

**KNOWLEDGE REGARDING OCCUPATIONAL HEALTH  
HAZARDS AMONG NURSES IN A GOVERNMENT  
HOSPITAL, CHITWAN**

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for the Post Basic Bachelor of Nursing Programme from  
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## **RESEARCH APPROVAL SHEET**

Research on "Knowledge Regarding Occupational Health Hazards among Nurses in a Government Hospital, Chitwan" my bonafide work is being submitted for approval to Tribhuvan University, Institute of Medicine, Nursing Campus, Birgunj to fulfill the requirement of Bachelor in Nursing programme (Hospital).

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## **ABSTRACT**

**Title:** "Knowledge regarding Occupational Health Hazards among Nurses in a Government Hospital, Chitwan."

**Objective:** To find out the knowledge regarding occupational health hazards among nurses.

**Background:** Occupational health is essential preventive medicine. Occupation health should aim at the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations. Nurses are exposed to high levels of occupational hazards. Occupational hazards include: Physical, mechanical, biological, chemical and psychosocial hazards. The causes of occupational health hazards are lack of knowledge, lack of protective measure, negligence etc. These hazards are prevented by engineering control, administrative control such as training, work allocation, monitoring risks, health education, immunization and personnel protection.

**Methodology:** Descriptive cross-sectional research design was used. Total 50 nurses were selected by using non probability purposive sampling method from indoor department of Bharatpur Government Hospital Chitwan. Self-administered questionnaire was developed to collect the data.

**Result:** Study result shows that most of the respondents were age of 20-29 years. Mean age of the respondent was 23.78 with 6.05 standard deviation. Almost all of the respondents were female and had PCL Nursing education. Mean work experience was 3.94 years with standard deviation 5.57. Result shows that majority of the respondents were not exposed to mass media regarding occupational health hazards. Majority of the respondents were not suffered from occupational health hazard. More than three-fourth of the respondents were respond for lack of protective measure and increased workload as the causes. Cent percent of the respondents respond physical hazards as a type of occupational health hazards as well. It is also found that 66% of the respondents had moderate knowledge regarding occupational health hazards, 22% had inadequate knowledge and 12% had adequate knowledge.

**Conclusion:** It is concluded that majority of the respondents were not suffered from occupational health hazards. Least of the respondents had adequate knowledge knowledge. Majority of the respondents respond exposure to physical, chemical, mechanical, biological and psychological agents as the meaning of occupational health hazards. Majority of the respondents answered lack of protective measure as a cause of occupational health hazard. Less than half of the respondents answered safe patient handling is the preventive measure of mechanical health hazards.

**Key Words:** Knowledge, Occupational Health Hazards, Nurse.

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# CHAPTER I

## INTRODUCTION

### 1.1 Background of the Study

Occupational health is essential preventive medicine. “occupation health should aim at the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention among workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological equipment, and to summarize, the adaptation of work to man and of each man to his job” (Park, 2009).

Under the occupational health and safety act occupational illness is defined as a condition that result from exposure in a workplace to a physical, chemical or biological agents to the extent that the health of the worker is impaired .Occupational hazards can be divided into two categories: safety hazards that cause accidents that physically injure workers, and health hazards which result in the development of disease. It is important to note that a "hazards" only represents a potential to cause harm (International Labour Organization [ILO],2014).

Worldwide, occupational diseases continue to be the leading cause of work-related deaths. According to International labour organization (ILO) estimates, out of 2.34 million occupational fatalities every year, only 3, 21, 000 are due to accidents. The remaining 2.02 million deaths are caused by various types of work-related diseases, which correspond to a daily average of more than 5,500 deaths (Das, 2013).

Exposure to biological agents is the most common occupational risk for nursing staff. The nursing staff is the most frequently involved among the hospital professional groups, because nurses frequently handle cutting and piercing objects while

performing their tasks the Italian study on Human Immune Deficiency Virus(HIV) risk occupational reported 19,860 occupational exposures to blood or other potentially contaminated biological fluids (Bergamini, Cucchi, Stefanati, Cavallaro & Gabutti, 2009).

Health care workers had experienced Needle stick injury about 70.79% but 52.5% suffered from NSI with unused needles and 47.5% Health Care Workers(HCWs) suffered NSI from used needles and 68.42% of NSI sufferer of used needles reported the incident, 69.91% HCWs practices recapping of used needles. Majority of them 83.54% use single hand technique to recap. Knowledge about transmission of HIV and Hepatitis B by NSI was satisfactory. 98.23% and 89.38% of HCWs respectively were aware of HIV and Hepatitis B transmission through Needle Stick Injury(NSI) but 41.6% of health care workers were unaware of the fact that needle stick injuries can transmit hepatitis C. 82.3% HCWs had been vaccinated against hepatitis B. More than half of HCWs (52.21%) think NSI is due to lack of awareness where as 36.28% think NSI is accidental which cannot be prevented and only 11.5% think it is due to lack of knowledge. 74.33% never attended formal lecture or program on NSI. This study showed a high rate of occurrence of NSI with lack of awareness in HCWs. 41.6% know HIV transmission can be prevented where as 58.4% did not know HIV transmission can be prevented once NSI caused by contaminated needle with Acute Immune Deficiency Syndrome(AIDS) patient. Knowledge about disease transmission by NSI was found adequate regarding HIV and HBV. 98.2% and 89.4% participants know NSI can transmit HIV and HBV respectively. Knowledge about Hepatitis C(HCV) transmission by NSI is comparatively inadequate which is only 58.4%, 82.3% were found vaccinated against hepatitis B (Gurung, Poudel & Pun, 2010).

In recent years, it has become apparent that health care workers are exposed to a variety of occupational insults that can result in serious acute and long-term adverse health outcomes. In nursing, the situation is complicated. Most nurses do not have adequate knowledge on the assessment of hazards when they occur, other may not apply protective measures properly even if they know. However, many hospital are built and managed due concern for the health of the workers, often because of lack of experience in the area of occupational health. Effective occupational health benefits

the employee, employer government and the society at large. This finding from the study should assist to improve occupational health and safety in Bharatpur government hospital. This study will also contribute towards nursing research and will lead to health improvement of nursing personnel. As a result the quality of nursing care will be improved. The nurses is benefiting by being able to work in a state of physical, mental, social and spiritual well-being without occupational hazards. This study will help to make strategies and increase level of knowledge on occupational health hazards in hospital by conducting different activities such as training, in-service education.

## **1.2 Statement of the Problem**

Nurses are exposed to high levels of occupational hazards. Occupational hazards include; physical, mechanical, biological and psychological hazards. These hazards are prevent by engineering control, administrative control such as physical examination, training, work allocation, monitoring risks, health education and immunization and Personal protection. Safety and health is one of the major problem in our workplaces :every three and half minutes somebody in the Europe dies from work related causes there are 167,000 deaths a year as a result of work related accident(7460)or occupational diseases(159000).74000 can be attributed to working with dangerous substances. The problem is that nurses are exposed to many occupational hazards and it seems that there is lack of information on the causes, prevention and management of occupational injuries /illness, it is not clear whether nurses in onandjokewe practice occupational safety (Tuvadimbwa, 2005).

Thus the researcher felt need to find out the knowledge regarding occupational health hazards in BharatpurGovernmentHospital. As their is high patient flow and limited nurses. The nurses did not seems to implement their knowledge in hospital setting due to various difficulties including inadequate knowledge. This study further helps to prevent from different occupational health hazards by improving health facilities and awareness raising programme.

### **1.3 Rational of the Study**

Four hundred and sixty-nine (39.1%) respondents have 1-10 years working experience while 60.9% have spent 11 years and above in the nursing profession. It was found that 96.2% of the respondents knew that the profession is prone to occupational hazards, and as expressed by 88.6% of the respondents, back injury is the commonest hazard, followed by neck and back pain as attested to by 84.8% of the nurses. The most prominent predisposing factor is prolonged standing as viewed by 84.5% of the sample. Avoidance of lifting of patients and heavy equipment, among others, is the most notable way of avoiding occupational hazards as attested to by 90.5% respondents. Among the factors suggested as being responsible for these hazards include negligence or carelessness on the part of the nurses, prolong standing by the nurses while on duty, failure to observe simple safety rules, lifting of patients and other heavy equipments, excessive workload and lack of protective devices. (Amosu, Degun, Atulomah, Olanrewju & Aderibigbe, 2011).

More than half of HCWs (52.21%) think NSI is due to lack of awareness where as 36.28% think NSI is accidental which cannot be prevented and only 11.5% think it is due to lack of knowledge. 74.33% never attended formal lecture or program on NSI. This study showed a high rate of occurrence of NSI with lack of awareness in HCWs. 41.6% know HIV transmission can be prevented where as 58.4% did not know HIV transmission can be prevented once NSI caused by contaminated needle with AIDS patient. Knowledge about disease transmission by NSI was found adequate regarding HIV and HBV. 98.2% and 89.4% participants know NSI can transmit HIV and HBV respectively. knowledge about HCV transmission by NSI is comparatively inadequate which is only 58.4%, 82.3% were found vaccinated against hepatitis B. Use of better safety devices, education, training, decreasing the inappropriate work load of HCW, safe environment and following standard precautions can help to minimize or prevent needle stick injury (Gurung, Poudel & Pun, 2010).

