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Research Article

Needle stick injury among the dental students in the Qassim University, KSA: It's Prevalence, student's Knowledge and attitude

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Abstract

Needle stick injuries (NSI) are the commonest route by which blood borne viruses and/or infections such as HIV, Hepatitis B and C are transmitted from patients to health care workers (HCW) dental students are also at risk of such infections and injuries due to accidental contamination during their practical occupational exposure. There is hardly any information regarding the knowledge and experiences of NSI among dental students in Saudi Arabia

Aim: To assess the knowledge, attitude, and prevalence of NSIs among dental students in Qassim university.

Design: Descriptive cross-sectional study.

Setting: dental clinics of Qassim University. The population included undergraduate students (3rd ,4th,5th year) and intern's dentists/College of Dentistry /Qassim University.

Result: In the present study. A total number of 98 student participated 56.1% were female and 43.9% were male. A total of 27.6% participants had an NSI during their clinical training. Also, 83% of the students considered hepatitis B, hepatitis C, and HIV to be transmitted by NSIs.

Conclusion: Although the level of knowledge on the risk of cross-infection from NSI was high, there was decreased awareness on the means of prevention and protocol.

Keywords: NSI, Awareness, cross infection, prevalence, hazard.

INTRODUCTION

A needle stick injury (NSI) is defined as an accidental skin-penetrating stab wound from a hollow bore needle containing another person's blood or body fluid. [1] Needle stick injuries (NSI) are the most serious threats dental students face during their clinical training, it is the commonest route by which blood borne viruses and infections such as HIV, Hepatitis B and C are transmitted. It may be sustained during injecting local anesthesia or recapping or disposal of the needle and syringe. [2]. The likelihood of being infected by a virus after a single exposure is low. However, the consequences for the dental student who becomes infected are potentially serious, and include the potential of transmission of blood-borne pathogens and associated detrimental effects on their personal and professional lives. [3] Several studies have highlighted that knowledge and compliance among dental students is inadequate regarding prevention and management of sharps injuries. Lack of experience and skill in performing dental procedures during clinical training places dental students at risk of exposure to blood-borne viruses [4]. The present study was intended to assess the prevalence, knowledge, and attitude of NSIs among dental students in College of Dentistry/Qassim University in Saudi Arabia.

MATERIAL AND METHODS

The study was cross-sectional descriptive, which was conducted from December 2015 to February 2016. At Qassim University, dental students were participated in this study.

An anonymous online questionnaire was sent to all Students 3rd , 4th 5th and interns via their personnel college e-mail addresses. Survey requests were sent in December 2015 and January 2016 with 2 e-mail reminders, respectively. The study was approved by the Ethical Committee of college of dentistry., Code #: EA/33/2015

The questionnaire concerned 4basic topics:

(1) Personal DATA
(2) Rate of NSIs,
(3) Reporting behavior,
(4) Present knowledge.

Confidentiality of the students' data was ensured and no personal identification such as the student's name was recorded

The data were analyzed in Statistical Package for the Social Sciences (SPSS 23). The statistical tests were applied including proportions and chi-square tests for significance. Statistical significance was set at $P < 0.05$ for this study.

RESULTS

A total number of 98 Students participated in this study. Out of 98 participants of respondents 55 (56.1%) were female and 43(43.9%) were male, and out of 98 students, 25 (25.5%) were 3rd year, 21(21.4%) were 4th year, 22(22.4%) were 5th year, and 30(30.6%) were interns' dentist.

The prevelance of NSI is 27.6% while 72.4% were not experienced NSI. Fig (1)

Rate of NSI: among the students in different classes: for 3rd year were 22, 3, were never injured, injured once respectively, while the 4th students,16,3,2, were never injured, injured once, injured twice respectively not remembered respectively. The intern's dentists reported 19,8,2,1 never injured, injured once, injured twice, injured more than twice respectively.

