

Integrating Eye Care on construction sites: The need & considerations (A Literature Perspective)

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ABSTRACT

Since the construction activities is done in the open and involves exposure to parties that can clog the vision, there is the tendency to have reduced productivity thereby hampering getting job done efficiently and effectively. The aim of this paper is to evaluate the need and considerations in integrating Eye Care on Construction Site. The study adopted descriptive secondary data to identified to identify the need for good eye-health on construction activities in Nigeria, find construction work conditions exposes the eye to problems, evaluate the common eye conditions on construction sites, establish the common causes of Eye injuries and precautions, describe the effects of eye diseases on construction sites and cost of eye injuries, recommend measures are necessary for integrating eye care on construction sites and suggest precautions to prevent eye Injuries on construction Sites. The results concluded that there are different forms of common eye conditions exist on construction sites due to its dangerous nature. There is therefore a need to ensure good eye health and creating a system to implement safety eye measures in construction activities. Its absence has been responsible for accidents, low turnover, project abandonment and fatalities on construction sites in Nigeria

Keywords: Eye care, construction workers, vision problem, Behaviour, Awareness, Construction Sites

INTRODUCTION

According to Katie (2019), construction workers spend an average of 3.5 hours a day on the computer screen, thereby putting a strain on their eyesight. This long screen time affects vision which in turn affects productivity. A guardian life study poll of 2,000 workers posits that respondents spend 5.3 hours a day in front of a computer and 11.8 hours on smartphones, tablets and watching television. Minor vision problem is said to reduce productivity up to 20 percent as workers will need additional time to complete their assigned tasks. Clear vision is necessary to get construction job done efficiently and effectively. Computer vision syndrome, eye strain, dry eyes, eye irritations, blurred vision and double vision are common results of workers having more screen time. Integrating eye-care plan on construction sites like an insurance, discount plan or a screening unit, will drive richer vision, retain old workers and attract new talents. To maintain a healthy eye vision can only be through good vision hygiene, regular eye examinations, updating corrective eyewear prescriptions and protecting the eyes from blue and ultraviolet rays. These measures are excellent ways to keep good vision health in sight. The study adopted secondary data to review the need to integrate good eye care and health on construction sites in Nigeria. Relevant literature were reviewed that addresses : the need for good eye-health on construction activities in Nigeria, construction work conditions that exposes the eye to problems, common eye conditions on construction sites, common Causes of Eye injuries and precautions, effects of eye diseases on construction sites and cost of eye injuries, measures for integrating eye care on construction Sites and preventing eye Injuries.

Purpose of the Study:

The aim of this research is to evaluate the need and considerations in Integrating Eye Care on Construction Site. The specific objectives are to identify the need for good eye-health on construction activities in Nigeria, find construction work conditions exposes the eye to problems, evaluate the common eye conditions on construction sites, establish the common causes of Eye injuries and precautions, describe the effects of eye diseases on construction sites and cost of eye injuries, recommend measures are necessary for integrating eye care on construction Sites and suggest precautions to prevent eye Injuries on construction Sites.

Research Questions

For this study, the following research questions serve as guides:

- What are the need for good eye-health on construction activities in Nigeria?
- What construction work conditions exposes the eye to problems
- What are the common eye conditions on construction sites?
- What are the common Causes of Eye injuries and precautions?
- What are the effects of eye diseases on construction sites and cost of eye injuries?
- What measures are necessary for integrating eye care on construction Sites and
- How do we prevent eye Injuries on construction Sites

LITERATURE REVIEW

The need for a good eye health or vision 20-20 is often neglected especially in the construction industry where there is a high exposure to dust and other flying particles that can affect the eye negatively. There are certain construction work conditions that exposes the eye to problems such as:

1. Blue light from screens of electronic devices , prolonged computer use can contribute to symptoms of dry eyes
2. Prolonged exposure to sunlight without proper protection
3. Working an in environments with diminished ambient humidity
4. Overhead lighting or indirect sunlight shining on the work surface causing eye

Common eye conditions on construction sites

There are common eye conditions that hamper the vision of construction workers effectiveness and productivity, they includes

1. **Cataract:** There is a need for an eye-friendly environment and promoting eye health among Most eye problems are gradual vision failures like Cataract. This condition is traced to when the lens of the eye becomes cloudy especially at 40years.
2. **Presbyopia:** This condition happens when the lens of the eye become thicker and less flexible losing its ability to focus light onto the The retina breaks over time with a condition known as age- related macular degeneration or AMD which can cause blindness in der people.
3. **Dry eye:** This happen when there is no enough quality tears to lubricate the eye making the eye very itchy, painful and Vision then become blurry or the eye water excessively. If this is not treated dry eye diseases can lead to damage of the cornea which affects work performance.
4. Increasing discomfort,
5. Employees may avoid work, or take more and longer breaks.

