

EFFECTIVENESS OF INFORMATION BOOKLET ON KNOWLEDGE AND PRACTICE OF ANM STUDENTS REGARDING CARE OF PATIENT WITH CONTAGIOUS BLOOD BORNE DISEASES

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ABSTRACT:

The rise of AIDS in India has focused attention on blood borne infections. Before then, medications, vaccinations, and better infection control had lowered healthcare workers' risk of blood-borne and other infectious infections. Understanding nursing students' knowledge gaps regarding managing HBV and HIV patients is crucial. Two features will be compared between sophomore and senior nursing students: a) their understanding of blood borne viruses, such as HIV and HBV, and fundamental precautions, and b) their impression of practical safety. The research was based on Orem's Self-Care Deficit Theory. The researcher updated Burtis and Evangelisti (1992)'s questionnaire to gather data. The knowledge subscales of the questionnaire did not vary between sophomores and seniors at a 0.05 significance level. Senior students performed better than sophomores on HIV and HBV subscales related to practical safety. The findings of this research may affect undergraduate nursing course design.

Keywords: Effectiveness, Information Booklet, Knowledge, Practice, ANM Students, Blood Borne Diseases, ANM Training Centre.

INTRODUCTION:

It is essential to acquire information about healthcare-associated diseases (HAIs) in order to prevent the spread of infections within the medical community as well as among patients. In addition, it is essential to adhere to infection control policies in a very stringent manner. Because of their line of work, healthcare workers are routinely exposed to bodily fluids and blood, which puts them at a

significantly increased risk of transmitting infectious diseases such as hepatitis B virus (HBV), hepatitis C virus (HCV), and the human immunodeficiency virus (HIV). The successful treatment of blood-borne infections (BBIs) relies on several factors, one of the most important of which is the commitment of healthcare workers (HCWs) to suggested procedures. Because of this compliance, it is possible to determine the potential

dangers that are linked with occupational exposure to such disorders. Multiple studies have presented evidence that healthcare workers (HCWs) in both developed and developing countries demonstrate varying adherence to proposed safety measures. This phenomenon has been seen in both developed and developing nations. The Centers for Disease Control and Prevention (CDC) in the United States has taken notice of the issue in question. As a result, the CDC has developed protocols for the appropriate storage of potentially infectious materials, such as blood and physiological secretions, in order to reduce occupational exposures (1-3).

According to studies, the use of standard operating procedures has been shown to be beneficial in lowering the risk of occupational exposure incidents and the diseases that are linked with them. A higher risk of contracting blood-borne diseases, such as hepatitis B and C, as well as HIV-induced AIDS (figure a), is posed to healthcare workers (HCW) who are working in environments in which they often come into contact with blood and physiological secretions. These settings include hospitals, clinics, and other medical facilities. Needlestick injuries are a common hazard that workers in the healthcare industry must be prepared to manage as part of their jobs. The protocols that are referred to as standard precautions provide guidance to healthcare workers (HCWs)

regarding the maintenance of proper personal hygiene, the utilization of protective barriers (such as gloves and gowns) during interactions involving a patient's mucous membranes, blood, or other bodily fluids, and the appropriate disposal of sharps, body fluids, and clinical waste (figure b). Standard precautions were developed to reduce the risk of transmitting infectious diseases from one patient to another (4-8).

According to information provided by the World Health Organization, it has been shown that the combined contributions of hepatitis B and C infections among healthcare workers (HCWs) and HIV infections collectively account for between 2.5 and 40 percent of the total disease burden that is related with occupational exposure on a global scale. The major objective of this study was to assess the level of knowledge had by medical and dental students with regard to routine safety measures, post-exposure prophylaxis (PEP), and workplace events involving blood-borne illnesses. In the context of healthcare, the term "percutaneous exposure events" (PEIs) refers to incidents such as needlestick injuries, wounds, and blood droplets that lead to the skin or mucous membranes being exposed. Personal Protective Equipment, sometimes known as PPE, is a significant contributor to the occupational hazards faced by healthcare professionals. It is more likely for nurses to get blood-borne

infections caused by germs, such as hepatitis B and C viruses, if they wear personal protective equipment (PPE) (9, 10).