Thirty nine (76%) of the sample understood occupational hazards as it was indicated in their responses. Three (6%) of these 39 respondents have extensively explained occupational hazards. 12% respondents have only mentioned the types of occupational hazards) 6% respondents could not explain occupational hazard well.

Six percent who did not respond to that question. Nurses are seriously exposed to high levels of different occupational hazards depending on their areas of work (working departments). Thirty seven (37) 74% respondents have indicated that they are exposed either through handling of sharp instruments or equipment lifting of patients, exposure to aggressive patients, exposure to airborne diseases. The majority of respondents that is 46 (92%) indicated that occupational hazards can be prevented by wearing/using protective measures including gloves, facemasks, aprons, gowns, boots and goggles (Gorases &Vyver, 2005).

The common occupational health hazards were work-related stress (83.3%), needle-stick injuries (75.6%), bloodstains on skin (73.1%), sleep disturbance (42.3%), skin reactions (37.2%) assault from patients (24.3%) and hepatitis (8.9%). Nearly half of the staff used diazepam, lexotan or alcohol to cope with the stress of work. About 59% of the staff recap used needles (Orji, Fasubaa, Onwudiegwu, Dare & Ogunniyi, 2002).

More than 92% of participants reported usually wearing gloves during chemotherapy handling; 6% reported using laboratory coats. Use of face and respiratory protection was less than 5%. Chemotherapy was reported to be prepared in nursing station where there are no laminar airflow hoods in 100% of work settings (Chaudhary &Karn,2012).

Patient are in care of nurses for twenty four hour so, it is important to have adequate knowledge regarding prevention of occupational diseases. Literature indicates that there is huge gap of knowledge among the nurses related to occupational health hazards and this has significantly been influenced by the nurses experience, Information Education Communication(IEC) material, qualification, training, knowledge and practices on prevention of occupational health hazards. If the nurses have knowledge regarding occupational health hazards, they will apply preventive measures that will be help to prevent from different occupational diseases. So the researcher interested to select this topic for the study.

## **1.4 Objectives of the Study**

### **General Objective**

To find out the Knowledge Regarding Occupational Health Hazards Among Nurses.

### **Specific Objectives**

To identify knowledge regarding biological health hazards.

To identify knowledge regarding physical health hazards.

To identify knowledge regarding mechanical health hazards.

To identify knowledge regarding chemical health hazards.

To identify knowledge regarding psychosocial health hazards.

## **1.5 Significance of the Study**

The result of this study will be used as a source of baseline information about occupational hazards for future researcher to conduct research on large scale.

The findings of this study will be helpful for the planning and preparation of in-service education on knowledge regarding occupational health hazards.

This study will provide information knowledge about staff's regarding occupational health hazards and exposure of occupational health hazards to the hospital and the need for adequate funding of health institutions.

This study will help to create awareness on the type, causes and preventive measure of common hazard.

The result of the study will help to draw the attention of hospital management on the need to provide protective devices to nurses in order to reduce occupational hazards.

## 1.6 Conceptual Framework

The given framework clearly shows that experience, IEC materials, qualification, peer influence, training, past history of exposure, self-directed learning influences the knowledge regarding occupational health hazards among nurses.

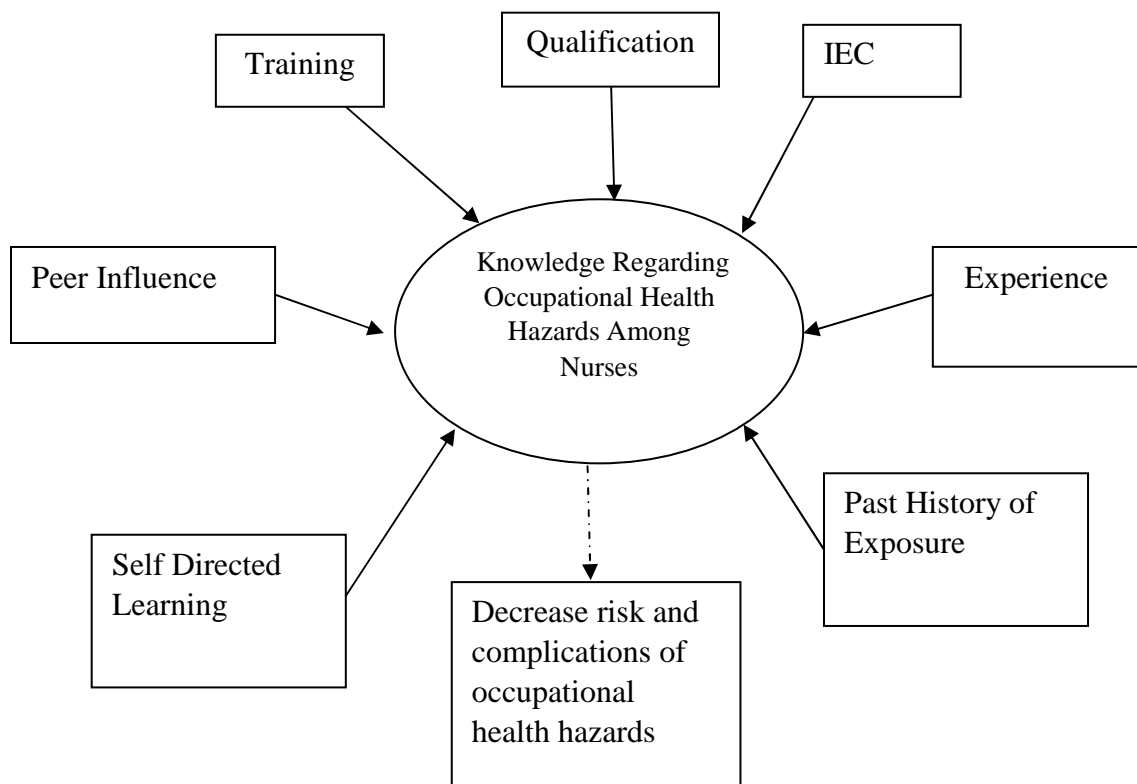


Figure 1: Conceptual Framework on Knowledge Regarding Occupational Health Hazards among Nurses.

## 1.7 Research question

What is the knowledge regarding occupational health hazards among nurses?



## 1.8 Operational Definitions

This definition is operationalized as,

**Nurse:** It refers to that person who passed PCL nursing, BSC nursing, BN nursing registered in Nepal nursing council and having 1 years working experience.

**Occupation health hazards:** Biological hazards are mainly infectious hazards such as bacteria, viruses, fungi and parasites which cause diseases. Physical hazards commonly found in health facilities include radiation, exposure to slippery floors, exposure to body fluids and assault by confused patients. Mechanical hazard include back pain/ injury because of manual lifting of patients in particular psychosocial hazards include stress, job insecurity, high emotional demands. Chemical hazard include disinfectants and antiseptic such as chorine and savlon, gluteraldehyde, ethylene oxide, hazardous drugs .In the short or long term, such as fire explosion, or leakages which results in the release of toxic substance that can cause illness, injury, disabilities or death.

**Knowledge regarding occupational health hazards:** Having information regarding the facts about meaning of occupational health hazards and its causes, type, risk factor and prevention

Level of knowledge:

80 or >80%: Adequate knowledge

50-79 %:Moderate knowledge

Below 50%: Inadequate knowledge

**Training:** In service education regarding occupational health hazards.

**Past history of exposure:** Any hazards during working experience.

Information education communication(IEC): All the information which give the knowledge regarding occupational health hazards such as: newspaper, journal, books, article, magazine, hospital manual, television, poster, pamphlets, and curriculum.

## **1.9 Delimitation**

This study finding may not be generalized to represent the whole country as the sample size is small and chosen purposively for fulfilling academic requirement of bachelor degree course. Data collection period was only for 2 weeks.

## **CHAPTER II**

### **REVIEW OF LITERATURE**

#### **2.1 Introduction**

The selected topic or problem through different sources such as related journals, articles, (from internet or manual) etc. This chapter deals with review of relevant literature related to the knowledge regarding occupational health hazards.

#### **2.2 Review of Literature**

Health care personnel working environments such as hospitals, clinics and laboratories, are increasingly recognized as hazardous workplace. In particular, inhalation exposures and their potential respiratory health effects are of growing concern among workers in healthcare settings ((Amosu, Degun, Atulomah, Olanrewju & Aderibigbe, 2011).

Twenty three percent (23%) were in the habit of using gloves for phlebotomy procedures all the time, 79% were of the impression that needle should be recapped after use and 66% were aware of Universal Precaution Guidelines. The survey revealed that knowledge of health care workers about the risk associated with needle-stick injuries and use of preventive measures was inadequate. (Gurubacharya, K. C .&Karki, 2003).

