KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING NEEDLE STICK INJURIES (NSI) AMONG NURSING STUDENTS IN FACULTY OF MEDICINE AND HEALTH SCIENCES, UNIMAS

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ABSTRACT

Nursing students are at high risk of needlestick injury due to their limited clinical experience. The purpose of this paper is to explore the prevalence and causative of NSI, and knowledge, attitude and practice regarding needle stick injury among nursing students of Faculty Health and Medicine Sciences, Universiti of Malaysia Sarawak. A descriptive research design using questionnaires was done on 50 nursing students who were choosen by simple random sampling. Overall respondents returned rate was 100%. Descriptive statistic and Mann-Whitney U test with SPSS version 15.0 was used for data analysis on association between knowledge, attitude and practice among respondents. It showed 48% students had NSI experience and among them normal syringe needle was the highest causative device (71%). The highest cause of NSI was due to other reasons (67%) such as during opening needle cap and during procedure likes hypocount, withdrawing medication from ampoule, giving injection, recapping unused needle and handling needle. Also, it showed that there was poor knowledge but good attitude on prevention and post exposure action of NSI. The study also showed that practice on prevention was good but poor in practice on post exposure actions of NSI. There was significant relationship between knowledge levels on attitude ($P<0.05$). However, there was no any significant relationship between knowledge levels on practice and also there was no any significant relationship between attitude levels on practice ($P>0.05$). As conclusion, some

appropriate strategies for precautions and interventions should be implemented by the FMHS, UNIMAS to reduce the risk of NSI such as training program and educational regarding to NSI.

CHAPTER 1

INTRODUCTION

This section focuses on a research problem statement and purpose regarding knowledge, attitude and practice of prevention and post exposure action of needlestick injuries (NSI). The research significance, objectives, question and definition of term are also discussed.

Problem Statement

Health care workers are exposure to various hazards such as chemical, radiation, physical and psychological which are specific to their job and environment. They are exposed to needlestick injuries while they are taking blood, giving injection, insert cannula and blood transfusion. An evidence based health care article stated that neddlestick injury is

> The parenteral introduction into the body of a health care worker, during the performance of his or her duties, of blood or other potentially infectious material by a hollow-bore needle or sharp instrument, including, but not limited to, needles, lancets, scalpels, and contaminated broken glass (Bandolier Extra, 2003).

Health care workers have high risk of occupational exposure to blood borne infection as a result of needle stick injury. Needle stick injury includes injury from all types of sharp instruments for example needles, lancet, scissors and so on. Needle stick injuries can cause the transmitting of various blood borne diseases such as Hepatitis virus and Human Immunodeficiency Virus (HIV).

According to World Health Report 2002, there are 2 million needlestick injuries estimated occurs in health care worker worldwide each year (Nyantumbu, Geyer, Botham, Wilburn & Eijkemans, 2005). On the other hand, Ex Minister, Health of Malaysia Datuk Seri Dr. Chua Soi Lek stated that there are increased 248 cases reported of needle stick injuries from year 2000 to 2007 (New Strait Time Online, 2007). On the other hand, International Council of Nurses (2000) stated, there are 800,000 to 1 million American health worker reported needle stick injury annually. There are some guidelines for the health care workers for prevention and post exposure of NSI. Also, post exposure prophylaxis can reduce the risk of some infectious diseases.

Nursing students are at higher risk to get NSI due to limited clinical practice experience. Knowledge, attitude and practice among nursing students are important because they are the future nurses who will provide the care to patients so they need to learn how to protect themselves from occupational exposure especially NSI which is common among health care workers. So, knowledge, attitudes and practice regarding NSI among nursing students have to be explored.

Purpose

The purpose of this study is to explore knowledge, attitude and practice regarding NSI among nursing students of Faculty Health and Medicine Sciences, Universiti of Malaysia Sarawak.

Significance

This study is important to explore knowledge, attitude and practice regarding NSI among nursing student of Faculty Health and Medicine Sciences, Universiti of Malaysia Sarawak. Their sound knowledge, appropriate attitude and right practice toward prevention and post exposure action of NSI are important to minimize the risk of getting infections. The result of the study can give the awareness of the University authority and nursing students to take the appropriate intervention and solution if there is any problem towards NSI.

Objective

General objective

The general objective of this research is to explore knowledge, attitude and practice regarding NSI among nursing students of Faculty Medicine and Health Sciences, Universiti of Malaysia Sarawak (UNIMAS).