Even though there are very few cases of HIV and hepatitis seroconversion in work settings, the potential risks and cost ramifications associated to exposure to blood are significant and observable. The expenses include both the initial and continued provision of therapy for healthcare staff who have been affected, as well as the fear and anguish produced by the possible repercussions of an exposure. In addition, the costs include the worry and anguish caused by the potential ramifications of an exposure. In addition, the costs associated with medication toxicity as well as the loss of productivity brought on by lost work hours are taken into consideration. Previous research carried out in India has, for the most part, been focused on looking at the incidence of needle stick injuries (NSI). The focus of recent academic inquiries, on the other hand, has shifted to looking at certain facets that might be connected to the problem at hand. These characteristics include the perspectives that nurses have towards the potential outcomes of needlestick injuries (NSI) as well as the level of knowledge that they possess regarding blood-borne illnesses and universal precautions. The application of these pieces of information is absolutely necessary for the purposes of guiding and evaluating activities that

are carried out at both the local and the federal levels. It is possible to conduct regular polls in order to assess how well the measures that have been put into place are working (11-13).

LITERATURE REVIEW:

After completing a comprehensive review of the current body of literature, it was discovered that the research on healthcare-associated infections (HAIs) focuses almost exclusively on hospital settings, with primary health care (PHC) institutions receiving very little attention. This was one of the findings that emerged from the analysis. Those individuals, however, who are often exposed to blood and physiological secretions in the course of their profession are also at risk of contracting blood-borne diseases; moreover, it is possible that these individuals are unaware of the potential risks to which they are exposed (13). In addition, primary healthcare workers, also known as HCWs, make up a profession that is expanding all over the globe. Because of this, specific regulations must be enacted in order to protect the health of primary healthcare workers. In light of this, the major objectives of this study were to evaluate the knowledge and attitudes of medical professionals about blood borne illnesses (BBIs), as well as to identify any aspects that may be connected with the level of knowledge that medical professionals possess (14).

According to the findings of Kadam (2014), structured education programs had a substantial influence on participants' and caregivers' ability to increase their knowledge of colostomy patient care as well as their attitudes about the topic. An investigation was carried out by Anjum (2014) with the purpose of determining the perspectives held by married women on health education and various methods of contraception. Following participation in health education programs, the degree of awareness of the practice of female sterilization among married women reached one hundred percent. With a recognition score of 99 percent, condoms were the second most well-known form of contraception after birth control pills. The participants were able to correctly identify skin implants 86% of the time, whereas oral tablets and emergency contraception were both recognized by 85% of the respondents (15).

According to the findings of the research, there are substantial relationships between sociodemographic indicators such as age at marriage, age at first child, employment, income, and education, as well as knowledge levels and marital status. Other sociodemographic characteristics include the age at which a person has their first child. According to the results of Babu (2014), it was established that caregivers demonstrated poor awareness with regard to the provision of non-curative

care for patients with terminal cancer. This was the conclusion reached by the researchers. The awareness-raising initiative that was designed to educate caregivers about the need of providing palliative care to cancer patients in the latter stages of their disease was a resounding success. The major purpose of the questionnaire was to get a more in-depth understanding of the activities and experiences of community nurses working in the United Kingdom. Following an evaluation that was carried out in June 2003 by the National Institute of Clinical Excellence (NICE), the organization came to the conclusion that some challenges that were experienced by community nurses had been satisfactorily handled. It may be difficult for community nurses to adhere to the universal precautions guidelines that are now in place for community settings due to the inherent complexity and dynamic nature of the environment in which they work. At a nursing college in Pune, India, which is connected to a tertiary care hospital, a cross-sectional study was conducted to assess the level of knowledge and awareness of the risk of HIV infection caused by accidental needle injuries among nursing students who were in their first, second, and third years of study (16).

The students were asked to fill out a questionnaire about their knowledge and awareness of the risk. According to the results of the study, a sizeable amount of first-year students (89.6%) and a much lower percentage of third-

year students (8.9%) exhibited a lack of understanding of the right method for the disposal of disposable needles and syringes. As a consequence of this, the findings of the study led the researchers to the conclusion that there is an urgent need to correct the prevalent misconceptions by means of early educational interventions and the establishment of legislation providing assistance (17).