Time of NSI (Fig 3**):**

While 72.4% were reported never NSI, 17.3%, were reported injuries during the use

After the use: 3.1%

During recapping: 3.1%

During disposal: 4.1%

Reasons prevent reporting of NSI (Fig 4): it was sterile needle 10%, might get blamed 4%, it was no important 1%, there was no time 5%,

Knowledge about the diseases may transmitted by NSI: 21,16,17,27 of the 3rd, 4th, 5th year and interns' dentists respectively replied that hepatitis C, hepatitis B in additional to HIV. Table 1.

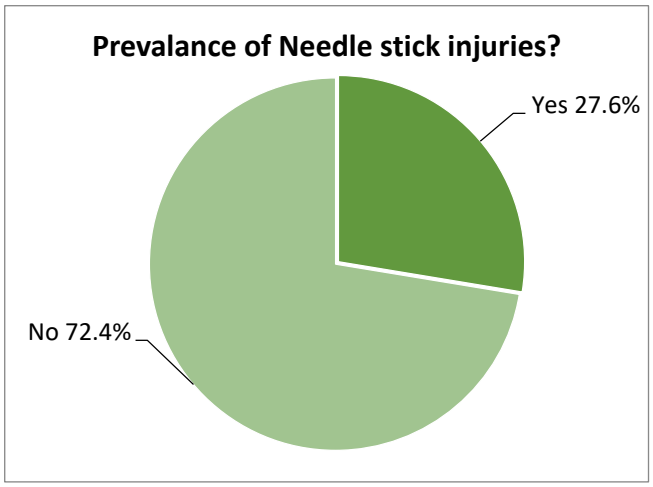


Figure 1: Prevalence of Needle stick injury

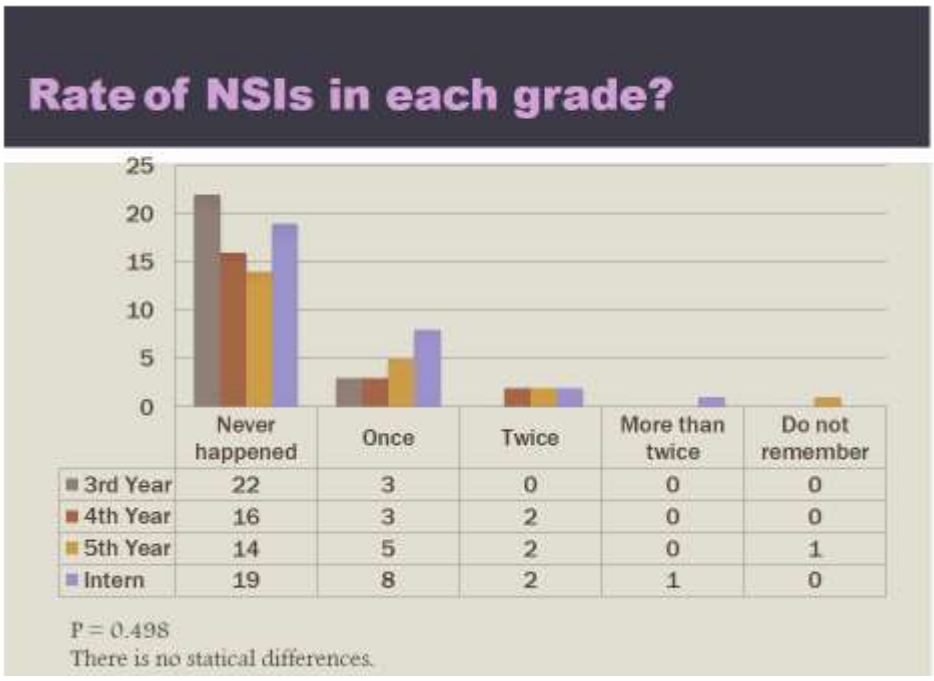


Figure 2: Rates in each grade

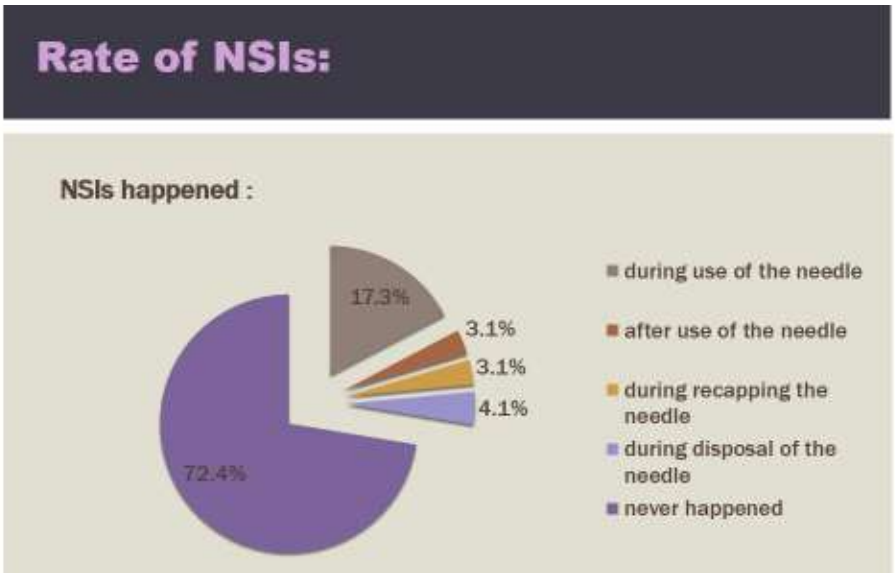


Figure 3: time of needle stick injury

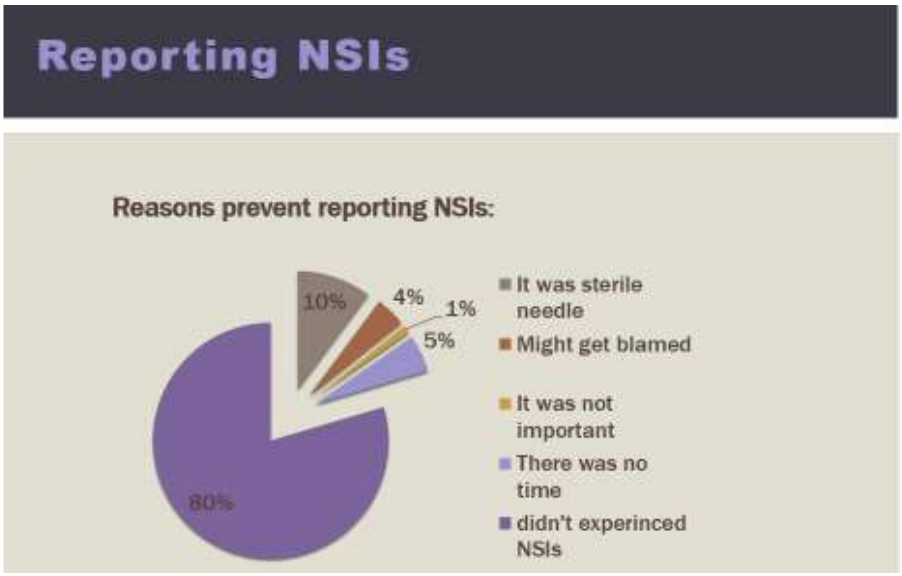
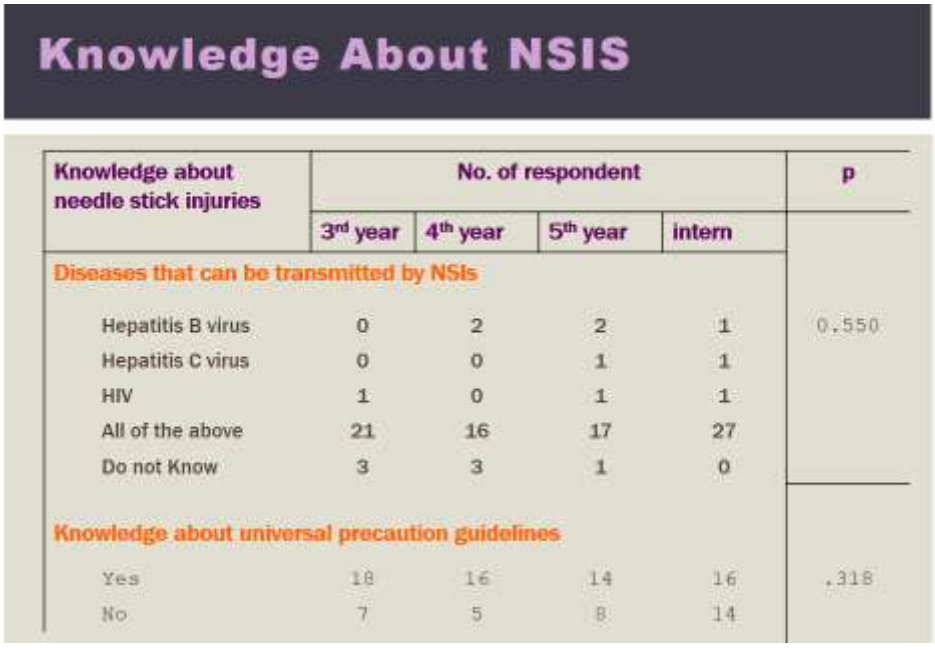