Specific objective

The specific Objectives of the research are:

i. To assess the prevalence of NSI.

ii. To assess the causative factors of NSI.

iii. To assess the level of knowledge, attitude and practice among UNIMAS nursing students regarding NSI in terms of prevention and post exposure action.
iv. To identify the association between the level of knowledge with attitude of nursing students.
v. To identify the association between the level of knowledge with practice of nursing students.
vi. To identify the association between the level of attitude with practice of nursing students.

Research question

The research question of this study is:

i. What are the knowledge, attitude and practices of UNIMAS nursing students regarding needle stick injury in terms of prevention and post exposure action?

Definition of term

Knowledge Clear perception of fact, truth, or duty toward prevention and post exposure of NSI (Online Medical Dictionary, 1998).

	The respondents who can obtain the score above 50% in the questionnaire of knowledge part have good knowledge toward prevention and post exposure action of NSI. However, the respondents who obtain score 50% or lower have poor knowledge toward prevention and post exposure action of NSI.
Attitude	A feeling or emotion toward prevention and post exposure of NSI. (MedlinePlus, 2003a). The respondents who can obtain score above 50% in the questionnaire attitude part have good attitude toward prevention and post exposure action of NSI. However, the respondents who obtain score 50% or lower have poor attitude toward prevention and post exposure action of NSI.
Practice	The continuous exercises of a profession toward needle stick injury (MedlinePlus, 2003b). The respondents who can obtain score above 50% in the questionnaire practice of prevention of NSI part have good practice toward prevention of NSI. However, the respondents who obtain score 50% or lower have poor practice toward prevention of NSI. The respondents who can obtain score above 50% in

the questionnaire for practice of post exposure action of NSI part have good practice toward post exposure action of NSI. However, the respondents who obtain score 50% or lower have poor practice toward post exposure action of NSI.

This introduction will help the individuals for the literature review discussed in the next chapter.

CHAPTER II

LITERATURE REVIEW

The literatures are needed for review to direct the development and implementation of a study. This section will provide a background for the problem of needlestick injuries (NSI) studied.

According to World Health Report 2002, there are 2 million NSI estimated occurs in health care worker worldwide each year (Nyantumbu, Geyer, Botham, Wilburn & Eijkemans, 2005). Health care workers are exposed to needlestick injury that specific to their job and environment. So, universal precaution or standard precaution is very important to protect health care workers from infections. According to Occupational Health Unit (2002), Standard Precaution is the most important strategy for successful infection control in the health care setting.

Needle stick injury is one of the factor of transmitted blood borne diseases especially Hepatitis B virus (HBV), Hepatitis C virus (HBC), acquired immuno-deficiency syndrome (AIDS) and human immuno-deficiency virus (HIV). Health care workers are common to get NSI. According to a study by Tabak, Shiaabana and ShaSha (2006), nurses are the highest group of NSI among health beliefs of hospital staffs. Shiao et al. (2002, cited in Smith & Leggat, 2004) stated that "although nurses are clearly a high risk subgroup for such events, nursing students may be at similar or even greater risk due to their unlimited clinical experience". In an Australian university nursing school, 13.9% (n=38) experienced NSI in the previous 12 months period (Smith & Leggat, 2004). Also, 9.4% (n=9) NSI among nursing students at a small public liberal arts university

in the United States (Blackwell, Bolding, Cheely, Coyle, McLester et al., n.d.). High number of NSI among medical, dental, nursing and midwifery students that 71.1% (489/ 688) experienced NSI at university teaching hospital of Shiraz, Iran (Mehrdad & Leila, 2006).

Several studies of NSI showed that normal syringe needle or hypodermic needle is the highest causative device of NSI. In Australia's study, 37% of all injuries were normal needles (Smith & Leggat, 2004), a finding from Massachusetts sharp injury surveillance system showed that the highest causative devices is hypodermic needle (30%) (Romney, Healey, Murphy, Cote, Davis & DeMaria, 2006) and a study from a secondary care hospital in Saudi Abaria showed syringe needles were responsible for 63% (n=46) among NSI (Johan, 2005). Also, a Poznan's study showed 73.8% causative devices of NSI among nurses were instruments contaminated with infection material which usually is injection needles (Bilski, B., 2005) and Alexandra Hospital in Singapore showed the highest causative devices of NSI was Injection needle 23.2% (n=19) (Ng, Lim, Chan & Bachok, 2002). So, it is important to wear gloves during procedures. Even though, gloves will not protect against a NSI but can reduce the blood borne pathogen (North East London, 2007). According to Korniewicz, D.M. (2007), double-gloving practices significantly can reduce risk of exposure to NSI.