RESEARCH METHODOLOGY:

Study design:

The current study used a quasi-experimental pretest-posttest approach with a control group.

Research Approach:

The current study will use a quantitative research technique.

Population:

The population for this research consists of ANM training students from selected ANM training centers in Ganjam.

Sampling Technique:

The use of purposive sampling has been employed in the present investigation.

Sample Size:

The study's sample size consisted of 400 students undergoing ANM training from six ANM training centers. Out of the total of six facilities, one is designated as the Government ANM Training Centre, while the other five centers are classified as private establishments. The following is a list of

six centers that were used as a sample source in the research.

- 1) Disha Institute of Nursing, R.C Church Road, Berhampur, District Ganjam, Odisha
- 2) Lingaraj Institute of Medical, Gopalpur, Berhampur, District Ganjam, Odisha
- 3) Janakalyan Institute of Nursing and Health Science, Purushottampur, District Ganjam, Odisha
- 4) School of Nursing and Health Science by New Hospital Society, Hill Patna, Berhampur, Odisha
- 5) Om Sai School of Nursing Jagannath Vihar, Berhampur, District Ganjam, Odisha
- 6) Government Anm Training Centre, City Hospital, Berhampur, District Ganjam, Odisha

Selection Criteria:

Inclusion Criteria:

The ANM Students who were

- Studying in ANM training centers of Ganjam Districts of Odisha
- Willing to Participate in the study
- Present during the times of data collection.

Exclusion Criteria:

- ANM student those study in outside of Ganjam district
- During data collection period those who are sick condition
- Not willing to participate in the study.
- Absent during the time of data collection.

Statistical Analysis:

Data was collected by personal interview after verbal consent. A database was created in MS Excel. Chi square test was used for comparing proportions and statistical significance was taken as $p < 0.05$.

Ethical Consideration:

The University of Ganjam, which is situated in the state of Odisha, is home to an institution known as the Faculty of Health Science Ethical Review Board. This board granted ethical approval for the endeavor. The regional delegation responsible for public health was successful in obtaining administrative permission. The directors of the institutions that hosted the study provided their verbal consent, and this consent was also documented. In the end, a formal consent was acquired from every participant who was included in the research. This ensured that their participation was entirely voluntary. The respondents' privacy was protected by the use of anonymous questionnaires, which also prevented any personal information from being revealed. In addition to this, only the primary researcher had access to the database that included the study results.

RESULT AND DISCUSSION:**Information Booklet For Preventing Occupational Blood-Borne Infectious Exposure Among Operating Nurses:**

The purpose of this research was to assess the effectiveness of a PRECEDE-PROCEED-based occupational

blood-borne pathogen exposure (OBE) management program in improving nurses' awareness of OBE prevention in the operating room. From February 2023 to July 2023, the program was evaluated using a pre-post design, with the first seven phases of the PRECEDE-PROCEED model being used. It was discovered that stages 1–5 correspond to the PRECEDE stage, and that stages 6–7 correspond to the PROCEED stage. The current research did not evaluate the program's ultimate results, which were visible in stages 8 and 9. These analyses were performed:

Phase 1 of the study included a comprehensive evaluation of the professional and interpersonal attributes of operating room nurses. This assessment was conducted by using data obtained from a survey conducted between the years 2022 and 2023, which focused on the epidemiological features of operating room nurses.

Phase 2 A second phase of the study included conducting an epidemiological evaluation to determine the prevalence of obesity among operating room nurses. Furthermore, a comprehensive evaluation was conducted to examine the environmental impact of the existing equipment used for the prevention of occupational back injuries (OBE), as well as the efficiency of workflow and work hours in the operation room. The evaluation was a collaborative brainstorming session among all members of the research group's personnel.

Phase 3 of the study included the evaluation of the attitudes, knowledge, and preventive behavior of operating room nurses in relation to basic precautions for occupational exposure to blood and other potentially infectious materials.

Phase 4 of the study included the identification and categorization of predisposing, enabling, and reinforcing variables, as well as the development of an educational intervention plan.

Phase 5 of the study included an assessment of the current administrative policy, training methods, and reporting system pertaining to Outcome-Based Education (OBE) prevention.