Registered nurses are responsible for supervising and educating subordinates. Therefore, one can assume that knowledge on preventive measures can be conveyed to all health care workers. The majority of respondents that is 46(92%) indicated that occupational hazards can be prevented by wearing/using protective measures including gloves, facemasks, aprons, boots and goggles .Other preventive measures against occupational hazards were: health education, avoid needle recapping,

maintenance of correct body postures, walking carefully on a wet floor, dispose used needles/sharps in a container for sharp. Instruments such as neatness, regular hand wash on duty, counseling and occupational support, well trained drivers, noticed board when the floor is wet, prophylaxis, poisonous drug to be kept in a safe place, sedate psychotic patient immediately, procedures should be followed when injury on duty. Staffs members must be educated that such as familiarization with guidelines on how to handle plugs, disinfected of all contaminated instruments, assist each other when lifting/turning patients and in-service training/informative meeting with all staff. Only 2(4%) respondents did not respond to these question(Tuvadimbwa,2005)

The ILO celebrates the World Day for Safety and Health at Work on the 28 April to promote the prevention of occupational accidents and diseases globally. It is an awareness-raising campaign intended to focus international attention on emerging trends in the field of occupational safety and health and on the magnitude of work-related injuries, diseases and fatalities worldwide. The 28th of April is also a day in which the world's trade union movement holds its international Commemoration Day for Dead and injured Workers to honor the memory of victims of occupational accidents and diseases and organize worldwide mobilizations and campaigns on this date (ILO, 2013).

Across-sectional analytical study showed that 36.1% had 5-10 years of work experience, 61.9% had a good knowledge of ergonomic principles, and 83% were exposed to a mild level of occupational hazards. There was no significant relationship between knowledge of ergonomics and occupational health ( $p = 0.08$ ). The relationships between knowledge of ergonomics and age, gender, marital status, work experience, the type, and the location of service were significant ( $p < 0.05$ ). The relationship between occupational health and age, work experience, employment type, and location of service were also statistically significant ( $p < 0.05$ ) (Juibari, Sanagu & Farrokhi, 2010).

This study showed that 124 participants, 79.8% were women and 20.2% men. Regarding age, 14.5% of the sample studied were 8-25 years old, 26.6% 26-35, 43.5% 36-45 and 15.3% >45 years old. As for education level, 56.5% of the participants were of technological education, 32.3% of secondary and 4.8% of university. 87.1% of the

participants reported exposure to blood or other liquids while 52.8% reported exposure during evening shift, 30.6% during morning shift and 16.7% during night. In regard to the degree of exposure, 10.3% reported deep wound, 32.7% middle and 57.0% surface wound whereas in 25% of the cases the type of exposure regarded skin and its' continuity, 77.2% reported through the skin needle stick injury, 42.3% needle stick injury with visible blood and the 82.2% reported that the needle stick had been already used to other patient. 86.4% of men reported the exposure to the Committee of Infectious Disease whereas the percentage of women was 63.4%. Finally, men were more likely to report the exposure,  $p=0,004$ . 100% of the participants reported that they need more education (Gourni, Polikandrioti, Vasilopoulos, Mpaltzi & Gourni, 2012).

A study showed that the response rate was 93.1 percent(284 healthcare professionals). The overall level of knowledge on Occupational Health and Safety(OHS) was moderate, with a mean score of 62.0 percent. A larger proportion of doctors showed good OHS knowledge compared to other categories of healthcare workers, with administrative staff scoring the poorest marks . The study analyzed occupational health hazards for Intensive Care Unit (ICU) nurses and nursing technicians, comparing differences in the number and types of hazards which occur at the beginning and end of their careers. A descriptive cross-sectional study was carried out with 26 nurses and 96 nursing technicians from a public hospital in the Federal District, Brazil. A Likert type work-related symptom scale (WRSS) was used to evaluate the presence of physical, psychological, and social risks. As a workplace, ICUs can cause work health hazards, mostly physical, to nurses and nursing technicians due to the frequent use of physical energy and strength to provide care, while psychological and social hazards occur to a lesser degree. The study found that the levels of physical hazards for nurses and nursing technicians working at ICUs were critical at a single Brazilian institution. Psychological and social hazard levels were tolerable .Concerning physical hazards, it was verified that the most frequent manifestation was pain in some part of the body. Body pain was mostly present in nurses and nursing technicians. Another type of problem manifested by nurses and nursing technicians at ICUs is dorsal pain. Metal hazards are also provoked among

nurses and nursing technicians due to responsibility burdens, and the need for precision in carrying out their tasks (Shimizu, Couto, Hamonn & Branco, 2010).

The physical factors in the working environment which may be adverse to health are heat, cold, humidity, air movement, heat radiation, light, noise, vibrations and ionizing radiation. The standard temperature of work environment is 20°C to 27°C. If more than 27°C cause discomfort. The direct effects of heat exposure are burns, heat exhaustion, heat stroke and heat cramps; the direct effects are decrease efficiency, increased fatigue and enhanced accident rates. The workers may be exposed to the risk of poor illumination or excessive brightness. The acute effects of poor illumination are eyestrain, headache, eye pain, lachrymation, congestion around the cornea and eye fatigue. The chronic effects on health include "miner's nystagmus". Exposure to excessive brightness or "glare" is associated with discomfort, annoyance and visual fatigue. There should be sufficient and suitable lighting, natural or artificial, wherever persons are working. The chemical hazards are on the increase with the introduction of newer and complex chemicals. Chemical agents act in three ways: local action, inhalation and ingestion. The chemical agents such as gases, dusts, metals and their compounds which are responsible to cause disease. Some chemicals cause dermatitis, eczema, ulcers and even cancer by primary irritant action. In inhalation: Dusts are finely divided solid particles with size ranging from 0.1 to 150 microns. They are released into the atmosphere during crushing, grinding, abrading, loading operation. The common gases chloroform, ether, trichlorethylene carbon monoxide, chlorine etc cause occupational health hazards. Metal hazards such as lead, arsenic, phosphorus, mercury, cadmium among them mercury is most common metal hazards for nurses. Regarding ingestion, occupational diseases may also result from ingestion of chemical substances through contaminated hands, food or cigarettes. Diseases due to biological agents are: Brucellosis, leptospirosis, anthrax, actinomycosis, tetanus, encephalitis, fungal infections etc. The psychosocial hazards arise from the frustration, lack of job satisfaction, insecurity, poor human relationships, emotional tension are some of the psychosocial factors. Preventive measures for occupational health hazards are nutrition, communicable disease control, sanitation, mental health, in-service education, protective measures and engineering control. Malnutrition, contaminated storing of food and unhealthy food

are causes of low work output for nurses. For the communicable disease control for nurses, the methods such as immunization programme, prevention of infection, notification of communicable disease and isolation of patient should be implemented. Environmental measures to prevent occupational health hazards such as water supply, food, toilet, cleanliness, sufficient space, lighting, temperature, housing. Maternity leave, maintenance if job security, provision of encourage breast feeding, protection from radiation hazards during pregnancy are the special require to prevent occupational health hazards. Engineering control helps to prevent occupational health hazards(Park,2011).

### **2.3 Summary of Reviewed literature**

Nursing personnel experience a higher rate of workplace hazards exposure than other health care workers. Occupational hazards include; physical, mechanical, biological and psychological hazards. The above literature also indicate that occupational health hazards strongly influenced by the nurses knowledge and practices .It has been established that those in the nursing profession are susceptible to a number of occupational hazards, many of which are avoidable and preventable while others are inevitable, being parts of the everyday nursing duties.

NSIs were found occur in all categories of HCWs. Elimination of unnecessary injections, prohibition of recapping, proper disposal and careful handling of sharps, following universal precautions strictly and use of safer needle devices are effective measures o preventing NSI. The study showed a high rate of occurrence of NSI with lack of awareness in HCWs. Only 11.5% supported lack of knowledge as a cause of NSI. This issues need to be addressed, through appropriate education, training, awareness programs, developing and strengthening skills, competencies and boarding knowledge and other interventional strategies by the hospital management.

The present study suggests that there was no significant difference with regard to physical, psychological, and social hazards between the beginning and end of the careers of ICU nurses and nursing technicians, demonstrating that there is no cumulative effects, since fatigue is produced by the work itself.

Occupational exposure to blood and body fluids among health care professionals consists major occupational hazards, globally. The Centers for Disease Control and Prevention(CDC) estimates that each year 385.000 needle sticks and other sharps related injuries are sustained by hospital healthcare personnel.

The common occupational health hazards were work-related stress (83.3%), needle-stick injuries (75.6%), bloodstains on skin (73.1%), sleep disturbance (42.3%), skin reaction (37.2%), assault from patients (24.3%) and hepatitis (8.9%).

Across-sectional analytical study showed that 36.1% had 5-10 years of work experience, 61.9% had a good knowledge of ergonomic principles, and 83% were exposed to a mild level of occupational hazards



## **CHAPTER III**

### **RESEARCH METHODOLOGY**

#### **3.1 Research Design**

A descriptive cross-sectional research design was used.

#### **3.2 Research setting and Population**

The study was conducted in Bharatpur Government Hospital at Chitwan Bharatpur 10. Study population was 50. All nurses working in Bharatpur Government Hospital in indoor department (medical, surgical, orthopedic, postoperative, intensive care unit (ICU), operation theatre (OT), emergency, pediatric, maternity, spinal, cabin and geriatric ward).

