during covid 19 care. The personal protective equipment kit (PPE), they form a very important part of the protective armor for the health care warrior in their battle against the covid 19 pandemic. Globally the users also often found wearing PPE kit uncomfortable while wearing for long period of time.

In the current study, we used exploratory factor analysis to classify the 7 symptoms items that is urinary tract infection symptoms assessment (UTISA).

The strength of our study includes surveying all strata of HCWs who had used PPE kits. Disclosing the shorter response for the questionnaire, helped in finding out the aim of the study through the statistical analysis. (1)

According to the received data and its stastically analyzed

Table no 1 and Graph no 1 displays average age of health care workers, the study consist of 133 health care workers with average age of 25.85 ± 6.241 years with minimum age of 18 years to maximum of 45 years.

According to the interpretation Table no 2 and Graph no 2 shows the distribution of health care workers on the basis of gender, the study consist of 133 health care workers in which a majority of 81(60.9%)of health care workers are women's and 52(39.1%) of health care workers are men .

The results of Table no 3 and graph no 3 depicts occupation of health care workers in which majority of 45(33.8%) of the health care workers are nurses, followed by 33(24.8%)

others26 (19.5%) PG/inters, 19(14.3%) physiotherapist and 10 (7.5%) are doctors.

As per the analysis Table no 4 and graph no 4 shows the days of covid duty allotted

Majority in which 81(60.9%) had >2 weeks duty and 52(39.1%) had >a week duty.

Table no 5 and graph no 5 shows urinary urgency while treating covid patient in PPE kit whereas 67(50.4%) had urinary urgency when they were in PPE kit, while treating the patients

Whereas 66(49.6%) had no urinary urgency.

According to the analyzed data Table no6 and graph no6 shows the working hours per day to treat covid patients 56(42.2%) worked 4-6 hours per day,53(39.7%) worked >6 hours per day and 24(18.1%) worked <3 hours per day.

As per the interpretation table no7and graph no 7 shows frequency of urination majority of which 54(40.6%) reported of not having frequent urination followed by 47(35.3%) with moderate 30(22.6%) with little and 2(1.5%) with a lot.

Table no 8and graph no 8shows urgency of urination 63(47.4%) reported of no strong and uncontrollable urge to urine followed by 40(30.1%) with little urge 28(21.1%) with moderate and 2(1.5%) with lot urge.

According to the data table no 9 and graph no 9 showing pain or burning while passing urine .The table depicts 96(72.2%) reported of no pain or burning while urinating followed by 28(21.1%) with little ,8(6%) with moderate 1(0.8%) with a lot pain and burning while urinating.

As per the interpretation table no10 and graph 10 shows ability to empty the bladder 92(69.2%) reported of not at all able to empty the bladder,29(21.8%) reported of a little,11(8.3%) reported of moderately able to empty and 1(0.8%) reported of a lot .

According to the data table 11 and graph 11 shows that low back pain due to UTI 102(76.7%)reported of no low back pain due to UTI,24(18.0%)reported a little,6(4.5%)reported moderate and 1(0.85%)reported of a lot low back pain due to UTI.

As per the interpretation table 12 and graph 12 depicts that blood in urine, 130(97.7%) reported of no blood stains in urine, 2(1.5%) reported of moderate level of bleeding and (0.8%) reported a little blood in urine. The current was proven that the effect of personal protective equipment not leading to urinary tract infection in health care workers during covid care but based the result of our study proved that around 50.4% HCW have the urinary urgency to remove the PPE kit.

CONCLUSION

The conclusion of the survey was based on the responses, received from the HCWs through the goggle form, personal protective equipment it's not leading to urinary tract infection in health care workers during covid care they able to handle or manage while wearing PPE kit during the covid duty. Based on the result of this study around 50.4% participants have the urinary urgency to remove the PPE kit. The study showed that HCWs challenged themselves with the personal protection as well as the public health. Therefore, this study could not predict the risk of urinary tract infection in health care workers while wearing PPE kit during covid care.

REFERCENCES

I. Agarwal A, Agarwal S, Motiani P. Difficulties encountered while using PPE kits and how to overcome them: an Indian perspective. Cureus. 2020 Nov 23; 12(11).

II. Tian, Stedman M, Whyte M, Anderson SG, Thomson G, Heald A. Personal protective equipment (PPE) and infection among healthcare workers–What is the evidence?. International journal of clinical practice. 2020 Nov; 74(11):e13617.

III. Higginson R, Jones B, Kerr T, Ridley AM. Paramedic use of PPE and testing during the COVID-19 pandemic. Journal of Paramedic Practice. 2020 Jun 2; 12(6):221-5.

IV. Livingston E, Desai A, Berk wits M. Sourcing personal protective equipment during the COVID-19 pandemic. Jama. 2020 May 19; 323(19):1912-4

V. Hoernke K, Djellouli N, Andrews L, Lewis-Jackson S, Manby L, Martin S, Vanderslott S, Vindrola-Padros C. Frontline healthcare workers' experiences with personal protective equipment during the COVID-19 pandemic in the UK: a rapid qualitative appraisal. BMJ Open. 2021 Jan 20; 11(1):e046199. Doi: 10.1136/bmjopen-2020-046199. PMID: 33472794; PMCID: PMC7818840.

VI. Barnett BJ, Stephens DS. Urinary tract infection: an overview. Am J Med Sci. 1997 Oct; 314(4):245-9. Doi: 10.1097/00000441-199710000-00007. PMID: 9332263.

VII. Markland A, Chu H, Epperson CN, Nodora J, Shoham D, Smith A, Sutcliffe S, Townsend M, Zhou J, Bavendam T, Prevention of Lower Urinary Tract Symptoms (PLUS) Research Consortium. Occupation and lower urinary tract symptoms in women: a rapid review and meta analysis from the PLUS research consortium. Neurourology and urodynamic. 2018 Nov; 37(8):2881-92.

VIII. Wagenlehner FM, Hoyme U, Kaase M, Fünfstück R, Naber KG, Schmiemann G. Uncomplicated urinary

tract infections. DeutschesÄrzteblatt International. 2011 Jun; 108(24):415

IX. Nicolle LE. Complicated urinary tract infection in adults. Canadian Journal of Infectious Diseases and Medical Microbiology. 2005 Nov 1; 16(6):349-60

X. Markland A, Chu H, Epperson CN, Nodora J, Shoham D, Smith A, Sutcliffe S, Townsend M, Zhou J, Bavendam T, Prevention of Lower Urinary Tract Symptoms (PLUS) Research Consortium. Occupation and lower urinary tract symptoms in women: a rapid review and meta analysis from the PLUS research consortium. Neurourology and urodynamics. 2018 Nov; 37(8):2881-92.

XI. Chang SJ, Lin CD, Hsieh CH, Liu YB, Chiang IN, Yang SS. Reliability and validity of a Chinese version of urinary tract infection symptom assessment questionnaire. International braz j urol. 2015 Aug; 41(4):729-38.