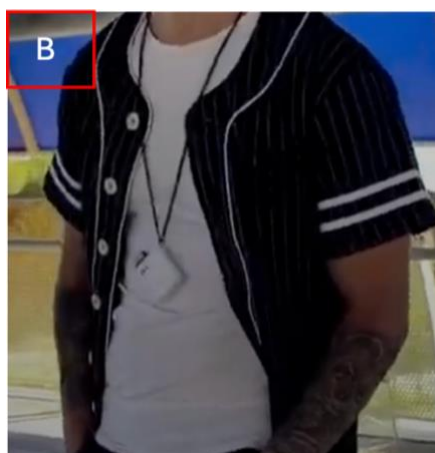




A screenshot from a video analyzed in this study featuring an influencer promoting a Delta 8 THC disposable cannabis pod.



A screenshot from a video analyzed in this study featuring an influencer wearing a disposable pod as a lanyard against a white t-shirt background.



A screenshot from a video analyzed in this study featuring an influencer using an older generation pod device.



A screenshot from a video analyzed in this study featuring an influencer showing vape tricks.

Supplementary Figure 1. Error analysis for failure to identify or misclassify nicotine vaping by GPT-4o and DyHead models and other themes by GPT-4o: Examples of errors included: a) misclassification of cannabis disposable pod devices visually identical to nicotine disposable pod devices by GPT-4o. Despite a logo and a cannabis disposable pod brand name (a THC product Delta 8six, as shown in the screenshot annotated with Box A), GPT-4o misclassified it as a nicotine vaping device, while being capable of recognizing text and logos in videos. (DyHead was not trained to distinguish between visually identical nicotine and cannabis disposable vape devices based on logos and brand names); b) missing an obscured white disposable pod device (as shown in the screenshot annotated with box B) worn as a lanyard against a white t-shirt background (missed by both models); c) missing an older-generation pod device (as shown in the screenshot annotated with box C), correctly identified by DyHead but not by GPT-4o. Such devices were present in the DyHead training dataset but could potentially have been absent in the GPT-4o training dataset; d) misclassification of the entertainment themes in some videos by GPT-4o, which identified this theme as present, while human coders identified it as absent, due to potential ambiguity or differences between the model and the coders' interpretation of the entertainment theme in such videos (e.g., depiction of vape tricks surrounded by green clouds and lighting, as shown in the screenshot annotated with Box D); e) missing a vape device, or missing one of the themes by GPT-4o in the multi-theme videos, likely due to frame sampling as both models analyzed only 4 frames per video, (i.e., in one video a vape device appeared only in the last frames of the video and was correctly identified by DyHead but missed by GPT-4o).

A publicly available video featuring a person in screenshot A was sourced from the public Instagram account of a micro-influencer Cali.trickzz in August 2023 (Cali Trickzz (@cali.trickzz) • Instagram photos and videos). A publicly available video featuring a person in screenshot B was sourced from the public Instagram account of a micro-influencer Fabio in August 2023 (Fabio (@fabioexclusive91) • Instagram photos and videos). A publicly available video featuring a person in screenshot C was sourced from the public Instagram account of a micro-influencer Chamillioneys in August 2023 (Published Model Corina Stone (@chamillioneys) • Instagram photos and videos). A publicly available video featuring a person in n screenshot D was sourced from the public Instagram account of an influencer Vapes_aby in August 2023 (https://www.instagram.com/vapes_aby/).