#### **3.3 Sampling**

The sample size was 50. The researcher used non-probability, purposive sampling technique. Nurses who were willing to participate and available during the data collection period. Only indoor nurses of surgery, orthopedic, medical, post operative, intensive care unit (ICU), operational theatre (OT), pediatric, emergency, maternity ward, spinal ward, cabin and geriatric ward. Only those nurses were included who had minimum 1 year of work experience. Nurses who were in leave during data collection period were excluded.

#### **3.4 Instrumentation**

Self administered structured questionnaire was used. The instrument was developed by researcher herself, after reviewing the literature and consulting research committee.

The research instrument consist of two parts:

Part I: Questions related to socio-demographic information.

Part II: Questions related to the knowledge regarding occupational health hazards, its type, causes, risk factor and prevention of occupational health hazards and illness.

The validity of the instrument was established by seeking the opinion of the subject experts, consulting with research committee, colleagues and reviewing the related literature. And the reliability of the instrument was maintained by pretesting the instrument. Pretesting was done on 10% of total sample in Narayani Sub Regional Hospital, Parsa. Feedback was taken and some modifications was done as per requirement.

### **3.5 Data collection procedure**

The study was carry out after the approval of the research proposal from the research committee of Nursing Campus Birgunj. A written permission was given from the Nursing Campus Birgunj to concerned hospital (Bharatpur Government Hospital) for data collection. The recommended letter from Nursing Campus Birgunj was submitted in Bharatpur Hospital and Administrative approval was obtained from the BharatpurGovernment Hospital. Self-introduction was given then explain the objective of the research to the respondents. Respondents were assured for the purpose of the study. Anonymity and confidentiality was maintained during data collection by coding the subject. Verbal informed consent was obtain from all the subject without any pressure, if the respondents were not willing to participate they can withdraw any time during data collection.self administered questionnaire was develop to collect the data. The data were collected after 1 day from the respondents.

### **3.6 Data Analysis Procedure**

After completion of data collection the data were checked for its completeness and accuracy. All the data were kept in order for entry according to coding. Findings were analyzed in frequency distribution, percentage and standard deviation using SPSS (Statistical Package for Social Sciences) Version 20. The findings were presented on the academic tables.

## CHAPTER IV

### FINDINGS OF THE STUDY

This chapter deals with the analysis and interpretation of data regarding occupational health hazards of nurses. Among 50 nurses working in Bharatpur Hospital were participated in the study. All the data obtained was analyzed and interpreted on the basis of research objectives and are presented in different tables.

**TABLE 1**  
**Respondents According to Socio-Demographic Characteristics**

Variable	Frequency	Percent
<b>Age in Years</b>		
20-29	42	84.0
<20	3	6.0
>39	3	6.0
30-39	2	4.0
Mean±SD = 23.78 years ±6.05		
<b>Sex</b>		
Female	49	98.0
Male	1	2.0
<b>Professional Qualification</b>		
PCL Nursing	47	94.0
BN/PBBN	2	4.0
B.Sc. Nursing	1	2.0
<b>Work Experience in Years</b>		
<5	41	82.0
>14	4	8.0
5-9	3	6.0
10-14	2	4.0
Mean ±SD = 3.94 years ± 5.57		

Table 1 shows that majority (84%) of the respondents were age of 20-29 years and 4% were 30-39 years of age group. Mean age of the respondent was 23.78 with 6.05 standard deviation. Regarding sex, almost all (98%) of the respondents were female

and 2% male. Regarding professional qualification, almost all (94%) of the respondents were PCL Nursing. Regarding work experience, most (82%) of the respondents had less than 5 years and 4% had 10-14 years of work experience as a nurse. Mean work experience was 3.94 years with standard deviation 5.57.

**TABLE 2**  
**Distribution of Respondents According to Working Area**

<b>Variable</b>	<b>Frequency</b>	<b>Percent</b>
<b>n=50</b>		
<b>Present Working Area</b>		
Medical Ward	14	28.0
Pediatric ward	9	18.0
ICU	6	12.0
Surgical Ward	5	10.0
Operation Theater	3	6.0
Ortho Ward	3	6.0
Maternity ward	2	4.0
Others	8	16.0

Table 2 represent the regarding present working area, 28% of the respondents were working in medical ward and least 4% were working in maternity ward.

**TABLE 3****Mass Media Exposure, Suffered from and Received In-service Education regarding Occupational Health Hazard****n=50**

<b>Regarding Occupational Health Hazard</b>	<b>Frequency</b>	<b>Percent</b>
<b>Exposure to mass media</b>		
No	34	68.0
Yes	16	32.0
<b>If yes **</b>		
Newspaper, journal, magazine	11	68.8
Poster, pamphlet	8	50.0
Hospital manual	6	37.5
Television	5	31.3
Books	4	25.0
Curriculum	3	18.8
<b>Suffer from Occupational Health Hazard</b>		
No	33	66.0
Yes	17	34.0
<b>If yes **</b>		
Physical hazards	14	82.4
Chemical hazards	9	52.9
Psychosocial hazards	6	35.3
Mechanical hazards	3	17.6
Biological hazards	2	11.8
<b>Received In-service Education on Occupational Health Hazard</b>		
No	36	72.0
Yes	14	28.0

**\*\* Multiple responses**

Table 3 shows that majority (68%) of the respondents were not exposed to mass media regarding occupational health hazards. Among 32% who were exposed to mass media, majority (68.8%) were exposed to newspaper, journal and magazine and least 18.8% were exposed to curriculum. Regarding suffer from occupational health hazard, 66% were not suffered. Among 34% who were suffered from occupational health hazard, majority (82.4%) were suffered from physical hazards, and 11.8% were suffered from biological hazards. Regarding received in-service education on occupational health hazard, 72% of the respondents respond no.

**TABLE 4****Knowledge regarding Meaning and Cause of Occupational Health Hazard****n=50**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Meaning of Occupational Health Hazard</b>		
Exposure to physical, chemical, mechanical, biological and psychological agents *	38	76.0
Exposure to physical, chemical, mechanical and biological agents	6	12.0
Exposure to physical, chemical and mechanical agents	5	10.0
Exposure to physical and chemical agents	1	2.0
<b>Cause of Occupational Health Hazard**</b>		
Lack of protective measure *	39	78.0
Increased workload *	39	78.0
Lack of knowledge *	37	74.0
Negligence *	34	68.0
Patient with chronic disease *	23	46.0
Manual material handling *	18	36.0
Water	15	30.0
Housing	13	26.0

\*\* *Multiple responses*\* *Correct answer*

Table 4 represent that 76% of the respondents respond exposure to physical, chemical, mechanical, biological and psychological agents as the meaning of occupational health hazards and least 2% respond for exposure to physical and chemical agents. Regarding cause of occupational health hazard, majority (78%) respond each for lack of protective measure and increased workload, 74% respond lack of knowledge, 68% respond negligence and 26% respond housing.

**TABLE 5****Knowledge regarding Types of Occupational Health Hazard**

Variables	Frequency	Percent
<b>n=50</b>		
<b>Types of Occupational Health Hazard**</b>		
Physical hazards *	50	100.0
Chemical hazards *	48	96.0
Mechanical hazards *	46	92.0
Psychosocial hazards *	46	92.0
Biological hazards *	41	82.0
Spiritual hazards	7	14.0
<b>Most Common Type of Occupational Health Hazard</b>		
Physical	25	51.0
Chemical	23	46.9
Biological *	7	14.3
Psychosocial	4	8.2
Mechanical	2	4.1
<b>Types of Physical Occupational Health Hazard**</b>		
Heat *	38	76.0
Cold *	31	62.0
Light *	31	62.0
Dusts *	25	50.0
Physical assault *	23	46.0
Noise *	24	48.0
Local action	16	32.0
Ultraviolet radiation *	16	32.0
Ionizing radiation *	12	24.0
Vibration *	11	22.0
<b>** Multiple responses                      * Correct answer</b>		

Table 5 shows that cent percent (100%) of the respondents respond physical hazards, and 14% respond spiritual hazards as the type of occupational health hazards. Regarding most common type of occupational health hazard, more than half of the 51% of the respondents respond physical and 4.1% respond mechanical as the type of occupational health hazard. Regarding the types of physical occupational health hazard, majority (76%) of the respondents respond heat and 22% respond vibration as the types of physical occupational health hazard.

**TABLE 6****Knowledge regarding Physical Occupational Health Hazards****n=50**

<b>Variable</b>	<b>Frequency</b>	<b>Percent</b>
<b>Effective temperature for working environment</b>		
20° - 27° C *	24	48.0
12° - 19° C	12	24.0
28° - 35° C	12	24.0
Above 35° C	2	4.0
<b>Direct effects of heat exposure**</b>		
Heat stroke *	34	68.0
Heat exhaustion *	32	64.0
Burns *	30	60.0
Heat cramps *	13	26.0
<b>Acute effects of poor illumination**</b>		
Headache *	34	68.0
Eye fatigue *	29	58.0
Eye strain *	28	56.0
Eye pain *	23	46.0
Lachrymation *	17	34.0
<b>Chronic effects of poor illumination**</b>		
Disturb sleep	34	68.0
Discomfort *	28	56.0
Blurring of vision *	22	44.0
Annoyance *	20	40.0
Visual fatigue *	20	40.0

\*\* *Multiple responses*\* *Correct answer*

Table 6 shows that, less than half 48% of the respondents respond 20° - 27° C and least 4% of the respondents respond above 35° C as the effective temperature for working environment. Regarding direct effects of heat exposure, majority (68%) of the respondents respond heat stroke and 26% of the respondents respond for heat cramps. Regarding acute effects of poor illumination, majority (68%) of the respondents respond headache and 32% of the respondents respond nervousness as the acute effects of poor illumination. Regarding chronic effects of poor illumination, majority (68%) of the respondents respond disturb sleep and less than half 40% of the respondents respond each for annoyance and visual fatigue.