Phase 6 included the development and implementation of an intervention strategy, along with the execution of intervention measures.

Phase 7 The evaluation of knowledge, attitudes, and adherence to preventative behaviors related to obesity were conducted upon completion of the 6-month program.

ASSESSMENT MEASURES:

There were three different types of evaluations conducted. We employed a socio-demographic questionnaire to learn more about the demographics of the operating room staff as they relate to OBEs. Cronbach's alpha scores for the survey, at 0.810 and 0.732, respectively, have shown strong reliability in previous research. This indicator evaluates socio-demographic factors such gender, age, degree of education,

years of work experience, occupation, presence or absence of hepatitis B surface antibodies, and depth of OBE prevention training. Time, frequency, intensity, location, and origin of OBE exposure are all included into the analysis. An anonymous questionnaire was used to assess respondents' levels of familiarity with, and willingness to use, best practices for reducing the risk of occupational exposure to blood-borne pathogens (OBE). The survey was developed using data from two government reports: "National Occupational Exposure to Blood-borne Pathogens Prevention guide" and "National Occupational Exposure Protection to HIV guide." The Cronbach's alpha for this survey is.726 and it has a content validity rating of.890, so it seems quite reliable.

An informal survey was conducted with a sample of 30 nurses working in the hospital's general surgery sections before the official inquiry got underway. Expert academics examined the questionnaire for its content, comprehensiveness, and timeliness to determine its validity. The three-question survey probed respondents' worldviews, knowledge of Outcome-Based Education (OBE), and willingness to take preventative steps. The nurses' knowledge of Outcome-Based Education (OBE) was tested using a battery of 14 questions. With 1 point granted for a successful answer and 0 points deducted for a wrong one, better scores showed a deeper grasp of Outcome-

Based Education (OBE). The beliefs of people towards Outcome-Based Education (OBE) were measured using a series of 10 questions. Participants' responses on a 5-point Likert scale read as follows: 1-strongly disagree, 2-undecided, 3-somewhat agree, 4-somewhat agree, 5-very agree. Positive attitudes about OBE prevention were associated with better scores. On this test, a perfect score of 50 was considered passing. There were 16 multiple-choice questions used in the assessment of behavior, with each answer being given a rating on a 4-point Likert scale. Possible answers varied from "never" (with a score of 0) to "always" (with a score of 3). values may be anything from 0 to 48, with higher values indicating more protective behavior.

An assessment approach for the sterile environment in an operating room was created in advance and used for the evaluation. The examination looked at the physical and physiological precautions used in the operation room to prevent out-of-body sensations. The Cronbach's alpha for this scale is 0.91, which is worth mentioning. Nine factors were considered when evaluating the operating room setting: nurse burnout from long shifts, office noise, lack of space, lack of protective equipment, lack of standard precautions rules and policies, inadequate handwashing practices, positive nurse-surgeon relationships, positive nurse-nurse relationships, and the establishment of a

preventive and protective culture within the operating room.

Intervention Methods:

In order to encourage positive behavior change, the OBE prevention program followed the PRECEDE model and employed a trifecta of interventions: routine precaution monitoring; increased management policy; and better management policy and protective equipment. The first step was to provide people access to health information that was tailored to their specific set of risk factors. Health education was provided over the course of three sessions spread out over the course of three weeks. Out of a total of 400 people, 50 to 60 people, depending on their availability, attended the seminars and received the training materials each day. Certain themes that emerged throughout the PRECEDE stages were included into the course materials.

The second strategy included enhancing management rules and introducing safeguards to ease the process of adjusting behavior to allow for specific factors. Two months of usage were recorded for the aforementioned ingredient. The intervention's parts were developed to enhance the management system and working processes, change potentially dangerous activities, and provide the required safety equipment. The intervention mainly focused on the following approaches:

1) The creation of an instrument-free zone. A space on the instrument tray was set aside for the safe storage of blades to promote a procedure that does not need human handling. Reducing the number of injuries caused by sharp objects has been proven to be a goal of instituting a policy that limits the simultaneous use of sharp objects by two members of the surgical team, as well as the passing and receiving of surgical instruments.