6. Workplace accidents and
7. Contusions,
8. Abrasions
9. Punctures
10. Permanent damage to the eyes may

Common Causes of Eye injuries and Precautions

The common eye injuries include eye impact, flying dust, chemicals touch, high heat and optical radiation. According to Michael (2022), such eye injuries can lead to full, partial loss, temporary or permanent problem which creates a great deal of pain. Eye-based eye injuries or accidents includes: Corneal scratches, Chemical burns, fractures to the bones around the eye, eyelid lacerations, bleeding between the cornea and the iris (Hyphema), inflammation of the iris and Corneal flash burn. The common causes are:

Forceful Impact: forceful impact on the eye from debris, fragments, chips, tools, particles, dirt and sand, and can result in eye injuries; a lot of construction activities that can create this conditions includes: chipping, chiseling, drilling, grinding, machining, masonry, powered fastening, riveting, sanding, sawing and wood-working. Small or spark of object can cause serious damage or injuries creating contusions, abrasions and punctures, this warrant construction workers wearing protective eyewear, such as face-shield and safety goggles with side shields while working in hazardous areas.

Precautions: In a case of impact, it is imperative not to remove anything embedded in the eye until a medical personnel arrives, the eye should be covered with a cloth until medics arrive. Anti-inflammatory drugs or pills un-prescribed can thin the blood and increase bleeding creating more damage. The eye must not be rinse with water, and don't apply pressure. Ice can however be applied to relieve the pain and decrease swelling.

Dust: Dust is a prevalent particle in construction operations like digging, buffing and woodworking. People who wear contact lenses or safety glass may not be exempted that's why wearing eyecups or safety goggles is better since it creates a protective seal around the eyes from tiny elements. Construction workers should however care to maintain and clean their goggles regularly.

Precautions: Where there are dust contaminations and itch eye, the eye should not be rubbed, but the upper eyelid can be lifted over the lashes of the bottom lid and blink several times. Eye- tears will naturally flush out the dust particles and if it doesn't then call for medical treatment.

Chemicals: chemicals damage is very dangerous especially when the eyes have direct contact with chemicals and Chemical based injuries are often irreversible and can lead to partial loss of sight or blindness. Chemical wounds occur in form of splashes, vapors, fumes or mists in the construction work environment.

Precautions: In the case of chemical eye injury, the emergency eyewash station should be access, the eye open with the index finger and thumb instead of squeezing the eyes shut. The water is use to flush out the eyes for roughly fifteen (15) minutes, immediate medical attention should then be sought. Wearing personal protective equipment can prevent chemical substance entering the eyes or places around your face.

Heat: High temperatures exposure at extreme levels or heat are common in construction sites, this can result in burns from hot sparks ,splashes of metal or molten from. Heat injuries or accidents occurs mostly during: Casting, furnace operations, hot dipping and Pouring

Precautions: Wearing goggles with side and special-purpose lenses, face shield and eyewear pieces are

protective measures. A burn from heat requires applying ice and then calling medical team for further analysis and care. It is very important to consider the source and intensity of the workplace heat and splashes within workplace, to determine which personal protective equipment is necessary.

Optical Radiation: Laser work and similar operations can be the cause of optical radiation damage to your eyes. High concentrations of heat, as well as UV, reflected and infrared light radiation, are potential eye For the best eye protection, determine the maximum power density the lasers produce when workers are near the laser beams. Then, select the appropriate lenses that protect them against the maximum intensity. Unprotected exposure to lasers can result in cataracts, retinal burns or blindness.

Precautions: It's essential to protect the workers from sunlight by providing tinted eyewear. Exposure to intense flames, heat, arc welding radiation or lasers require applying ice to the source of the injury and then seek medical attention right away.

The Computer: Blue light from screens of electronic devices , prolonged computer use can contribute to symptoms of dry eyes

Precautions: The computer itself has a number of useful tools that can be used to remind employees to take short breaks and exercise their eyes:

- **Eye Care:**– A Google Chrome extension encourages you to try out the 20:20:20
- **Eye Leo**– Leo will remind you to take regular breaks, show you exercises and won't take no for an answer.
- **Time out** – Perfect for Mac users who lose track of time and forget their
- **Screenruler** – Helps users to focus on sections of a page, using a highlighter bar, ruler or screen tint.
- **luk** – Adjusts the screen colour to reduce glare depending on light levels and time of day.