**TABLE 7****Knowledge regarding Chemical Occupational Health Hazards****n=48**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Way of occurring chemical health hazards **</b>		
Ingestion *	37	77.1
Local action *	29	60.4
Droplet contact	29	60.4
Inhalation *	23	47.9
<b>Cause of chemical health hazards **</b>		
Chemotherapy *	41	85.4
Anesthetic gases *	38	79.2
Devices containing mercury *	31	64.6
Hand disinfectants *	25	52.1
Sterilization chemicals *	24	50.0
Personal care products	13	27.1
All drugs used for patients	16	33.3
<b>Chemical effects due to local action **</b>		
Dermatitis *	38	79.2
Burn	30	62.5
Ulcer *	28	58.3
Cancer *	28	58.3
Eczema *	18	37.5
Psoriasis	17	35.4

\*\* *Multiple responses*\* *Correct answer*

Table 7 represent that majority (77.1%) of the respondents respond ingestion and less than half 47.9% of the respondents respond inhalation.Regarding cause of chemical health hazards, most (82%) of the respondents respond chemotherapyand 27.1% of the respondents respond personal care products.Regarding chemical effects due to local action, majority (79.2%) of the respondents respond dermatitis and less than half 35.4% of the respondents respond psoriasis.

**TABLE 8****Chemical Occupational Health Hazards regarding Inhalation and Ingestion****n=48**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Media of dusts released in the environment **</b>		
Crushing *	41	85.4
Grinding *	29	60.4
Contaminated hands	24	50.0
Abrading *	20	41.7
Loading medicine *	20	41.7
<b>Types of gases that causes occupational health hazards**</b>		
Chloroform *	42	87.5
Ether *	35	72.9
Trichloroethylene *	21	43.8
Nitrous oxide	19	39.6
Hydrogen	10	20.8
Nitrogen	10	20.8
<b>Protective measures of chemical health hazards **</b>		
Gloves *	45	93.8
Goggles *	42	87.5
Masks *	39	81.3
Cap *	36	75.0
Gown *	36	75.0
Boots *	34	70.8
Barrier Cream *	15	31.3
<b>Most common metal hazard</b>		
Mercury *	39	81.2
Phosphorus	7	14.6
Chromium	2	4.1
Zinc	2	4.1
<b>Way of mercury hazards to nurses**</b>		
Contaminated hands *	37	77.1
Contaminated food *	27	56.3
Smoking *	24	50.0
Utensils	11	22.9

**\*\* Multiple responses****\* Correct answer**

Table 8 represent that, most (85.4%) of the respondents respond crushing and 41.7% respond abrading and loading medicine.Regarding types of gases that cause occupational health hazards,most (87.5%) of the respondents respond chloroform and 20.8% respond each for hydrogen and nitrogen.Regarding protective measures of chemical health hazards, most (93.8%) of the respondents respond gloves and less than half 31.3% respond barrier cream.Regarding most common metal hazard,

majority (78%) of the respondents respond mercury.Regarding the way of mercury hazards to nurses, 77.1% of the respondents respond contaminated hands and 22.9% respond utensils.

**TABLE 9**  
**Knowledge regarding Biological Occupational Health Hazards**

Variables	Frequency	Percent
<b>n=41</b>		
<b>Biological occupational health hazards**</b>		
Tetanus *	28	68.3
Fungal infection *	26	63.4
Encephalitis *	24	58.5
Hepatitis *	24	58.5
Allergic disease	22	53.7
Anthrax *	21	51.2
Tuberculosis *	19	46.3
Poor human relationship	12	29.3
<b>Biological Source which Affect Health of Nurses</b>		
All of above *	30	73.2
Microorganism	15	36.6
Medical waste	12	29.3
Toxins	12	29.3
<b>Method of controlling communicable disease**</b>		
Prevention of infection *	35	85.4
Immunization programme *	30	73.2
Notification of communicable disease *	28	68.3
Isolation of patient *	23	56.1
<b>Methods of preventing infection**</b>		
Hand hygiene *	33	80.5
Handle and dispose of sharps safely *	33	80.5
Maintain a clean clinical environment *	31	75.6
Use of personal protective equipment *	30	73.2
Dispose of contaminated waste safely *	30	73.2
Manage linen safely *	18	43.9
** <i>Multiple responses</i> * <i>Correct answer</i>		

Table 9 shows that, 68.3% of the respondents respond tetanus and 29.3% respond poor human relationship. Regarding biological source which affect health of nurses, majority (73.2%) of the respondents respond all of above. Regarding method of controlling communicable disease, most (85.4%) of the respondents respond prevention of infection and more than half 56.1% of the respondents respond isolation of patient. Regarding methods of preventing infection, most (80.5%) of the respondents respond each for hand hygiene and handle and dispose of sharps safely and less than half 43.9% respond manage linen safely.

**TABLE 10**  
**Knowledge regarding Mechanical Health Hazards**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>n=46</b>		
<b>Types of mechanical health hazards**</b>		
Muscular skeletal problem *	36	78.3
Back injuries *	35	76.1
Injuries	28	60.9
Shoulder strains *	25	54.3
Accidents	24	52.2
Physical assault	14	30.4
<b>Primary causes of musculoskeletal disorders **</b>		
Lifting *	42	89.4
Transferring *	31	66.0
Soft tissue disorders	31	66.0
Repositioning *	23	48.9
<b>Preventive measures of mechanical occupational health hazards **</b>		
Safe patient handling *	44	93.6
Avoid prolong standing *	41	87.2
Keep surface clean	18	38.3
<b>** Multiple responses                      * Correct answer</b>		

Table 10 shows that, 78.3% of the respondents respond muscular skeletal problem and 30.4% respond physical assault as the types of mechanical health hazards. Regarding primary causes of musculoskeletal disorders, most (89.4%) of the respondents respond lifting and less than half 48.9% respond repositioning. Regarding preventive measures of mechanical occupational health hazards, most (93.6%) of the respondents respond safe patient handling.

**TABLE 11**  
**Knowledge regarding Psychosocial Occupational Health Hazards**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>n=46</b>		
<b>Psychosocial occupational health hazards**</b>		
Emotional tension *	40	87.0
Frustration *	36	78.3
Insecurity *	34	73.9
Lack of job satisfaction *	32	69.6
Poor human relationship *	31	67.4
Anxiety *	23	50.0
<b>Factors influencing psychosocial occupational health hazards**</b>		
Family life *	36	78.3
Cultural background *	34	73.9
Social habits *	34	73.9
<b>** Multiple responses</b>		<b>* Correct answer</b>

Table 11 shows that, 87% of the respondents respond emotional tension and 50% respond anxiety as the psychosocial occupational health hazards. Regarding factors influencing psychosocial occupational health hazards, majority (78.3%) respond family life.

**TABLE 12**

**Knowledge regarding Preventive and Environmental Measures and Special Protections required to Prevent Occupational Health Hazards**

**n=50**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Preventive measures of occupational health hazards**</b>		
In-service education *	42	84.0
Nutrition *	40	80.0
Communication skill	35	70.0
Environmental sanitation *	33	66.0
Communicable disease control *	31	62.0
Protective measures for women and children *	31	62.0
Mental health *	27	54.0
Engineering control *	12	24.0
<b>Environmental measures**</b>		
Water supply *	43	86.0
Lighting *	43	86.0
Cleanliness *	38	76.0
Food *	36	72.0
Sufficient space *	32	64.0
Temperature *	28	56.0
Toilet *	27	54.0
Housing *	23	46.0
<b>Special protections required to prevent occupational health hazards**</b>		
Use of personal protective equipment *	42	84.0
Sufficient space *	41	82.0
Adequate ventilation *	39	78.0
Protection from radiation hazards during pregnancy *	36	72.0
Maternity level *	34	68.0
Maintenance of job security *	28	56.0
Training/ in-service education *	28	56.0
Provide day time naps for pregnancy woman	24	48.0
Provisions to encourage breast feeding *	18	36.0

\*\* *Multiple responses*

\* *Correct answer*

Table 12 represent, most (84%) of the respondents respond in-service education and less than half 24% respond engineering control as the preventive measures of occupational health hazards. Regarding environmental measures, most 86% of the respondents respond each for water supply and lighting and less than half 46% of the respondents respond housing as the environmental measures for occupational health hazards.

Regarding special protections required to prevent occupational health hazards, most (84%) of the respondents respond use of personal protective equipment and 36% of the respondents respond provisions to encourage breast feeding.

**TABLE 13**  
**Level of Knowledge regarding Occupational Health Hazards**

Level of Knowledge	Frequency	Percent
Moderate	33	66.0
Inadequate	11	22.0
Adequate	6	12.0

Table 13 shows that, majority (66%) of the respondents had moderate knowledge regarding occupational health hazards, 22% had inadequate knowledge and 12% had adequate knowledge.