According to Malayan Nurses Union secretary-general Maimunah Ahmad, most of the NSI were due to lack of awareness of the consequences of NSI and attitude among nurses to the proper practice (New Strait Time Online, 2007). In

a study at the university teaching hospitals of Shiraz, Iran, 30.9% students also stated that their concerns and attitude influence their practice (Askarian & Malekmakan 2006). Also, 78% medical personnel in a teaching school who sustain of NSI recapping needle (Hesse, Adu-Aryee, Entsua-Mensah & Wu, 2006). On the other hand, taking off the cap and recapping of needle were the highest incidence episode of NSI among medical students in Malaysia (Norsayani & Hassim, 2003). This study also stated that the level of practice of Universal Precautions is related to the risk of NSI in which a better practice can reduce the episode of injury (Norsayani & Hassim, 2003). Only 50% of students aware that needle should not be recapped in Private Medical University in Karachi (Anjum, Siddiqui, Ahmed, Rizvi & Usman, 2005). The proper attitude and practice are very important to reduce risk of needle stick injury.

Knowledge of prevention of needle stick injuries especially universal precaution is important to decrease the prevalence of needle stick injuries. “Nurses who were not attended any training of prevention and management of needle stick injuries were significantly greater risk of sustaining the injuries compared with those who had attended some kind of training” (Nsubuga & Jaakkola, 2005). Also, a Taiwan study found that there were significantly decreased NSI incidence and increased rate of reporting of NSI after lecture on hazard and prevention of NSI (Yang, Liou, Chen, Wang, Chen & Wu, 2007). This showed the important of knowledge on NSI. HBV, HCV, AIDS and HIV can be transmitted through contaminated needle. According to Centers for disease control and prevention (1997, cited in Wilburn, 2004), the risk of transmission of

HIV following a needle stick injury from a contaminated needle is 0.3 per cent, 2 to 40 per cent for HBV and risk of transmission of HCV is 2.7 to 10 per cent. However, there are only 50% students surveyed in a private medical college in Karachi knew that needle stick injury is one of the modes of transmitting HBV and HBC (Anjum, Siddiqui, Ahmed, Rizvi & Usman, 2005). In Armed Forces Hospital, Sharourah, over 20% and 30% of the health care worker unaware that needle stick injury can transmit HBV and HIV (Alam, 2002). Therefore, it is very important for health care workers aware of the consequences of needle stick injury.

Post exposure action of needle stick injury especially post exposure prophylaxis (PEP) is very important to minimize diseases infection Health care workers are advised to report the incident according to the protocol in the hospital and gets blood testing for HBV, HCV and HIV. According to American Nurses Association (ANA) needle stick prevention guide, all nurses have a responsibility to document needle stick injury to ensure post exposure follow up and improve the health and safety of their workplace (ANA, 2002). However, few study found that there are many health care workers did not report needle stick injury. A study in a university of Iran reported that 82% of the students did not report needle stick injuries with the most common reason that they are lack of knowledge that all the injuries had to be reported, background of insufficiency knowledge and poor practices (Askarian & Malekmakan, 2006). Also, around 39.5% of needle stick injury did not reported by among Australian student nurses (Smith & Leggat, 2004). Similarly to Taiwanese that 81.8 % were not reported

by health care worker and 75% medical students in British were not reported needle stick injuries (Shiao et al., 1999; Waterman et al., 1994 cited in Smith & Leggat, 2004). Also, 54% of high risk needle stick injury did not report by medical student in University of Toronto with the reason that occupational health office was closed or they were not encouraged to seek help by hospital (Cervini & Bell, 2004). Beside that, the major reasons of not reporting the accidents by medical students in Malaysia are due to the feeling that the exposure was not dangerous because the patient was not a blood borne pathogen carrier, they did not know where to report the accident and they were not aware of the important of reporting (Norsayani & Hassim, 2003). So, there are only 35.6 % of cases accident were reported (Norsayani & Hassim, 2003). However, there is only 4% of the needle stick injuries reported to get the post exposure treatment in a hospital in Sharourah (Alam, 2002). In Malaysia, Health Minister stated that there were 746 cases of needle stick injuries and there are usually underreport especially in private sector (New Strait Time Online, 2007). He also stated that medical personnel are at risk to get infection if they are not checked after needle stick injuries (New Strait Time Online, 2007).