2) It is crucial to strictly adhere to the following guidelines: classify and dispose of all surgical instruments properly before, during, and after the procedure; make sure the sharps disposal box takes up no more than two-thirds of the overall receptacle; use forceps or a needle holder to keep surgical blades in place and avoid accidents; use an injection needle with safety protection when administering local anesthesia; and strictly adhere to the reprocessing of all used sharps.

3) Reducing the number of sharp tools used, such as needles or instruments, and promoting safety measures for such objects are all part of point number three: the deployment of improved personal protective equipment.

The third method was a routine check of the reinforcements to make sure they were doing their job. This part of the intervention is in keeping with the previous one, and it entails setting up a system for disseminating information and keeping tabs on things,

as well as setting up chat groups on WeChat and QQ, with a focus on defining what constitutes compliance. Risk factors related with exposure, post-exposure activities, and reporting procedures were all reminded of through the information platform in order to raise consciousness of the importance of preventive actions and compliance with established protocols. Videos were posted on the site to show users the proper way to put on and take off protective gear including gloves and goggles, wash their hands with soap and water, and treat an open body exposure (OBE) by disinfecting the affected area. The head nurse of the program coordinated a free hepatitis B vaccine, monitored the nurses on a regular basis, and set up a system to collect information about the nurses' professional exposure to blood and keep track of their health records. In order to ensure that program participants are meeting their obligations, monthly feedback and supervision assessments have been instituted.

Baseline Evaluation:

The maximum attainable score for the OBE knowledge assessment was 9 points. The average baseline score was calculated to be 4.76 with a standard deviation of 1.37. Table (a) presents the top three things with the largest number of accurate replies, as well as the bottom three items with the lowest number of right responses. The maximum attainable score for the OBE attitude was 50 points, whereas the

initial score was recorded as 28.20 ± 4.53 . Table (b) displays the three things that have received the largest number of positive ratings, as well as those that have received the lowest number of good scores. The maximum achievable score for OBE preventative behavior was 48 points, whereas the initial score at baseline was recorded as 30.59 ± 1.23 . The initial findings indicated that 43.68% of nurses held the belief that the transmission of infections only occurred through the exposure to blood and body fluids of patients with infections. Additionally,

63.22% of nurses expressed their dissatisfaction with the inconvenience associated with wearing protective gear such as suits, goggles, and double-use gloves. Furthermore, 64.37% of nurses were of the opinion that the occurrence of injuries from sharp instruments and exposure to blood or body fluid splattering could not be prevented during routine work practices. Table (c) presents the top three things that had the maximum number of accurate replies, as well as the bottom three questions that received the lowest number of correct responses.

FIGURES AND TABLES:

Figures:



Figure (a) Blood-borne diseases Hepatitis B (HBV), Hepatitis C (HCV), and HIV (AIDS).

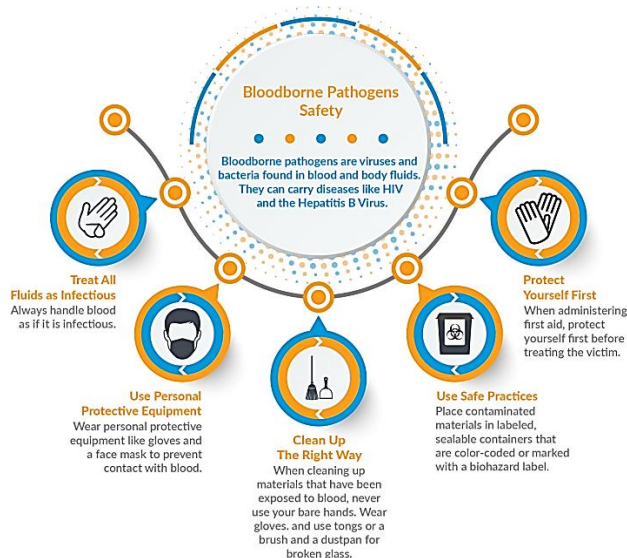


Figure (b) Protective barriers to avoid blood-borne diseases

Tables:

Table (a) OBE prevention knowledge among operating nurses in baseline survey: items with the most correct and incorrect responses (n = 400).