## **CHAPTER V**

### **DISCUSSION, CONCLUSION AND RECOMMENDATION**

This chapter deals with discussion of the findings, conclusion and recommendation for the future studies. This study was designed to identify the Knowledge regarding Occupational Health Hazards among Nurses in Government Hospital, Chitwan. The major finding of this study was discussed in this chapter with comparison of finding of relevant studies and documented literatures.

#### **5.1 Discussion**

Result of the study shows that most (84%) of the respondents were age of 20-29 years, 6% were each of below 20 years and above 39 years of age and 4% were 30-39 years of age group. Mean age of the respondent was 23.78 with 6.05 standard deviation. It is found that almost all (98%) of the respondents were female and 2% were male. A study done by Gourni, Polikandrioti, Vasilopoulos, Mpaltzi & Gourni (2011) revealed that among 124 participants, 79.8% were women and 20.2% men. Regarding age, 14.5% of the sample studied were 8-25 years old, 26.6% were 26-35 years, 43.5% were 36-45 and 15.3% were above 45 years old. Similar finding found in a study of Amosu, Degun, Atulomah, Olanrewju & Aderibigbe (2011) done in Okada, Nigeria revealed that out of 1200 persons surveyed, 5.7% of the nurses were males and 94.3% were females.

It is found out that most (82%) of the respondents had less than 5 years of work experience as a nurse, 8% had 5-9 years of work experience. A contradict study by Amosu, Degun, Atulomah, Olanrewju and Aderibigbe, (2011) in Okada the finding was 39.1% had 1-10 years of work experience and 60.9% had 11 years and above in the nursing profession.

Data shows that majority (68%) of the respondents were not exposed to mass media regarding occupational health hazards. Among those who were exposed to mass media, majority (68.8%) were exposed to newspaper, journal and magazine, 50% were exposed to poster, pamphlet, 37.5% were exposed to hospital manual, 31.3% were exposed to television, 25% were exposed to books and 18.8% were exposed to curriculum.

Regarding suffer from occupational health hazard, majority (66%) of the respondents were not suffered. Among those who were suffered most (82.4%) were suffered from physical hazards, other 52.9% were from chemical hazards, 35.3% were from psychological hazards, 17.6% were mechanical hazards and 11.8% were suffered from biological hazards.

Regarding received in-service education on occupational health hazard, majority (72%) of the respondents respond no. It is also found that more than three-fourth (76%) of the respondents respond exposure to physical, chemical, mechanical, biological and psychological agents as the meaning of occupational health hazards 12% respond for exposure to physical, chemical, mechanical and biological agents, 10% respond for exposure to physical, chemical and mechanical agents and 2% respond for exposure to physical and chemical agents. The finding of the study was supported by Gorases &Vyver (2005) in Onandajokwe Health Distric, Namibia in which majority (76%) of the nurses understood occupational hazards.

Regarding cause of occupational health hazard, more than three-fourth (78%) respond each for lack of protective measure and increased workload, other 74% respond lack of knowledge, 68% respond negligence, 46% respond patient with chronic disease, 36% respond manual material handling, 30% respond water and 26% respond housing. A study done by Amosu, Degun, Atulomah, Olanrewju &Aderibigbe (2011) in Okada, Nigeria revealed that the most prominent predisposing factor is prolonged standing as viewed by 84.5% of the sample. Avoidance of lifting of patients and heavy equipment, among others, is the most notable way of avoiding occupational hazards as attested to by 90.5% respondents. Among the factors suggested as being responsible for these hazards include negligence or carelessness on the part of the nurses, prolong standing by the nurses while on duty, failure to observe simple safety

rules, lifting of patients and other heavy equipments, excessive workload and lack of protective devices.

Data shows that cent percent of the respondents respond physical hazards, 96% respond chemical hazards, 94% respond mechanical hazards, 92% respond psychosocial hazards, 82% respond biological hazards and 14% respond spiritual hazards.

Regarding most common type of occupational health hazard, more than half (51%) of the respondents respond physical, other 46.9% respond chemical, 14.3% respond biological, 8.2% respond psychosocial and 4.1% respond mechanical as the type of occupational health hazard. A study done by Bergamini, Cucchi, Stefanati, Cavallaro & Gabutti (2009) in Ferrara, Italy revealed that exposure to biological agents is the most common occupational risk for nursing staff. In Italy, between January 1994 and June 1998, the Italian study on HIV risk occupational reported 19860 occupational exposures to blood or other potentially contaminated biological fluids.

Regarding the types of physical occupational health hazard, more than three-fourth (76%) of the respondents respond heat, other 62% respond each for cold and light, 50% respond dust, 48% respond noise, 46% respond physical assault, 32% respond local action and ultraviolet radiation, 24% respond Ionizing radiation and 22% respond vibration as the types of physical occupational health hazard. Likewise, 48% of the respondents respond 20°- 27° C, 24% of the respondents respond each for 12°- 19° C and 28°- 35° C and 4% of the respondents respond above 35° C as the effective temperature for working environment.

Regarding direct effects of heat exposure, 68% of the respondents respond heat stroke, 64% respond heat exhaustion, 60% respond burns and 26% of the respondents respond for heat cramps.

Regarding acute effects of poor illumination, majority (68%) of the respondents respond headache, 58% respond eye fatigue, 56% respond eye strain, 46% respond eye pain, 34% respond lachrymation and 32% of the respondents respond nervousness as the acute effects of poor illumination.

Regarding chronic effects of poor illumination, 68% of the respondents respond disturb sleep, 56% respond discomfort, 44% respond blurring of vision and 40% of the respondents respond each for annoyance and visual fatigue.

Result shows that more than three-four (77.1%) of the respondents respond ingestion, other 60.4% respond each for local action and droplet contact and 47.9% of the respondents respond inhalation.

Regarding cause of chemical health hazards, 82% of the respondents respond chemotherapy, 79.2% respond anesthetic gases, 64.6% respond devices containing mercury, 52.1% respond hand disinfectants, 50% respond sterilization chemicals, 33.3% respond all drugs used for patients and 27.1% of the respondents respond personal care products.

Regarding chemical effects due to local action, 79.2% of the respondents respond dermatitis, 62.5% respond burn, 58.3% respond each for ulcer and cancer, 37.5% respond eczema and 35.4% of the respondents respond psoriasis.

It is also found that most (85.4%) of the respondents respond crushing, 60.4% respond grinding, 50% respond contaminated hands and 41.7% respond abrading and loading medicine.

Regarding protective measures of chemical health hazards, almost all (93.8%) of the respondents respond gloves, 87.5% respond goggles, 81.3% respond masks, 75% respond each of for cap and crown, 70.8% respond boots and 31.3% respond barrier cream. A consistent finding was identified in a study conducted by Gorases & Vyver (2005) in Onandjokwe Health District, Namibia reveals that most of the nurses (92%) indicated that occupational hazards can be prevented by wearing/using protective measures including gloves, facemasks, aprons, gowns, boots and goggles.

It is also found that more than three-fourth 78.3% of the respondents respond muscular skeletal problem, other 76.1% respond back injuries, 60.9% respond injuries, 54.3% respond shoulder strains, 52.2% respond accidents and 30.4% respond physical assault as the types of mechanical health hazards. Another study conducted by Amosu, Degun, Atulomah, Olanrewju & Aderibigbe (2011) in Okada, Nigeria

also supported in the findings that out of 1200 nurses surveyed, back injury is the commonest hazard, followed by neck and back pain as attested to by 84.8% of the nurses.

Study result shows that majority (66%) of the respondents had moderate knowledge regarding occupational health hazards, 22% had inadequate knowledge and 12% had adequate knowledge.

## **5.2 Conclusion**

Based on the finding of the study, It is concluded that majority of the respondents were not suffered from occupational health hazards. Majority of the respondents respond exposure to physical, chemical, mechanical, biological and psychological agents. Majority of the respondents had not got information regarding occupational health hazards through mass media. Regarding most common type of occupational health hazards, more than half of the respondents respond physical hazards as the type of occupational health hazards. Majority of the respondents answered lack of protective measure as a cause of occupational health hazard. Less than half of the respondents answered safe patient handling is the preventive measure of mechanical health hazards. Most of the respondents respond use of personal protective equipment can prevent occupational health hazards.

Study result shows that majority (66%) of the respondents had moderate knowledge regarding occupational health hazards, 22% had inadequate knowledge and 12% had adequate knowledge.

## **5.3 Limitations**

This study was conducted only in the indoor department of Bharatpur Government Hospital and only 50 nurses were participated therefore, the findings could not be generalized in other setting so it lacks external validity.

#### **5.4 Implications**

According to the findings of this study , there is a lack of adequate knowledge regarding occupational health hazards among nurses. Bharatpur Government Hospital may conduct training and awareness programme regarding occupational health hazards which might be helpful for nurses to promote knowledge and prevent from different occupational health hazards. This study might be helpful to other researcher as baseline information to conduct further research in the related topic.

#### **5.5 Recommendations for Further Study**

Hospital administration can conduct in-service education on occupational health hazards. Not only theoretical curriculum, practical curriculum can also be developed in nursing curriculum about prevention of occupational health hazards. Regular training and supervision programme regarding occupational health hazards can be conducted for the motivation of the nurses.

