

## Occupational Risks Faced By General Nursing And Dental Assistants: Systematic Review

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### Abstract

*This systematic review examines the occupational risks faced by general nursing and dental assistants in healthcare settings. These healthcare workers are exposed to a variety of potential hazards, including infectious diseases, chemical exposure, radiation, ergonomic strains, and psychosocial stressors. Additionally, they may encounter needlestick injuries, violence, and other safety hazards in their daily tasks. The review aims to analyze the existing literature on these risks and their potential impact on the health and well-being of general nursing and dental assistants. By identifying and evaluating these<sup>1</sup> risks, the review seeks to underscore the need for improved safety protocols, training, and support systems to enhance the occupational health and safety of these essential healthcare workers. Insights gained from this review can guide healthcare organizations in implementing effective preventive measures and strategies to create safer and healthier work environments for general nursing and dental assistants.*

**Key words:** Occupational risks, General nursing, Dental assistants, Infectious diseases, Chemical exposure

### Introduction

Occupational risks are inherent in various professions, including those in healthcare settings, where general nursing and dental assistants play pivotal roles in patient care. Their work often exposes them to a range of potential risks, including exposure to infectious diseases, chemical substances, radiation, ergonomic strains, and psychological stress. These risks can significantly impact the health and well-being of these professionals, potentially leading to injuries, illnesses, or burnout.

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Given their roles in delivering healthcare services to patients on the front lines in hospitals, clinics, and dental practices, general nursing and dental assistants face additional risks such as needlestick injuries, violence, and other safety hazards. Professional practice and dental training have many risk factors, and the dental team should be able to recognize these factors to protect themselves [1]. It is crucial to understand these risks comprehensively to implement effective measures for their protection.

This systematic review seeks to provide an in-depth analysis of the existing literature on the occupational risks faced by general nursing and dental assistants. By identifying and evaluating these risks, the review aims to highlight the need for improved safety protocols, training, and support systems to enhance the occupational health and safety of these essential healthcare workers. By gaining valuable insights into preventive measures and safety strategies, healthcare organizations can improve the work environment for general nursing and dental assistants.

### **Types of Occupational Risks Faced by general nursing and dental assistants:**

General nursing and dental assistants are integral to the healthcare system, providing vital support to nurses, dentists, and other healthcare professionals. However, their work environments often expose them to various occupational risks, which can affect their health and well-being. Dental workers are prone to occupational health-related problems occupational health problems, with dental risks being of sharps Injuries, a physical, biological, chemical, and psycho-social nature These types of occupational risks commonly faced by general nursing and dental assistants are [2]:

#### **1. Biological Risks:**

General nursing and dental assistants are at a heightened risk of exposure to infectious diseases, particularly bloodborne pathogens and respiratory pathogens. The nature of their work, which often involves direct patient care, places them in regular contact with bodily fluids, excretions, and exhalations, creating potential routes for transmission. These risks are:

- **Infectious Diseases:** Exposure to bloodborne pathogens such as HIV, hepatitis B and C, and other communicable diseases through direct patient care or handling of contaminated materials [3].
- **Respiratory Pathogens:** Airborne infections such as tuberculosis or COVID-19 can be contracted when working in close proximity to patients.

#### **2. Chemical Risks:**

Nursing and dental assistants are frequently exposed to various chemical risks during their work. These risks stem primarily from handling medications and working with disinfectants and sterilizing agents. Understanding these risks and implementing safety measures can help protect healthcare workers from adverse health effects [4]. These risks vary to include [5]:

##### **1. Handling the medication:**

- **Dangerous Medications:** General nursing and dental assistants may handle risks medications or chemicals during preparation and administration. These medications can include cytotoxic agents used in chemotherapy, which may pose risks of skin absorption, inhalation, or accidental ingestion.
- **Risk Mitigation:** Protocols for safe handling of hazardous medications include the use of appropriate personal protective equipment, such as

gloves, gowns, and eye protection. Engineering controls such as biological safety cabinets (BSCs) and closed system drug transfer devices (CSTDs) can reduce the risk of exposure. Proper training in drug preparation, administration, and disposal is essential to minimize potential harm.