Items	Correct responses(n)	Rate of correct responses (%)
Three items with the highest correct response rate		
It is essential to ensure that all used needles are appropriately disposed of in a secure receptacle subsequent to their detachment from a syringe.	390	97.70
The implementation of standard precautions for the use of disposable gloves in the context of normal patient care.	385	94.25
The protocol for managing waste generated by patients diagnosed with or suspected of having blood-borne illnesses is same to that for individuals harboring non-infectious pathogens.	375	93.10
Three items with the lowest correct response rate		
The present inquiry pertains to the obligatory reporting obligations and established protocols subsequent to an individual's exposure to a certain event or circumstance.	340	60.92
The use of serologic testing and the implementation of emergency protocols after sharps injuries.	195	40.23
Understanding of treatment options after exposure to HIV, hepatitis B, or AIDS pathogens	150	37.93

OBE: occupational blood-borne pathogen exposure.

Table (b) Attitudes toward OBE prevention among operating nurses in baseline survey: items with the highest and lowest positive scores (n = 400).

Items	No. of positive responses (n)	Rate of positive responses (%)
Three items with the highest positive score		
An optimal medical setting, characterized by the provision of appropriate protective equipment and the presence of conveniently accessible sharps containers, has been shown to significantly decrease the incidence of occupational blood exposure (OBE).	385	93.10
The establishment of a robust occupational exposure system for nurses is necessary.	380	91.95
Adhering to established protocols for wound management after to exposure is of utmost importance.	375	89.65
Three items with the lowest positive score		
Blood and bodily fluids possess infectious properties	225	56.32

irrespective of the infection state of the individual.		
The utilization of a protective suit, goggles, and double-use gloves presents several inconveniences.	160	36.78
Injuries caused by sharp instruments and the spattering of blood or bodily fluids may be effectively prevented by the use of normal work practices.	156	35.63

OBE: occupational blood-borne pathogen exposure.

Table (c) Preventive behavior among operating room nurses: items with the highest and lowest number of correct responses (n = 400).

Items	No. of correct responses (n)	Rate of correct responses (%)
Three items with the highest correct score		
It is recommended to dispose of scarp and suture needles in a sharps container after their usage.	400	100
The classification of the management of medical waste and home trash is a crucial aspect of waste management practices.	380	97.70
It is recommended to use gloves and masks as a precautionary measure when coming into contact with people who have been diagnosed with a proven infectious condition.	370	91.95
Three items with the lowest correct score		
The first step involves applying pressure and cleansing the affected region, followed by manually disinfecting the hands using a hydroalcoholic solution. Subsequently, it is necessary to complete the report form following any instance of an Out-of-Body Experience (OBE).	180	42.53
Conduct an assessment to determine the integrity of gloves that have been used after patient treatment.	130	27.59
It is advisable to use gloves while administering intravenous or subcutaneous injections.	120	21.84

OBE: occupational blood-borne pathogen exposure.

CONCLUSION:

When treating patients who have blood-borne infections, members of the healthcare workforce are exposed to the possibility of occupational risks. There is a possibility that they may come into contact with blood-borne illnesses as their training progresses and as they have more extensive interactions with

patients (18, 19). The amount of knowledge that student nurses have of the occupational dangers that are unique to their profession and the preventative steps that may be taken to lessen the effect of these hazards has a direct bearing not only on the student nurses' personal safety but also on the safety of their future patients (20). The

provision of management assistance as well as the availability of occupational safety and health training materials for student nurses play an extremely important part in the process of reducing the negative effects that are caused by widespread workplace risks (21, 22).

REFERENCES:

