

Investigating "Vaccine Buyer's Remorse" in Online Discourse

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What happens after the shot?

- The COVID-19 vaccination campaign occurred during an "infodemic" of misinformation.
- Most research focuses on vaccine hesitancy
- **The Gap:** We know very little about "vaccine buyer's remorse": the regret people feel after getting vaccinated. [1][2]
- Understanding this is crucial for future public health campaigns and rebuilding trust. [1]



[1] Luo et al., 2022

[2] Tayhan et al., 2025

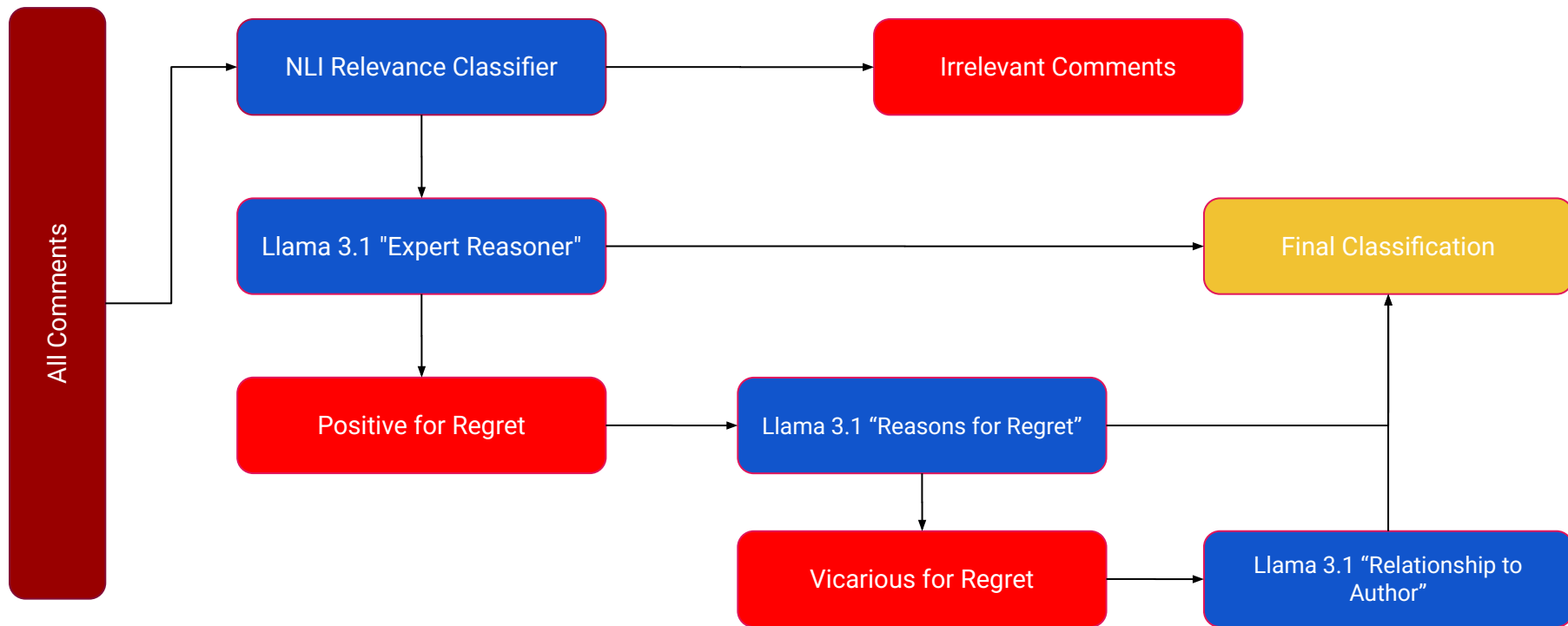
An Informal Public Health Database

- Official systems like the Vaccine Adverse Event Reporting System (VAERS) track post-vaccination issues [3].
- YouTube has become a massive, informal version of this, with millions of unsolicited, personal stories.
- **Our Dataset:** We collected over 2 million comments from YouTube videos about COVID-19 from sources like Fox News, CNN, MSNBC, and prominent influencers.
- **The Challenge:** This data is messy. How do we analyze it accurately and at scale?

What We Wanted to Find Out

1. How common is vaccine regret in these online discussions?
2. Why do people regret their decision?
3. Do personal stories of regret (first-person) differ from stories about others (vicarious)?
4. Can we build an AI system to analyze this complex data while mitigating political bias?

How We Analyzed Millions of Comments



The System Works

- We tested our pipeline on a 400 hand-labeled held out test set
 - Reasons for regret tested on only the 101 regret comments of the test set
 - Relat. to Author tested on 140 comments from the benchmark set
- **Takeaway:** Our system can reliably analyze this complex data at a large scale.

Task	Accuracy	F1-Score
Subject	81.50%	0.80
Vaccinated	87.25%	0.87
Regret	86.0%	0.82
Reasons for regret	92.0%	0.92
Relat. to Author	90.7%	0.91

Regret Prevalence

- Regret appeared in 1.1% of relevant comments.