## **2. Disinfectants and sterilizing agents:**

- **Cleaning Chemicals:** Nursing and dental assistants often use disinfectants and sterilizing agents to clean medical and dental equipment and surfaces. These chemicals, such as bleach, hydrogen peroxide, or glutaraldehyde, can pose risks through inhalation of fumes or contact with skin.
- **Risk Mitigation:** Adequate ventilation in work areas is critical to limit inhalation of potentially harmful fumes. The use of appropriate personal protective equipment such as gloves, goggles, and masks can prevent skin and eye contact with chemicals. Proper storage and dilution of these agents in accordance with the manufacturer's instructions and workplace policies helps ensure safe use.
- **Safe Practices:** Establishing standardized protocols for the use, handling, and disposal of disinfectants and sterilizing agents is critical to reducing risks. Regular training on these protocols is also essential to keep workers up to date on safety practices [4].

## **3. Preventative measurements:**

- **Training and Education:** Regular chemical safety training, including how to read Safety Data Sheets (SDSs) and properly use PPE, is essential to reduce the risks associated with chemical risks.
- **Monitoring and monitoring:** Regular monitoring of workplace conditions, such as air quality and chemical concentrations, can help identify and mitigate potential risks.
- **Emergency Preparedness:** Having emergency eyewash stations, showers, and first aid supplies can help with immediate response in the event of chemical exposure.
- **By prioritizing chemical safety and implementing appropriate safety measures,** healthcare facilities can protect general nursing and dental assistants from the risks associated with handling hazardous medications, disinfectants, and sterilizing agents. Employers must provide the necessary training, equipment, and support to ensure a safe and healthy work environment for essential health care workers [5].

## **3. Physical Risks:**

General nursing and dental assistants often perform tasks that involve repetitive movements, heavy lifting, and working in awkward postures. These activities can lead to musculoskeletal disorders (MSDs) such as back pain, carpal tunnel syndrome, and repetitive strain injuries. By prioritizing ergonomics and radiation safety, healthcare facilities can help protect general nursing and dental assistants from the risks associated with their work and enhance their overall health and well-being [6].

## **4. Psychosocial Risks:**

Psychosocial risks pose significant threats to general nursing and dental assistants, impacting their mental and emotional well-being. Workplace stress can arise from

high-pressure situations, such as managing critical patient care or handling emotional distress in patients, leading to anxiety and burnout [7]. The demanding nature of the work, including emotional labor and exposure to traumatic events, can further exacerbate these feelings. Additionally, shift work, including irregular hours, night shifts, and long working hours, can disrupt sleep patterns and increase fatigue, making it challenging for assistants to maintain work-life balance. Addressing these psychosocial risks through support systems, counseling services, and schedule flexibility is essential for the health and retention of these healthcare workers.

#### **5. Sharps Injuries:**

Needlestick injuries pose a significant risk to general nursing and dental assistants, as they frequently handle needles, syringes, and other sharp instruments during their work. These injuries can lead to puncture wounds that may expose workers to bloodborne pathogens such as HIV, hepatitis B, and hepatitis C. The risk is particularly high during procedures involving injections, blood draws, or handling sharps waste. To mitigate the risk of needlestick injuries, healthcare workers should be trained in safe handling and disposal techniques, including using safety-engineered devices such as retractable syringes or needle guards. Adhering to strict protocols for sharps disposal and using appropriate personal protective equipment (PPE) can further reduce the likelihood of injuries. Prompt reporting and appropriate follow-up care, including post-exposure prophylaxis if needed, are crucial in managing needlestick injuries and protecting the health of general nursing and dental assistants [8].

#### **6. Violence and Aggression:**

Violence and aggression in healthcare settings can pose serious risks to general nursing and dental assistants, impacting both their physical and mental well-being. These professionals may face verbal abuse, threats, or physical violence from patients, visitors, or even colleagues. Such incidents can result from a variety of factors, including patients' medical conditions, mental health issues, or frustration with healthcare services [9]. Workplace violence can lead to physical injury, emotional distress, anxiety, and burnout among healthcare workers. To address these risks, healthcare organizations should implement policies and training programs focused on violence prevention and de-escalation techniques. Providing support systems such as counseling services for affected staff and ensuring a secure work environment with adequate security measures can help protect general nursing and dental assistants from violence and aggression [10].

