Supplementary Table 2. Accuracy, Precision, Recall and F1 illustrating the GPT-4o model performances in detecting five themes and the DyHead validation model performance in detecting nicotine vaping[1] in 102 videos.

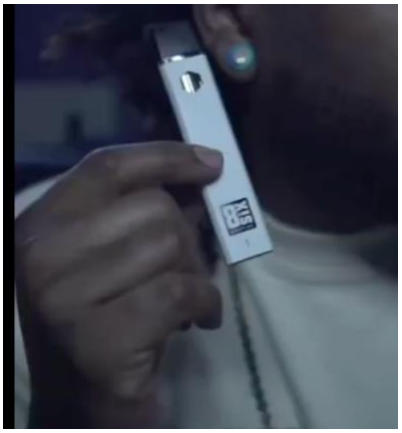
	Accuracy	Precision	Recall	F1
GPT-4o				
Nicotine Vaping	0.87	0.75	0.87	0.81
Cannabis Vaping	0.96	0.94	0.85	0.90
Fashion	0.99	0.95	1	0.98
Entertainment	0.96	0.83	1	0.91
Healthy Lifestyle	0.98	1	0.91	0.95
DyHead				
Nicotine Vaping (treating any disposable vape device as nicotine vaping)[2]	0.81	0.76	0.81	0.79
Nicotine Vaping (distinguishing between nicotine and cannabis disposable vape devices)[3]	0.70	0.50	0.74	0.60

A predicted probability threshold of above 50% (0.5) was used to evaluate the model's accuracy. Predicted probability was considered correct if a truly present theme in each video was identified with a predicted probability of above 50%, or if a truly absent theme was identified with a predicted probability below or equal to 50%.

[1] DyHead model was only used for validation of nicotine vaping as it was trained to detect e-cigarette objects and was not trained to detect cannabis or other objects. As a model based on spatial localization, DyHead is not applicable to broad theme detection analyzed by GPT-4o in this study.

[2] In videos featuring disposable pod devices for nicotine or cannabis vaping that appeared visually identical and could only be distinguished by a brand name or logo (as shown in the screenshot below), we considered DyHead's detection of nicotine vaping accurate, if it identified nicotine vaping with a predicted probability above 50%, even if the device shown in the video was actually for cannabis vaping. This approach was used because DyHead was not trained to differentiate between nicotine and cannabis pods based on logos or brand names. This criterion did not apply to GPT-4o, which can recognize text and logos in videos.

[3] For comparison, we also provided the DyHead model validation results using the same criterion as for GPT-4o (where DyHead's predicted probability for nicotine vaping >50% [in videos with disposable pod devices] was considered inaccurate if the video actually featured a cannabis vaping pod device).



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