

# Deep Learning Algorithm to Quantify Alcohol Exposure in Song Lyrics from 1959 to 2020

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## Introduction:

Music is one of the most integral parts of our lives. Popular songs are often played in public places, such as restaurants, where people often not only listen to music but also process the lyrics subconsciously. Research indicates that, in a bar environment, people exposed to song lyrics that contain alcohol related words consume significantly more alcohol. Existing methods to quantify alcohol exposure in song lyrics involves manual coding that is burdensome and time intensive. In this paper, we aim to build a deep learning algorithm that can automatically quantify alcohol exposure in any song lyrics.

## Methods:

We collected a database of 6,110 song lyrics, from the Billboard's top-100 songs from 1959 to 2020. Based on the literature, we identified a list of 673 alcohol related keywords—including brand names, urban slang, beverage names etc. We developed an annotation tool to annotate both the connotation of the alcohol keyword itself (alcohol, non-alcohol, or unsure) and connotation of the context (positive, negative, or neutral) of the line in which the keyword was identified. The annotated data will be used to train a deep learning algorithm.

## Results:

Preliminary experimental results will be available in May 2022.

## Discussion:

Our algorithm will be able to automatically identify alcohol exposure and its context in basically any song based on its lyrics, which enables raising awareness of the amount of alcohol exposure in songs and its possible consequences including likely increases in consumption.

## Disclosure of Interest Statement:

There is no conflict of interest to declare.

## Keywords:

Alcohol exposure, artificial intelligence, song lyrics, music.