#### **7. Allergies and Sensitivities:**

General nursing and dental assistants can face allergies and sensitivities due to their exposure to various materials used in healthcare settings. One common concern is latex allergies, which can develop from prolonged use of latex gloves and other latex-containing products. Symptoms can range from mild skin irritation to severe reactions such as anaphylaxis. Alternatives to latex gloves, such as nitrile or vinyl gloves, should be made available to those with sensitivities. Additionally, exposure to certain dental or medical materials, including chemicals used in dental procedures or medical treatments, may cause skin irritation or allergic reactions in some individuals. Proper training on the risks of chemical exposure and the use of personal protective equipment (PPE) can help mitigate these reactions. Employers should support employees by providing non-allergenic alternatives and accommodating workers' needs to avoid allergic reactions and sensitivities in the workplace.

A comprehensive approach to recognizing and mitigating occupational risks is essential for improving the health and safety of general nursing and dental assistants. By providing regular safety training on topics such as infection control, chemical handling, and proper use of personal protective equipment (PPE), assistants gain the knowledge and skills needed to handle potential risks effectively. Ensuring access to appropriate PPE, including gloves, gowns, masks, and eye protection, minimizes exposure to infectious diseases and other risks. Ergonomic workplace adjustments, such as adjustable workstations and proper lighting, help prevent musculoskeletal disorders and injuries [11]. Supportive workplace policies, including risk reporting procedures, violence management, and mental health initiatives, contribute to a safer, more positive environment. By prioritizing these strategies, healthcare organizations enhance job satisfaction, reduce turnover, and improve patient care quality while safeguarding the well-being of their staff [12].

### **Health Risks Associated with Occupational Risks:**

General nursing and dental assistants face a variety of occupational risks in their work environments, which can lead to several health issues. Recognizing these risks and implementing safety measures are crucial for protecting their health and well-being [11].

Exposure to bloodborne and airborne pathogens can lead to infections such as hepatitis, HIV, tuberculosis, and COVID-19. These infections can have serious and long-term health implications for nursing and dental assistants, affecting their quality of life and ability to work safely. Furthermore, the negative implications of such widespread violence in healthcare sectors have a significant impact on the delivery of health care services, including a decline in the quality of care delivered, increased absenteeism, and health workers' decision to leave the field [13].

Handling hazardous drugs, chemicals, and disinfectants can result in skin irritation, allergic reactions, and respiratory problems. Chronic exposure to some chemicals may increase the risk of certain cancers or other health issues, emphasizing the need for appropriate protective measures and safety training [14]. Ergonomic strains from repetitive movements, heavy lifting, and poor posture can lead to musculoskeletal disorders (MSDs) such as back pain, carpal tunnel syndrome, and tendonitis. These conditions can be debilitating and may require medical intervention or time away from work.

Dental assistants exposed to radiation during imaging procedures face an increased risk of long-term health issues such as cancer. Even low levels of radiation exposure can accumulate over time, making it important to adhere to safety protocols and wear appropriate protective gear.

High-pressure situations, emotional labor, and demanding work environments can lead to psychosocial stress, anxiety, and burnout. These issues can impact the mental health and overall well-being of nursing and dental assistants, affecting their job satisfaction and performance.

Needlestick injuries pose a risk of puncture wounds from needles or sharp instruments that may be contaminated with bloodborne pathogens. These injuries can lead to infections and other health complications, necessitating strict adherence to safety protocols and proper handling techniques. Exposure to violence or aggression in the workplace can lead to physical injury, emotional trauma, and a heightened sense of fear and insecurity among healthcare workers. Supportive policies and security measures can help manage these risks and ensure a safer work environment [13].

Prolonged use of latex gloves can cause latex allergies, while exposure to certain chemicals may result in skin irritation or other allergic reactions. Providing alternatives and proper

training can mitigate these health risks. By addressing these health risks through safety training, appropriate protective equipment, ergonomic workplace adjustments, and supportive workplace policies, healthcare organizations can create a safer and healthier work environment for general nursing and dental assistants. This, in turn, enhances job satisfaction, reduces turnover, and improves patient care [14].