#### **5.6 Plan for Dissemination**

The report will be disseminated to research committee, library of Nursing Campus Birgunj and Bharatpur Government Hospital.

## REFERENCES

- Amosu, A., Degun, A., Atulomah, N., Olanrewju, M., & Aderibigbe, K., (2011). The Level of Knowledge Regarding Occupational Hazards among Nurses in Abeokuta, Ogun State, Nigeria. *Current Research Journal of Biological Sciences* 3(6): 586-590, 2011: Maxwell Scientific Organization Available at Nepal.[http://phpnepal.org/index.php?listId=255#.Uy2y4ahdX1M\\_](http://phpnepal.org/index.php?listId=255#.Uy2y4ahdX1M_)  
<http://maxwellsci.com/print/crjbs/v3-586-590.pdf>. Retrieved on 2014/4/09.
- Chaudhary, R., B. Karn. (2012). Chemotherapy knowledge and handling practice of nurses working in a Medical University of Kathmandu. *Journal of cancer therapy*, 3(1), 110 Retrieved on 2014/4/06,
- Bergamini, M., Cucchi, A., Stefanati, A., Cavallaro, A., Gabutti, G (2009). Knowledge of preventive measures against occupational risks and spread of healthcare-associated infections among nursing students. An epidemiological prevalence study from Ferrara, Italy. *Journal, Department of Clinical and Experimental Medicine, Section of Hygiene and Occupational Health*. (2009). Jun; 50(2):96-101. Retrieved on 2014/4/05. Available at <http://www.ncbi.nlm.nih.gov/pmed/20099439>.
- Das. (2013). ILO International Safety and Health Conference. Düsseldorf, Retrieved on 2014/4/06, Available at Germany  
[http://www.ilo.org/safework/events/conferences/WCMS\\_223173/langindex.htm](http://www.ilo.org/safework/events/conferences/WCMS_223173/langindex.htm).
- Giuliani, A.R., Panopoulou, K., De Felice, M.P., Fabiani, L. (2004). Knowledge of nursing students about occupational biological risk. *Journal of Internal Medicine*. SanitàPubblicazione. 2004 Jan-Apr; 16(1-2):163-71. Retrieved on 2014/4/05. Available at <http://www.ncbi.nlm.nih.gov/pubmed/15554522>.
- Gorases, L., Vyver, J., (2005). Knowledge and practices among registered nurses on occupational hazards in Onandjokwe health district: Oshikoto region, Namibia. *Journal of medical and health sciences university of Namibia*. Retrieved on 2014/4/05. Available on <http://www.wisis.unam.na/theses/tuvadimbwa2005.pdf>.

- Gourni, P., Polikandrioti, M., Vasilopoulos, G., Mpaltzi, E., Maritsa, G. (2012). Occupational Exposure to blood and body fluids of nurses at Emergency department . Nursing Department, Technological Educational Institute of Athens . Volume 6, Issue 1 (January – March 2012). Retrieved on 2014/4/06. Available at <http://www.hsj.gr/volume6/issue1/616.pdf>.
- Gurubacharya, K.C., &Karki . (2003). Knowledge, attitude and practices among health care workers on needle-stick injuries. *Kathmandu University Medical Journal(KUMJ)*Apr-Jun;1(2):91-Available at <http://www.ncbi.nlm.nih.gov/pubmed/1638820> Retrieved on 2014/4/05.
- Juibari, L., Sanagu, A., Farrokhi, N., (2010). The relationship between knowledge of ergonomic science and the occupational health among nursing staff affiliated to Golestan University of Medical Sciences. *Iranian Journal of Nursing and Midwifery Research*. 15(4); 185-189.Available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3093186/>Retrieved on 2014/4/05.
- Keat, C., Sooaid, N., Yung, C., Sriraman, M. (2013). Improving Safety-Related Knowledge, Attitude and Practices of Nurses Handling Cytotoxic Anticancer Drug: Pharmacists Experience in a General Hospital, Malaysia. *Journal ofImproving Safety*, 14 (1), 69-73 Related Practices of Nurses Handling Cytotoxic Anticancer Drugs. Retrieved on 2014/4/05. Available at [http://www.apocpcontrol.org/paper\\_file/issue\\_abs/Volume14\\_No1/69-73%2010.24%20Huan%20Keat%20Chan.pdf](http://www.apocpcontrol.org/paper_file/issue_abs/Volume14_No1/69-73%2010.24%20Huan%20Keat%20Chan.pdf).
- Orji, Fasubaa, Onwudiegwu, Dare &Oqunnivi (2002). Occupational health hazards among health care workers in an obstetrics and gynaecology unit of a Nigerian teaching hospital. Department of Obstetrics and Gynaecology, Teaching zHospitals Complex, ObafemiAwolowo University, PMB 5538, Ile-Ife, Osun State, Nigeria. Available at <http://www.ncbi.nlm.nih.gov/pubmed/12521735>.Retrieved on 2014/4/06.
- Park, K. (2011). Textbook of preventive and social medicine. (ed 21<sup>st</sup> ).published by BanarsidasBhanot Publishers.
- Polit, D.F., &Beck, C.T. (2006). *Nursing research and principles and methods*. (ed 7th). New Delhi; Wolter Kluwer Health.



- Shimizu, H., Couto, D., Hamann, E., Branco, A. (2010). Occupational health hazards in ICU nursing staff. *Journal, nursing research and practice*. Volume 2010 (2010), Article ID 849169, 6 pages. Retrieved on 2014/4/07. Available at <http://www.hindawi.com/journals/nrp/2010/849169/>.
- Shimizu, H., Couto, D., Hamann, E., Branco, A. (2010). Occupational Health Hazards in ICU Nursing Staff. *Journals, nursing research and practice*. Volume (2010), Article ID 849169. Retrieved on 2014/4/07 Available at hindawipublishing corporation. <http://www.hindawi.com/journals/nrp/2010/849169/>.
- Tuvadimbwa, J. (2005). Knowledge and practices among registered nurses on occupational hazards in onandjokwe health district: Oshikoto region, Namibia. The faculty of medical and health sciences university of namibia. (2005). Retrieved on 2014/4/07. Available at <http://www.isis.unam.na/theses/tuvadimbwa2005.pdf>.
- Xelegati, R., Robazzi, M., Mariale, M., Has, V., (2006). Chemical occupational risks identified by nurses in a hospital environment. vol. 14 no. 2 Ribeirão Preto Mar. /Apr. 2006. Retrieved on 2014/4/07. Available at [http://www.scielo.br/scielo.php?pid=s0104-11692006000200010&script=sci\\_arttext](http://www.scielo.br/scielo.php?pid=s0104-11692006000200010&script=sci_arttext).
- Zakerian, S., Monazzam, M., Dehghan, S., Mohraz, M., Safari, H., (2013). Relationship Between Knowledge of Ergonomics and Workplace Conditions with Musculoskeletal Disorders among Nurses: A Questionnaire Survey. Retrieved on 2014/4/06. *World Applied Sciences Journal* 24 (2): 227-233, 2013(1818-4952); Available at [www.idosi.org/wasj/waswj24\(2\)13/14.Pdf](http://www.idosi.org/wasj/waswj24(2)13/14.Pdf).

# ***APPENDICES***

**APPENDIX A**  
**KEY SCORING**

**Knowledge on Occupational health hazards**

Each response was score with 1 for correct answers and 0 for incorrect answers/s. Thus the total score of knowledge was calculated. The knowledge was classified into 3 levels. i.e. adequate level, moderate level, inadequate level. The respondents score on knowledge was calculated and categorized according to the percentage. The respondents score 80 or >80% (99 or >99) was categorized as adequate level, those with score 50-79% (62-98) was categorized as moderate knowledge level and those with score <50%(<62) was categorized as inadequate knowledge level.

**APPENDIX B**  
**TRIBHUVAN UNIVERSITY**  
**INSTITUTE OF MEDICINE**  
**NURSING CAMPUS BIRGUNJ**  
**2071**

**CONSENT FORM**

**Study Title:** Knowledge Regarding Occupational Health Hazards Among Nurses

Investigator: Nita Sharma

Respected Respondent,

Namaste, I am Bachelor of Nursing student of Nursing Campus Birgunj ,TUIOM. This study is being conducted as the partial fulfillment of Bachelor of Nursing programme. The purpose of the study is to find out the Knowledge Regarding Occupational Health Hazards at Bharatpur Government Hospital .Its procedure have been approved by the research committee of Nursing Campus of Birgunj. The study procedure involves the purposive selection of nurses and non-probability sampling method will be used. The question will be distributed and after that will be collected after completion. If you agree to participate in my research study, I would like to ask you to participate as a subject in my research. I will provide you questionnaire. Your identity will not be disclosed while study is being conducted or when the study is reported or published.

It will be confidential and your name won't be linked with any of your answer you give your participation in the study in entirely voluntary. This is not directly beneficial to you but it will help to find out the Knowledge Regarding Occupational Health Hazards Among Nurses.

