

## How often are we exposed to Alcohol in Movies? An AI-based approach to quantify alcohol portrayal

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**Introduction:** *With the advent of streaming, watching movies has never been easier or more common. Unfortunately, alcohol is frequently shown in movies, and there is a link between exposure and alcohol use. However, it is difficult to estimate just how much alcohol is in movies due to the reliance on manual coding. We used artificial intelligence (AI) to better quantify alcohol in movies and estimate how long alcohol appears and what type of movie has more alcohol.*

**Methods:** *We developed a scalable, zero-shot AI framework using a large multimodal model (LLaVAv1.6) to analyse 1,373 movies. Frames were sampled at one frame per second and classified for alcohol presence. Alcohol portrayals were quantified using: alcohol proportion, alcohol duration, and alcohol portrayals per hour of viewing. Associations with release year, box office revenue, audience rating, and genre were examined using descriptive statistics and Spearman correlation analyses.*

**Results:** *Alcohol was identified in 96.5% of the 1373 movies. Median alcohol portrayal was approximately 3.3 minutes per movie (1.9 minutes per hour). Exposure was higher in genres such as musicals, comedy, and romance movies, and lower in science fiction, adventure, and family movies. There was no association between alcohol and year of release or audience rating and only a weak inverse relationship with box office revenue.*

**Discussions and Conclusions:** *This study provides the first large-scale, time-stamped quantification of alcohol portrayals in movies, demonstrating that exposure is widespread and stable over time. The findings highlight just how common alcohol is in movies and that better regulation is needed to warn movie watchers about the amount of alcohol.*

**Implications on communities, practice, policy:** *Movies dominate global streaming, making alcohol portrayals repeatedly encountered as part of routine viewing. This study enables continuous monitoring to inform evidence-based strategies to reduce harmful exposure.*

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