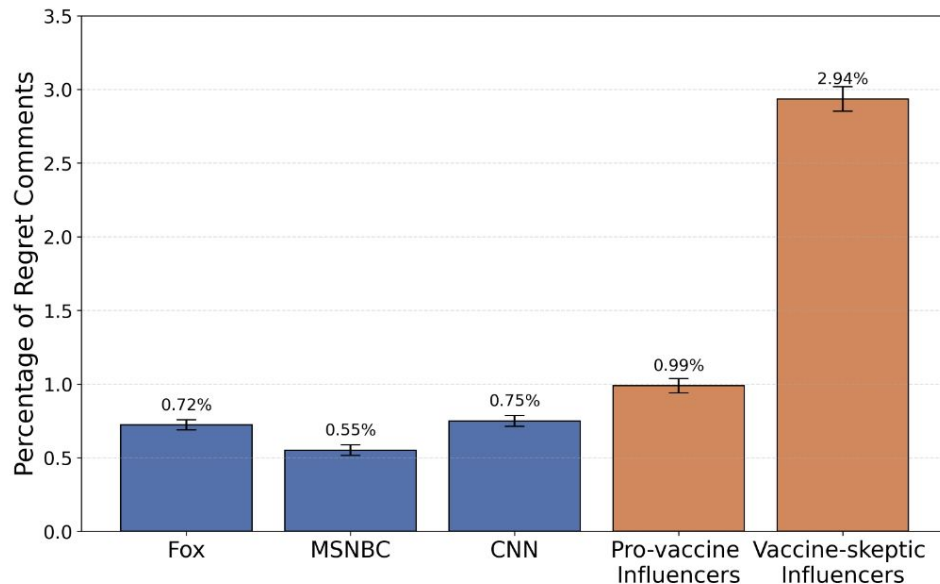


Figure 1: Percentage of regret comments across news sources and influencer categories.

Reasons for Regret

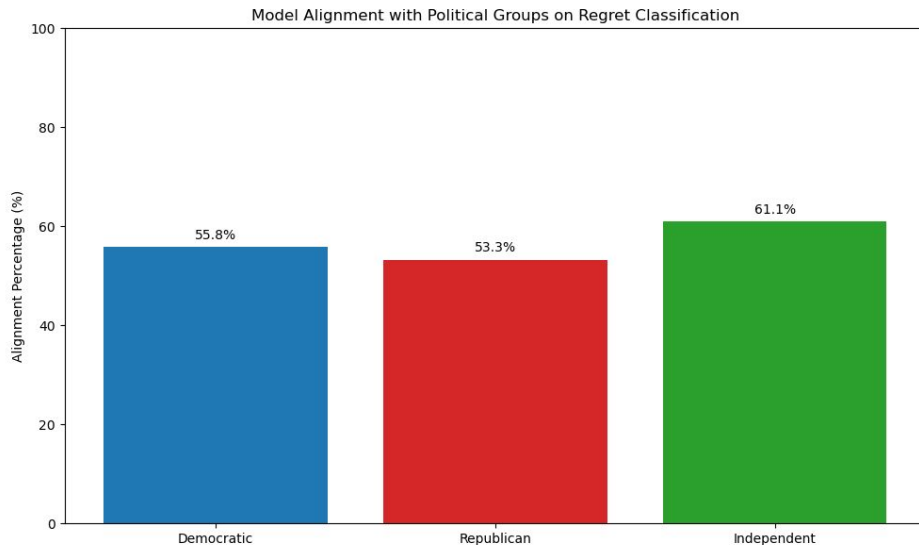
Reason for Regret	News Channels		Influencer Channels	
	Count	%	Count	%
Adverse Health Event	446	41.1%	1,054	64.2%
Lack of Efficacy	292	26.9%	111	6.8%
Shift in Beliefs	132	12.2%	151	9.2%
Perceived Coercion	106	9.8%	151	9.2%
Vague or Unspecified	109	10.0%	175	10.7%
Total	1,085	100%	1,642	100%

Relationship to Author

Relationship to Author	Count	Percentage
Family Member	259	29.6%
Friend	77	8.8%
Spouse or Partner	50	5.7%
Public Figure	68	7.8%
Health Care Provider	6	0.7%
Other Acquaintance	166	19.0%
Unspecified	249	28.5%
Total	875	100%

Can an LLM Be Neutral on a Political Topic?

- **The Test:** On comments where our human annotators disagreed, whose side did the AI take?
- **The Result:** The model's predictions for regret did not statistically align more with one political group over the others ($p = 0.5157$).
- **Takeaway:** our pipeline did not learn (or have) a particular political lean for regret classification.



Discussion

- **Implications:**

- While not widespread, vaccine regret is a powerful narrative, especially within specific online communities (echo chambers).
- Public health communication should be improved to address beliefs of lack of efficacy and perceived coercion.

- **Limitations:**

- Not Representative: YouTube commenters are not the general population.
- Cannot Verify Claims: Like VAERS, we can't confirm if the stories are true or if the vaccine caused the issues. [3]
- English-Only: Our analysis is limited to English-language comments.

Conclusion

- Post-vaccination regret is a real and measurable phenomenon in online discourse, primarily driven by personal health experiences and close family and friends.
- Our hybrid LLM pipeline can accurately analyze this nuanced sentiment at scale without significant political bias.
- Understanding these regret narratives is crucial for building trust and designing more empathetic public health communication.

Future Work

- Link online sentiment to real-world survey and health data.
- Analyze how these regret narratives evolve over time.
- Expand the analysis to other languages and platforms.
- Investigate the counter-narrative: vaccine satisfaction.

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Thank you!

Questions?

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