Figure 4: Reasons prevent reporting NSIs



Knowledge about needle stick injuries	No. of respondent				p
	3rd year	4th year	5th year	intern	
Diseases that can be transmitted by NSIs					
Hepatitis B virus	0	2	2	1	0.550
Hepatitis C virus	0	0	1	1	
HIV	1	0	1	1	
All of the above	21	16	17	27	
Do not Know	3	3	1	0	
Knowledge about universal precaution guidelines					
Yes	18	16	14	16	.318
No	7	5	8	14	

Table 1: knowledge about transmission of diseases and universal precaution Guidelines

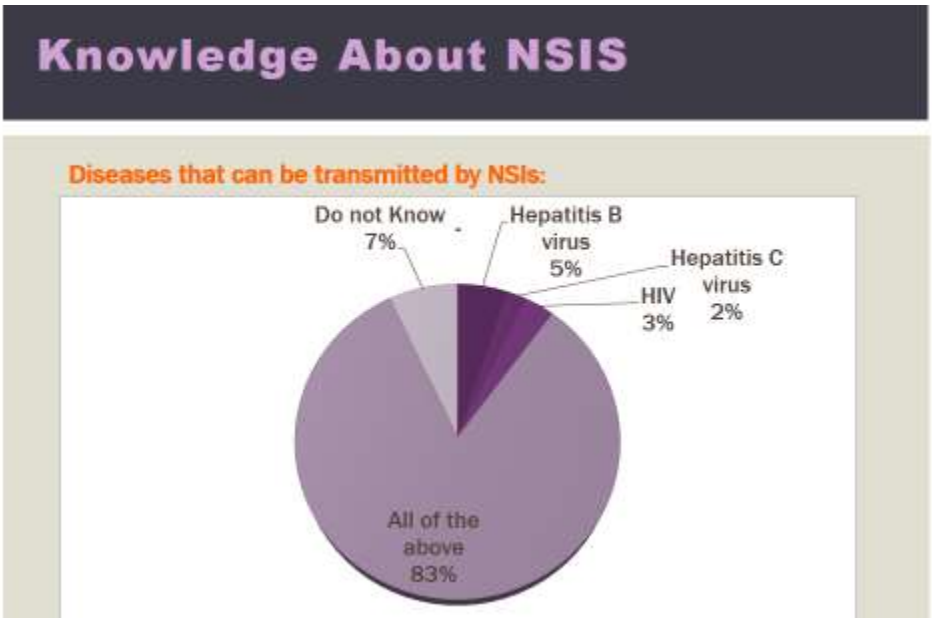