A pilot test conducted in South Africe by World Health Organisation (WHO) and International Council of Nurses (ICN) showed that Universal precautions were not practiced by all health care workers (Nyantumbu, Geyer, Botham, Wilburn & Eijkemans, 2005). Also, according to WHO and ICN stated that,

The absence of post-exposure of prophylaxis (PEP), lack of knowledge of the efficacy of PEP for prevention, an attitude that health care workers are careless or to blame for their own injuries, and lack of follow up and workers compensation are all reasons health care workers do not report injuries (Wilburn & Eijkemans, 2004).

As a conclusion, the appropriate knowledge, attitude and practice among health care workers regarding to prevention and post exposure of NSI are important to prevent NSI instead of to prevent the transmission of infection diseases.

All in all, review of the literature helps to limit the scope of the inquiry. The methodology will be discussed in the next chapter.

CHAPTER III

METHODOLOGY

The methodology includes research design, population, sampling, instruments, pre-test, ethical issues, data collection and data analysis.

Research Design

This research was conducted at Faculty of Medicine and Health Sciences (FMHS) from July 2007 to May 2008. The research design used for this study is a quantitative research which is a descriptive research design. Descriptive design is chosen because it is less time consuming and data can be collected more easily. It enables that the sample assessed in one point at one time without trying to make interference. Also, it is a way to get the information regarding a condition or disease and to study the pattern and connection between the difference variables in order to plan for future intervention.

Population

This research conducted at Faculty of Health and Medicine Sciences, Universiti of Malaysia Sarawak (UNIMAS). It involved the populations of nursing students year two to year four with the total of 82 students. There are 31 nursing students in year two, 36 nursing students in year three and 16 nursing students in year four. Year 2 to year 4 are chosen as they are the year that exposed to needle procedure that have the higher risk of getting needle stick injury.

Sampling

Fifty students were selected by using simple random sampling method with lottery method. Student nurses' names were written on slips of papers and placed

in 3 boxes according to year of study then draw out one at a time until desired sample size has been reached. By using this method, it guarantees that each member of the population has an equal chance to been selected in this sample. There are 17 respondents from year 2 nursing students, 22 respondents from year 3 and 11 respondents from year 4 nursing students. There are 50 nursing students taken as samples due to the budget of research, limited time for data collection of doing this research and return rate of the respondents.

Instruments

Questionnaire used in this study's instrument were written in English language. It was because all respondents were Bachelor of nursing students and they were able to read and answer in English. The questions were divided into 4 parts which are general, knowledge, attitude and practice. Each question in knowledge and attitude parts were ten percent marks. Respondent were asked to circle for the accurate answer.

The part A, which was the general part, was to get the respondents' demographic data and incidents of needle stick injury (NSI) included the frequency of the NSI, causes of NSI and type of device that caused NSI.

The part B, which was knowledge part, was to test respondents' knowledge of prevention and post exposure action of NSI. There were 5 questions to test respondents' knowledge of universal precaution to prevent NSI and another 5 questions to determine respondents' knowledge of post exposure of NSI.

The part C, which was attitude part, was to test respondents' attitude of prevention and post exposure of NSI. There were 5 questions to test respondents' attitude of universal precaution to prevent NSI and another 5 questions to determine respondents' attitude of post exposure of NSI.

The part D, which was practice part, was to test respondents' practice of prevention and post exposure of NSI. There were 5 questions to test respondents' practice of universal precaution to prevent NSI and another 5 questions to determine respondents' practice of post exposure of NSI. Each question was given twenty marks. Respondent who had NSI needs to answer 5 questions on the practice of post exposure of NSI. There are 20 marks for each.

Pre-test

These questionnaires have not been used previously. So a pre-test was initially tried to conduct on 10 nursing students from year 2, year 3 and year 4 nursing students of FMSH, UNIMAS but there were only 7 students returned the questionnaires. Pre-test respondents stated that it was clear and simple, and they were able to understand the questions in questionnaire.

Reliability of the questionnaire was tested with fifty nursing students from year 2 to year 4 of FMSH, UNIMAS using Cronbach's Alpha test. Reliability for the knowledge part (r=0.411) and attitude part (r=0.427) show low reliability. On the