Qeios

Peer Review

Review of: "Prevalence of Visual Impairment and Associated Factors Among Welders in West Shewa Zone Oromia Region, Ethiopia"

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Strengths

1. Public Health Relevance

The research highlights occupational exposure risks among welders, a population commonly exposed to ultraviolet and infrared radiation. The study clearly links visual impairment with modifiable workplace behaviors, supporting preventive health strategies.

2. Adequate Sample Size and Sampling Design

The inclusion of 634 welders and the application of cluster sampling improve statistical power and generalizability within the regional context.

3. Appropriate Statistical Methodology

The use of multivariable logistic regression to identify independent predictors of visual impairment is appropriate. The authors also performed model fitness evaluation using the Hosmer–Lemeshow Test, which strengthens statistical reliability.

4. Practical Occupational Health Implications

The identification of PPE training and working hours as modifiable risk factors provides actionable recommendations for occupational safety programs.

Major Concerns

1. Cross-Sectional Design Limitation

The study design restricts causal inference between occupational exposures and visual impairment. The

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authors mention this limitation, but stronger emphasis on longitudinal or cohort study recommendations would improve scientific depth.

2. Limited Ophthalmological Assessment

Visual impairment evaluation relied solely on visual acuity testing. Additional ophthalmic examinations such as slit-lamp evaluation, fundoscopy, or intraocular pressure measurement would provide mechanistic insights and improve diagnostic accuracy.

3. Exposure Assessment Insufficiency

The manuscript lacks quantitative measurement of welding radiation exposure or environmental hazard levels. Incorporating exposure intensity data would substantially strengthen risk attribution.

4. Potential Recall and Self-Reporting Bias

Behavioral variables such as PPE usage, working hours, and training exposure were self-reported. The manuscript should discuss potential bias and validation strategies more explicitly.

Declarations

Potential competing interests: No potential competing interests to declare.