Figure 5: knowledge about diseases transmitted by NSIs

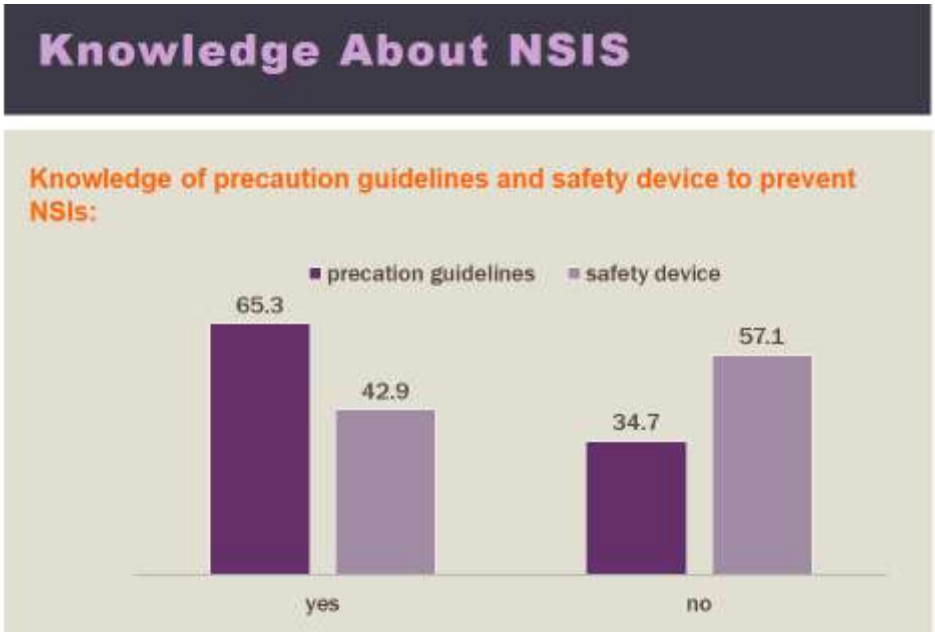


Figure 6:Knowledge of precausion guidelines and safety device

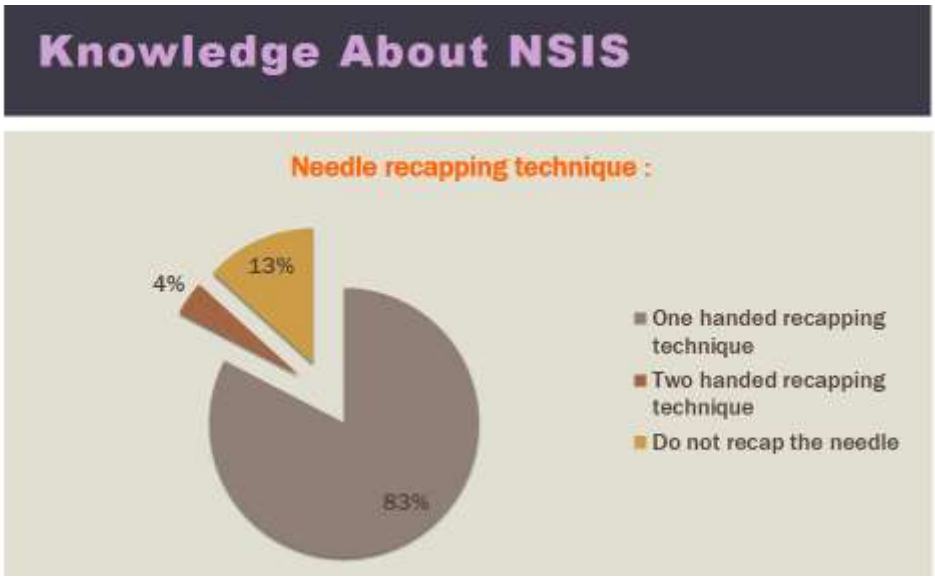


Figure 7: knowledge about needle recapping technique

DISCUSSION

For one or other reason this study was not published even it was finalized in 2017, and for importance of this topic in the Dentistry in general and specially in Oral surgery we decided to publish this paper at this time.