### **Preventive Measures for Occupational Risks:**

Preventive measures are essential for managing occupational risks and protecting the health and safety of general nursing and dental assistants. Implementing comprehensive strategies can help minimize the likelihood of injuries and illnesses in the workplace. Providing regular and ongoing safety training equips nursing and dental assistants with the knowledge and skills needed to recognize and respond to potential hazards. Training should cover a wide range of topics, including infection control, safe handling of chemicals and medications, proper use of personal protective equipment (PPE), ergonomic practices, and violence prevention and de-escalation techniques. Ensuring that healthcare workers have access to and are trained in the proper use of PPE, such as gloves, gowns, masks, and eye protection, helps protect them from exposure to infectious diseases, chemicals, and other hazards. Employers should also provide alternatives for those with allergies, such as latex-free gloves [15].

Implementing ergonomic changes in the workplace, such as adjustable chairs, workstations, and equipment, can help prevent musculoskeletal disorders. Ergonomic assessments tailored to the specific needs of nursing and dental assistants can identify areas for improvement and enhance worker comfort and safety. Supportive policies can create a safer and more positive work environment. Establishing clear procedures for reporting and addressing workplace hazards, managing violence and aggression, and promoting mental health and well-being can enhance the overall safety and satisfaction of healthcare workers [16].

Conducting regular assessments of workplace conditions, such as air quality and noise levels, can help identify and address potential hazards. Monitoring exposure to chemicals, radiation, and other risks can ensure that workers stay within safe limits. Health and Wellness Support: Offering access to counseling services, stress management programs, and wellness initiatives can help healthcare workers manage psychosocial stressors and maintain their overall well-being [17]. Establishing clear protocols for handling emergencies, such as chemical spills or needlestick injuries, and providing emergency equipment like eyewash stations and first aid kits, can minimize harm and ensure prompt response [18].

By prioritizing these preventive measures, healthcare organizations can create a safer and healthier work environment for general nursing and dental assistants. This proactive approach not only enhances job satisfaction and retention but also improves the quality of patient care.

### **Strategies for Promoting the Well-being of general nursing and dental assistants:**

Promoting the well-being of general nursing and dental assistants requires a multifaceted approach that addresses their physical, mental, and emotional health. Ensuring workplace safety through regular training on infection control, chemical handling, and ergonomic practices helps protect workers from occupational hazards. Maintaining appropriate staffing levels and managing workloads can prevent burnout and reduce stress. Offering flexible scheduling options supports work-life balance and can alleviate fatigue. Providing access to mental health resources, such as counseling services and stress management workshops, supports emotional well-being. Recognizing and appreciating workers' hard work boosts morale and job satisfaction [19].

One effective approach to promoting the well-being of healthcare workers is to provide opportunities for self-care. This includes offering wellness programs such as yoga, meditation, and nutrition counseling to help employees manage stress and enhance their physical health. Organizations can also encourage regular breaks, mindfulness practices, and participation in enjoyable activities outside of work. By supporting self-care, healthcare workers can rejuvenate and recharge, leading to greater job satisfaction and improved performance [20].

Career development opportunities, such as training and certification programs, empower nursing and dental assistants and enhance their job fulfillment. Employee assistance programs (EAPs) offer support for personal and professional challenges, further promoting overall well-being. Creating a healthy work environment with open communication, inclusivity, and teamwork fosters a positive workplace culture. Encouraging preventive health measures, such as vaccinations and screenings, and offering wellness programs focused on fitness and nutrition can improve the overall health and vitality of nursing and dental assistants [21]. By prioritizing these strategies, healthcare organizations can create an environment that supports the well-being of their workers, leading to better patient care, higher job satisfaction, and lower turnover rates.

### Conclusion

General nursing and dental assistants face a diverse range of occupational risks in their work environments, from biological and chemical hazards to ergonomic strains, psychosocial stressors, and more. These risks can have significant implications for their physical, mental, and emotional health. However, a systematic review of these risks underscores the importance of proactive measures to recognize, mitigate, and manage potential hazards. By prioritizing safety training, appropriate protective equipment, ergonomic workplace adjustments, and supportive workplace policies, healthcare organizations can create a safer and healthier work environment for these essential workers. Addressing these occupational risks not only protects the well-being of general nursing and dental assistants but also enhances job satisfaction, reduces turnover, and ultimately improves the quality of patient care. Ongoing research and monitoring are essential to continuously improve safety practices and adapt to emerging risks in healthcare settings.

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