Date-

Name of respondent-

Signature-

**APPENDIX C**  
**TRIBHUVAN UNIVERSITY**  
**INSTITUTE OF MEDICINE**  
**NURSING CAMPUS**  
**BIRGUNG, PARSA**  
**2071**  
**ENGLISH VERSION**

**SELF- ADMINISTERED STRUCTURED QUESTIONNAIRE**

**Research Title:**"Knowledge Regarding Occupational Health Hazards Among Nurses In a Government Hospital, Chitwan"

Researcher is a student of Post Basic Bachelor in Nursing second year of Nursing Campus Birgunj ,Parsa. This study is being conducted as the partial fulfillment of requirement for Bachelor Degree in Nursing. The purpose of this study is to find out the nurse's knowledge regarding occupational health hazards at Bharatpur Government Hospital. Researcher will appreciate your help in answering the questions and would like to assure you that your response will be kept confidential and only used for the purpose of the study and your identity will not be disclosed.

**Direction:** Questionnaire consists of two parts; Part I related to Demographic Information and Part II is related to Knowledge Regarding Occupational Health Hazards.

Please give the correct information as much as you know. Options of the questions are given.

Please read the questions and Tick (√) the right answer.

**code no.**

**Date of Data Collection\_**

**PART- I**

**Bio-Demographic Information**

1. Age

.....

2. Sex

a. Male

b. Female

3) Professional qualification

a. PCL Nursing

b. BN/PBBN

c. BSC Nursing

4) What is your year of work experience as a nurse?

.....

5) In which area, you have worked in past? (**Multiple response**)

a. Medical ward

b. Surgical ward

c. ICU

d. Operation Theater

e. Ortho ward

f. Pediatric Ward

g. Emergency Ward

h. Maternity Ward

i. Others (specify) .....

6) In which area, you have worked in present?

a. Medical ward

b. Surgical ward

c. ICU

d. Operation Theater

e. Ortho ward

f. Pediatric Ward

- g. Emergency Ward
- h. Maternity Ward
- i. Others (specify) .....

7) Do you have mass media exposure regarding occupational health hazards?

**(Multiple response)**

- a. Yes
- b. No

If yes, what type of mass media you are being exposed ?

- a. Curriculum
- b. Newspaper, journal, magazine
- c. Hospital manual
- d. Poster, pamphlet
- e. Books
- f. Television
- g. Others (specify).....

8) Have you suffer from occupational health hazards?

- a. Yes
- b. No

If yes, what type of occupational health hazards you are being suffered ?

- a. Physical hazards
- b. Chemical hazards
- c. Biological hazards
- d. Mechanical hazards
- e. Psychosocial hazards
- f. Others (specify ).....

9) Have you ever received any in-service education on occupational health hazards?

- a. Yes
- b. No

## PART II

### Knowledge Regarding Occupational Health Hazards

- 10) What do you mean by occupational health hazards?
- a. Exposure to physical and chemical agents
  - b. Exposure to physical, chemical and mechanical agents
  - c. Exposure to physical, chemical, mechanical and biological agents
  - d. Exposure to physical, chemical, mechanical, biological and psychosocial agents
- 11) What are the causes of occupational health hazards? (**Multiple response**)
- a. Lack of protective measure
  - b. Lack of knowledge
  - c. Water
  - d. Negligence
  - e. Increased workload
  - f. Patient With Chronic disease
  - g. Manual material handling
  - h. Housing
- 12) What are the types of occupational health hazards?(**Multiple response**)
- a. Physical hazards ( Do Q.N. 14,15,16,17,18 )
  - b. Chemical hazards ( Do Q.N. 19, 20,21,22,23,24,25,26 )
  - c. Biological hazards ( Do Q.N.27,28,29,30 )
  - d. Spiritual hazards
  - e. Mechanical hazards ( Do Q.N. 31,32,33)
  - f. Psychosocial hazards ( Do Q.N. 34,35 )
- 13) What is the most common type of occupational hazards that is risk for nurses?
- a. Physical
  - b. Chemical
  - c. Biological
  - d. Mechanical
  - e. Psychosocial



14) What are the physical occupational health hazards? (**Multiple response**)

- a. Heat
- b. Cold
- c. Light
- d. Physical assault
- e. Local action
- f. Noise
- g. Dusts
- h. Vibration
- i. Ultraviolet Radiation
- j. Ionizing Radiation

15) What is the effective temperature for working environment?

- a. 12°c to 19°c
- b. 20°c to 27°c
- c. 28°c to 35°c
- d. Above 35°c

16) What are the direct effects of heat exposure? (**Multiple response**)

- a. Burns
- b. Heat exhaustion
- c. Heat stroke
- d. Heat cramps

17) What are the acute effects of poor illumination? (**Multiple response**)

- a. Eye strain
- b. Nervousness
- c. Headache
- d. Eye Fatigue
- e. Eye pain
- f. Lachrymation

18) What are the chronic effects of poor illumination? (**Multiple response**)

- a. Disturb sleep
- b. Discomfort
- c. Annoyance
- d. Visual fatigue

- e. Blurring of vision
- 19) How chemicals health hazards occurs? (**Multiple response**)
- a. Ingestion
- b. Local action
- c. Droplet contact
- d. Inhalation
- 20) What are the causes of chemicals health hazards? (**Multiple response**)
- a. Chemotherapy
- b. Hand disinfectantants
- c. Devices containing mercury
- d. Personal care products
- e. Anesthetic gases
- f. All drugs used for patient
- g. Sterilization chemicals
- 21) What are the chemicals effects due to local action? (**Multiple response**)
- a. Psoriasis
- b. Dermatitis
- c. Burn
- d. Ulcer
- e. Cancer
- f. Eczema
- 22) Dusts regarding inhalation are released in the environment through the following? (**Multiple response**)
- a. Crushing
- b. Grinding
- c. Abrading
- d. Contaminated hands
- e. Loading medicine
- 23) What are the gases that causes occupational health hazards? (**Multiple response**)
- a. Chloroform
- b. Ether
- c. Trichloroethylene

d. Hydrogen

e. Nitrous oxide

f. Nitrogen

24) What are the protective measures of chemicals health hazards? (**Multiple response**)

a. Gloves

b. Masks

c. Goggles

d. Boots

e. Cap

f. Gown

g. Barrier Cream

25) Which is the most common metal hazards?

a. Mercury

b. Phosphorus

c. Chromium

d. Zinc

26) Regarding ingestion, how chemicals substance (mercury) is hazards to nurses? (**Multiple response**)

a. Contaminated hands

b. Contaminated food

c. Smoking

d. Utensils

27) What are the biological occupational health hazards? (**Multiple response**)

a. Tetanus

b. Encephalitis

c. Poor human relationship

d. Fungal infections

e. Anthrax

f. Hepatitis

g. Allergic disease

h. Tuberculosis

- 28) What are the biological sources which affect health of nurses?
- a. Medical waste
  - b. Microorganism
  - c. Toxins
  - d. All of above
- 29) What are the methods of communicable disease control ? **(Multiple response)**
- a. Immunization programme
  - b. Prevention of infection
  - c. Notification of communicable disease
  - d. Isolation of patient
- 30) What are the methods of prevention of infection ? **(Multiple response)**
- a. Hand hygiene
  - b. Use of personal protective equipment
  - c. Handle and dispose of sharps safely
  - d. Dispose of contaminated waste safely
  - e. Maintain a clean clinical environment
  - f. Manage linen safely
- 31) What are the mechanical health hazards ? **(Multiple response)**
- a. Injuries
  - b. Accidents
  - c. Physical assault
  - d. Muscular skeletal problem
  - e. Back injuries
  - f. Shoulder strains
- 32) What are the primary causes of musculoskeletal disorders? **(Multiple responses)**
- a. Lifting
  - b. Transferring
  - c. Soft tissue disorders
  - d. Repositioning

33) What are the preventive measures of mechanical health hazards ? (**Multiple response**)

- a. Safe patient handling
- b. Keep surface clean
- c. Avoid prolong standing

34) What are the psychosocial occupational health hazards? (**Multiple response**)

- a. Frustration
- b. Lack of job satisfaction
- c. Insecurity
- d. Poor human relationship
- e. Emotional tension
- f. Anxiety

35) What are the factors that influence the psychosocial health hazards? (**Multiple response**)

- a. Cultural background
- b. Family life
- c. Social habits
- d. Worker expects from employment

36) What are the preventive measures of occupational health hazards? (**Multiple response**)

- a. Nutrition
- b. Communicable disease control
- c. Environmental sanitation
- d. Mental health
- e. Communication skill
- f. In-service education
- g. Protective measures for women and children
- h. Engineering control

37) What are the environmental measures to prevent occupational health hazards? (**Multiple response**)

- a. Water supply
- b. Food

- c. Toilet
- d. Cleanliness
- e. Sufficient space
- f. Lighting
- g. Temperature
- h. Housing

38) What are the special protection require to prevent occupational health hazards for nurses? (**Multiple response**)

- a. Maternity leave
- b. Maintenance of job security
- c. Provisions to encourage breast feeding
- d. Protection from radiation hazards during pregnancy
- e. Provide day time naps for pregnancy woman
- f. Adequate ventilation
- g. Sufficient space
- h. Use of personal protective equipment
- i. Training/ in-service education

**"Thank You"**