Prevalence of Needle stick injury;

Needle stick injury is one of the serious events that may occurs to the dental practioners or dental students especially during their early time of their practice. In the present study, 27.6% of the participants had an NSI, while 72.4% they hadn't (fig 1) This prevalence rate was similar to the studies conducted by Jaber MA (23%) [4], Malik et al. (30%) [5]

While the percentage is lower when compared to other previous conducted studies, one study from India with (41%) [6], and other conducted in Iran with (63.3%). [7]

Reporting of the event;

Reporting of needle stick injury is an ideal practice [8] Current study showed that, the reasons that prevented students to report NSIs were that 10% of the participants stated it was sterile needle and 4% thought he/she might get blamed or get into trouble for having an NSI, 1% thought it was not important, while 5% stated it was no time for reporting (fig :4)

Similar to the current study Jan S et al. stated that 19.3% of dentists were assumed that the needles were new, hence there was no need to report, 9% did not get time to report, and 5.5% thought nothing will happen if they do not report. [9]

Needle Recapping:

The health worker may become injured when recapping the needles or by being unaware of the needle location [10]. Recapping of the needle with one hand is the right way to prevent such puncture [11], in this study 83% of the participants practiced one hand needle recapping technique and 4% practiced two hands needle recapping. Muralidhar et al. stated most of the HCWs (59%) used both hands while recapping the needle, which is a wrong technique. [12]

Needle stick injury carries a higher risk for transmission of the infectious diseases: Accidental sharps injuries put healthcare workers at risk for >20 pathogens, including HIV, hepatitis B, and hepatitis C. [13,14], in this study, 83% of the dental students considered hepatitis B, hepatitis C, and HIV can be transmitted by NSIs (fig 5), which is in accordance with the study conducted by Saini, [15], Guruprasad et al [16]., And Malik et al., [5], and in contrast to a study conducted by Alam, [17] which reported that 21% and 30% of HCWs were unaware of the fact that AIDS and hepatitis C can be transmitted by NSIs, respectively.

Safety devices used in dentistry for protection from NSI are; PPE (Personal Protective Equipment), Generally, it consists of gears like eyes goggles, facial mask, single use hand gloves, sterilizable gloves and other professional apparel is important to ensure personnel (medical, dental students, Health Workers HW) and patient safety [18] Wearing gloves is obligatory for the Student's in Qassim dental Clinics, 42.9% of students were aware of the safety devices used to prevent NSIs. This was similar to the studies conducted by Varsha K. Pavithran et al [1] (47.5% of the dental professionals) in which the participants had knowledge of the new needle devices and their safety features., but is not agreed with the study by Jaber [4] in which (93.5% of the dental undergraduate students showed knowledge towards this point, which is a higher percentage of knowledge than the present study.

Sharps injury can be prevented by eliminating unnecessary sharps use, the use of sharps injury prevention devices, the practice of safer work environments, [19] and continuous training of healthcare workers regarding proper technique and safety. [20, 21]

CONCULOSION

In summary this study showed that prevalence of NSI wasn't high among the dental students /Qassim University, the level of knowledge among the students towards protective measure wasn't high. The level of knowledge on the risk of cross-infection from NSI was high; The attitude of the students toward the good practice for preventing NSI was high.

Conflicts of interest: All contributing authors declare no conflicts of interest.

Ethical Approval: Done

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