Effects of eye diseases on Construction Sites and Cost of Eye Injuries

According to Richard (2019), when there is poor eye vision or eye health; certain eye conditions like cataracts, retina disorder, dry eyes and uncorrected refractive conditions will impact employee work- based productivity and well-being. One key effect of poor vision is, the difficulty in seeing and reading in reduced lighting. Sunlight glare and overheating often causes headache, eye-strain, drowsiness or irritable, un-able at look at computer screen and poor driving. Construction workplace injuries can happen anytime but with the right procedures and precautions, eye based hazards can be reduced. Eye injury statistics are staggering, according to Parachute reports, the cost for Canada in 2010 was \$26.8 billion. Permanent partial disabilities was found in about 55,717 people, and permanent total disabilities in 4,425 people. 43,684 emergency room visits for burns were recorded and those hospitalized for being struck by equipment were 68,355.this cost is for loss workers' productivity cost in workers' compensation and medical treatments .The common reported eye injuries ranges from eye strains and trauma to permanent damage such as blindness and vision loss. The cost to individuals is the amount of pain they feel, a chemical spill splashes in the eye or pieces of metal cut toward their face may cause partially or fully blindness. Workers' compensation may cover employees' medical bills, but it cannot reverse permanent damage done or reduce the pain.

Measures for Integrating Eye Care on Construction Sites

In order to maintain good eye health, construction workers must be encouraged to undergo a comprehensive annual eye exam to identify the problems early so as to sustain high level of job performance. The risk of accidents due to vision impairment can also be reduced if eye condition are treated promptly. When a debris or dirt impact happens to the eye, it shouldn't be removed without a medical personnel effort to avoid ding more damage. A cloth should be used to cover it till medics arrive without rinsing with water r applying

pressure. Annual examination may detect eye conditions like diabetic retinopathy, hypertension and vascular problems. Guardian Life also recommends that workers practice these measures to reduce blue light exposure.

Preventing Eye Injuries and integrating Eye Care on Construction Sites

The following considerations are recommended for preventing eye based accidents on construction sites as well as integrating Eye Care on Construction Sites:

1. **Wear personal protective eyewear:** Protective eyewear such as safety goggles and face shield with side shields.
2. Workplace safety practices as a
3. Everyone understanding potential eye dangers zone
4. Safety signs, Signage and announcements
5. Training
6. Construction fasteners and tools with Protective Eyewear :
7. Practice 20-20-20 vision by looking at something 20 feet away every 20 minutes for 20
8. Block Sunlight and Glare
9. Reduce the Effects of Fog
10. Eliminate screen glare by reducing overhead
11. Keep the screen an arm's distance (about 30 inches)
12. Increase font size on
13. Blink to reduce dry eye, which can cause stinging and
14. Use a gel lubricant for the eyes at bedtime to reduce the effects of dry
15. Addressing environmental contributors to eye disease and discomfort
16. Clean indoor air and proper humidification
17. Encourage employees to undergo a comprehensive annual eye
18. Provision of organization health plan for annual eye exam
19. Holding eye health awareness

RESEARCH METHODOLOGY

The study adopted secondary data to review the need to integrate good eye care and health on construction sites in Nigeria. Relevant literature were reviewed that addresses: the need for good eye-health on construction activities in Nigeria, construction work conditions that exposes the eye to problems, common eye conditions on construction sites, common Causes of Eye injuries and precautions, effects of eye diseases on construction sites and cost of eye injuries, measures for integrating eye care on construction Sites and preventing eye Injuries

CONCLUSION

The study concluded that different forms of common eye conditions exist on construction sites due to its dangerous nature

RECOMMENDATIONS

The following recommendations are worth pointing out

1. Policies should be drafted to ensure good eye care and management on construction sites in
2. Wear personal protective eyewear: Protective eyewear such as safety goggles and face shield with

side shields.

3. Workplace safety practices as a
4. Everyone understanding potential eye dangers zone
5. Safety signs, Signage and announcements
6. Training

CONTRIBUTION TO KNOWLEDGE AND PRACTICAL IMPLICATIONS

Effective vision management by ensuring good eye health and creating a system to implement safety eye measures in construction activities. Its absence has been responsible for accidents, low turnover, project abandonment and fatalities on construction sites in Nigeria. This study has practically been able to point out specific consideration ,precautions and common eye based injuries; its preventive measures when integrated will enhance construction organization workers` performance affecting the nation`s infrastructural and capital investments..

Compliance with Ethical Standards Conflicts of Interest: The authors declare that there is no conflict of interest regarding the publication of this manuscript.

Ethical Approval: Ethical approval is not required.

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