EPH199

Epidemiology of Eye Disorders due to the Use of Video Display Terminals in France, Germany, Italy, Spain and United Kingdom–A Systematic Literature Review

Pagidigummula R, Yadav H, Kaur D , Verma A , Kataria A, Goyal R, ***Aggarwal A***
IQVIA, India

Introduction and objectives

- The introduction of digitalization is having an impact on society through the means that people live work, and interact with one another.
- In Europe, the number of information and communication technology (ICT) specialists has increased by more than 50% in last decade, whereas computer users have shown an increasing trend.
- A higher percentage of men are employed as ICT specialists when compared to women.
- In 2021, an estimated 9 million persons were employed as ICT specialists across the European Union (EU). The highest number (2 million) worked in Germany, whereas France (1.2 million) had the second largest ICT workforce (13.9 % of the EU total), followed by Italy (0.8 million; 9.5 %)[1].
- The objective of this review was to estimate the epidemiological burden of eye disorders due to the use of video display terminal (VDT) in France, Germany, Italy, Spain, and the United Kingdom.

Methodology

- A search strategy was devised to retrieve citations from MEDLINE and Embase via Ovid with limits of 10-year publication timeframe, geography of interest, and English language.
- The review was conducted using a well-defined inclusion and exclusion criteria **(Table 1)**.
- First and second level screenings were conducted by two independent reviewers with conflict resolution by a third reviewer.
- Screenings were followed by data extractions by a single reviewer with 100% quality check.

Results

- The databases retrieved a total of 432 citations(**Figure 1**).
- A total of six studies (5 cross sectional and 1 cohort study) met the inclusion criteria and were selected for extractions.[2-7]
- Five studies were conducted in Spain and one in Italy.
- The mean age of patients ranged between 39 and 54 years.
- The prevalence of computer vision syndrome (CVS) was found to be 44% - 74%. A higher association of CVS was observed with women, work related exposure, non-neutral neck posture, altered workplace lighting, and VDT exposure **(Table 2)**.[2]
- The review also identified a positive association of exposure to computer and lens use with the risk of CVS as well as myopia progression.[3]
- Similar findings were observed among healthcare workers.[4]
- Results also suggest that employees who wear contact lenses and are exposed to the computer for more than 6 h/day are more likely to suffer CVS than non-lens wearers working at the computer for the same amount of time.[5]
- Older people exposed to more than 4 h/day at VDT are at major risk to develop dry eye syndrome creating a need to take precautions to prevent the onset of the disease.[6]
- Regular use of contact lens during VDT exposure at work increases risk of bulbar, limbal and lid redness, and lid roughness. [7]

Conclusions

- **The increase of VDT is accompanied by a higher frequency of CVS, particularly in women and people who spend more time at VDT including work related exposure.**
- **With exponentially increasing use of display terminals and work-related computers, the incidence of CVS is expected to rise.**
- **Further studies are needed to confirm these epidemiological findings.**

Table 1: Study eligibility criteria

PICOS	Inclusion criteria
Populations	Population with any eye disorder due to video display terminals
Interventions/ Comparators	N/A
Outcomes	Burden
Study designs	Any study design
Geography	Germany, France, Italy, Spain, and the UK

Figure 1: PRISMA chart of included studies

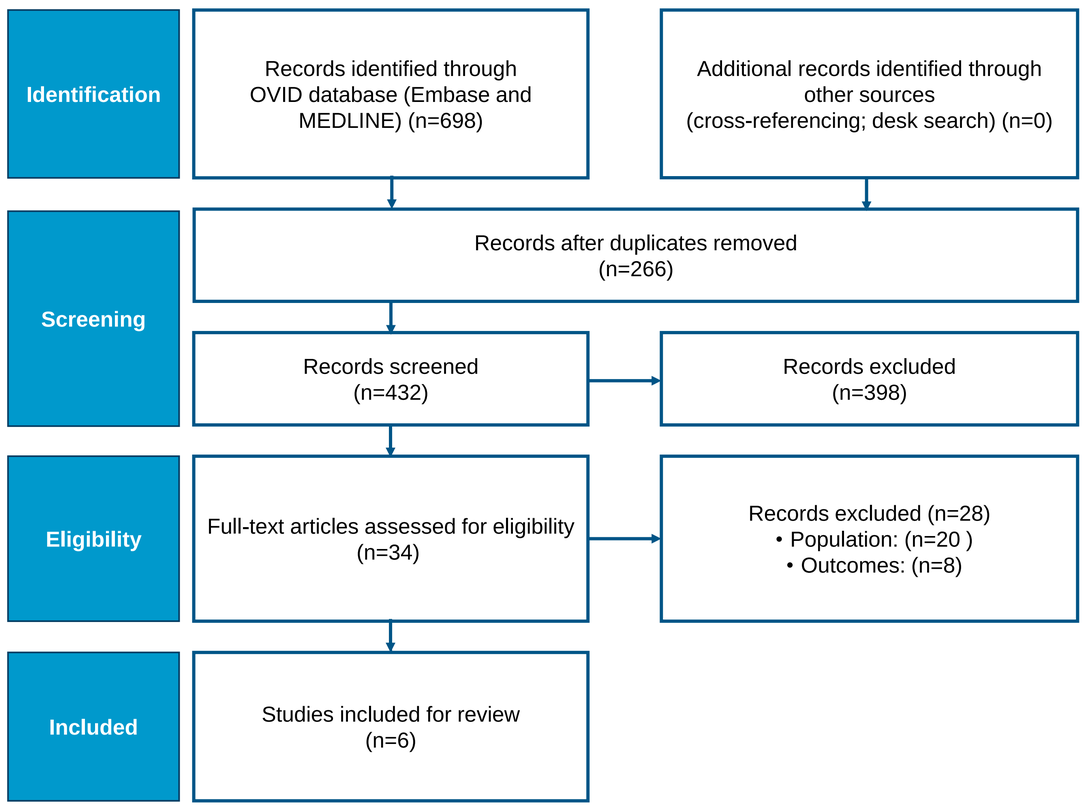

Table 2. Eye disorders relationship with variables

Variables	OR 95% CI
Female vs. male	2.93 (1.12–7.64)[2]
> 120 min vs <120 min work time at VDT	1.65 (0.32–8.50)[2]
Altered vs unaltered neck posture	2.57 (0.88–7.47)[2]
>6 h/day vs <6 h/day VDT at work	1.93 (0.81–4.64)[2]
≥40 h/week vs 10 h/week exposure to computers	1.34 (1.12; 1.60)[3]
Lens + computer exposure vs non lens + computer exposure	4.85 (1.25–18.80)[5]

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