1. Shinde, M., & Mohite, V. R. (2014). A Study to Assess Knowledge, Attitude and Practices of Five Moments of Hand Hygiene among Nursing Staff and Students at a Tertiary Care Hospital at Karad. *International Journal of Science and Research (IJSR)*, 3(2), 311-321.
2. Evanoff, Bradley MD, Kim, Lynn, Sunita, Mutha et al. Compliance with universal precautions among emergency department personnel caring for trauma patients. *Journal of the American college of emergency physicians*. Mosby -Year book February 1999, Volume 33 (2), 160-165.
3. Digiacomia, Simmons BP, Wong ES. Perspective in Disease prevention and Health promotion up date. *MMWR, Weekly* June 24; 88 /37 (24): 377- 88
4. Chan R, Molassiotis A, Chan E, Chan V, HO B, Lai CY, et al. Nurses knowledge of and compliance with universal precautions in an acute care hospital. *International Journal of Nursing Students* 2002 Feb; 39 (2): 157-63.
5. Roup BJ. Factors associated with compliance of critical care nurses with universal precautions: a pilot study. *American Journal of Critical Care* 1997 May; 6 (3): 218 -24.
6. Barroso MG, Costa AW, Coarse MR, Pinherio PN. Education and prevention of occupational risk: a study with nursing students. *Rev Bras Enfem* 1996 Jan- March; 49(1) :121-34.
7. Gillian M, Mc Carthy, Janathan E. A survey of final year dental, Medical and Nursing students; Occupational injuries and infection control. *Journal of Canadian dental association* 2000; 66- 561.
8. SHINDE, M., & ANJUM, S. (2007). *Introduction to Research in Nursing*. Sneha Publication India(Dombivili).
9. Shinde, M., & Anjum, S. (2007). *Educational Methods and Media for Teaching in Practice of Nursing*. Sneha Publication India (Dombivili).
10. Sadoh WE, Fawole AO, Sadoh AE, oladimeji AO, Sotiloye OS. Practices of universal precautions among health care workers. *Journal of National Medical Association* 2006 May; 98(5): 722-6.
11. Michelle K, Damien J, Mathew S, Wendy H, Sandy M. Compliance with Universal /Standard Precautions among health care workers in rural north India. *American Journal of Infection control* Feb. 2005; Vol. 33(1): 27-33.
12. Kahhalesh JG, Jurjus AR. Adherence to universal precautions among

- Laboratory personnel in Lebanon. East Mediator Health Journal 2005 Sep – Nov ;11(5-6) :929-42.
13. Kadam, A., &Shinde, M. B. (2014). Effectiveness of Structured Education on Caregiver's Knowledge and Attitude Regarding Colostomy Care. International Journal of Science and Research (IJSR), 3(4), 586- 593. www.ijsr.net
14. Anjum, S., Durgawale, P. M., &Shinde, M. (2014). Epidemiological Correlates of Use of Contraceptives Methods and Appraisal of Health Education on Status of Knowledge and Practices among Married Woman. International Journal of Science and Research (IJSR), 3(2), 203-210. www.ijsr.net
15. Anjum, S., Durgawale, P. M., &Shinde, M. (2014). Knowledge of Contraceptives Methods and Appraisal of Health Education among Married Woman. International Journal of Science and Research (IJSR), 3(3), 584-590. www.ijsr.net
16. Babu, R. L., Mali, N., &Shinde, M. (2014). Effectiveness of Planned Teaching Programme on Knowledge Regarding Non-Curative Care of Terminally ILL Cancer Patients among Care Takers. International Journal of Science and Research (IJSR), 3(4), 198-205. www.ijsr.net
17. Keller S, Daley K, Hyde J, Greif RS. Hepatitis C prevention nurses. Nursing Health Science 2005 June; 7(2) :99-106
18. Reis C, Heisler M, Amowilz LL, Discriminatory attitudes and practices by health workers towards patient with HIV/AIDS in Nigeria. Physicians for Human Rights 2005 Aug; 2(8) :246.
19. Biski B, Wysocki J. The level of knowledge of post-exposure prophylaxis of blood borne infections at the workplace observed in nurses. Journal of Medical Practices 2005; 56(5): 375-8
20. Lymer UB, Richt B, Isaksson B. Blood exposure: Factors promoting health care worker's compliance with guidelines in connection with risk. Journal of Clinical Nursing July 2004; 13: 547.
21. Lohrmann C, Valimaki M, Suominen T, Muinonen U, Dassen T. German nursing student's knowledge of and attitudes to HIV and AIDS two decades after the first AIDS cases. Journal of Adv. Nursing 2000 May ;31(3) :696 –703.
22. Uwakwe CB. Systematized HIV /AIDS education for student nurses at the university of Ibadan, Nigeria: Impact on knowledge attitudes and compliance with universal precautions. Journal of Advanced Nursing 2000 Aug; 32 (2): 416-24.