

26 JUNE, 2020

P3 STAGE 3

# Misinformation on WhatsApp

PRESENTED BY

Gyan Lakhwani

SUPERVISOR

Prof. Girish Dalvi



**Nokia 3310**

September 2000



**Nokia 3310**  
September 2000



**Redmi Note 7**  
February 2019



**Nokia 3310**  
September 2000



**Redmi Note 7**  
February 2019

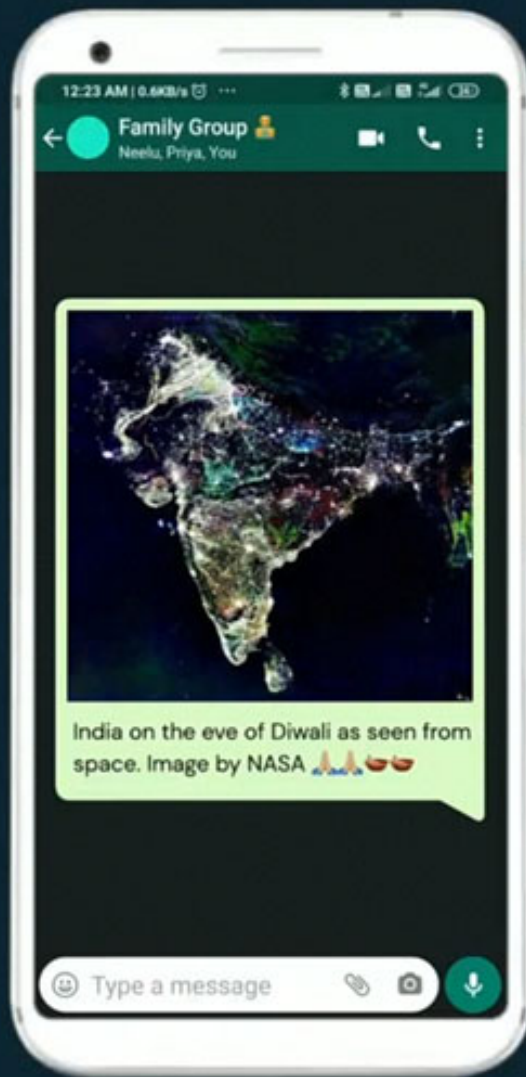




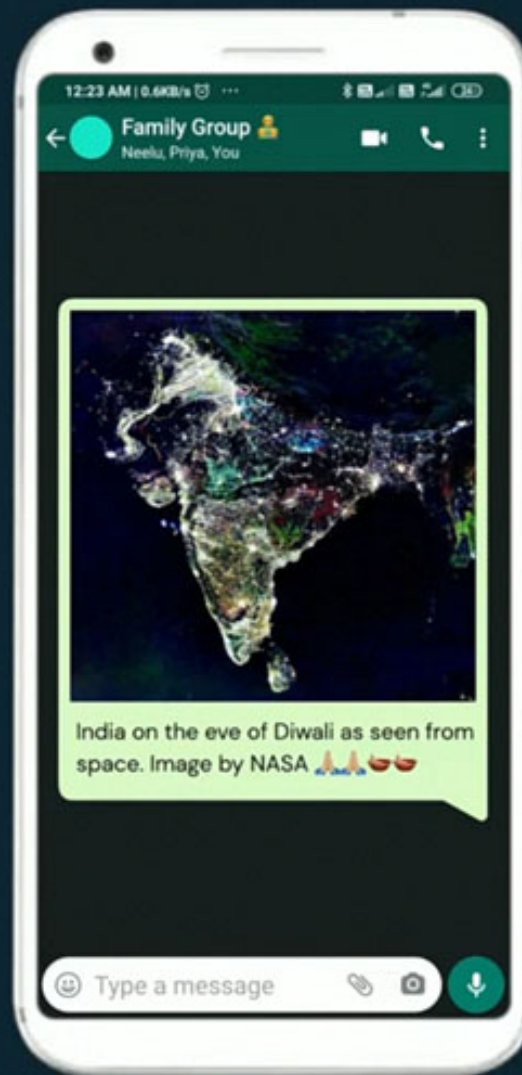




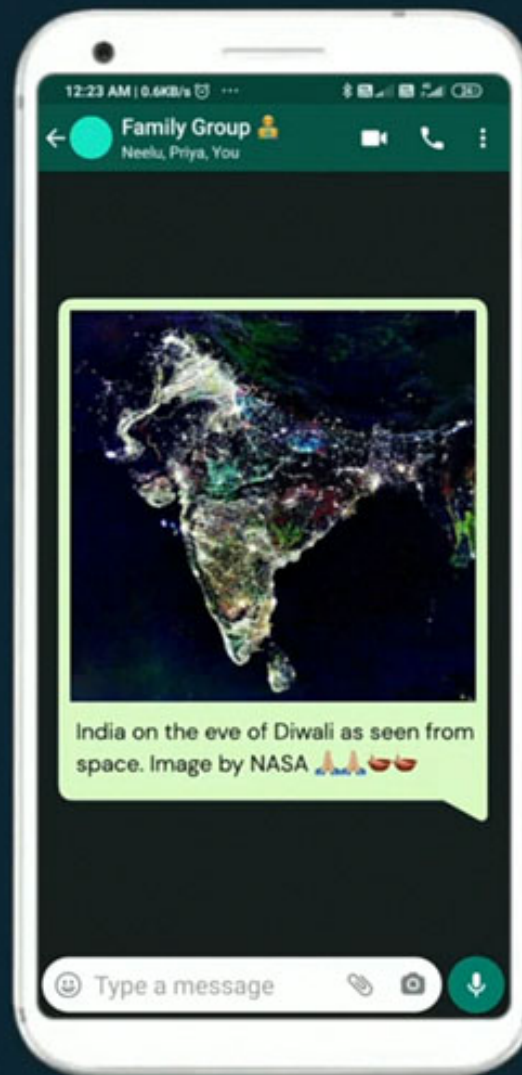








**Composite of multiple satellite photos created to highlight population growth over time.**



**Composite of multiple satellite photos created to highlight population growth over time.**

National Oceanic and Atmospheric Administration (NOAA), 2003

**Not all hoaxes are  
this benign**



## Since May 2017

Lynchings and mob violence related to rumours about child abduction and organ harvesting.

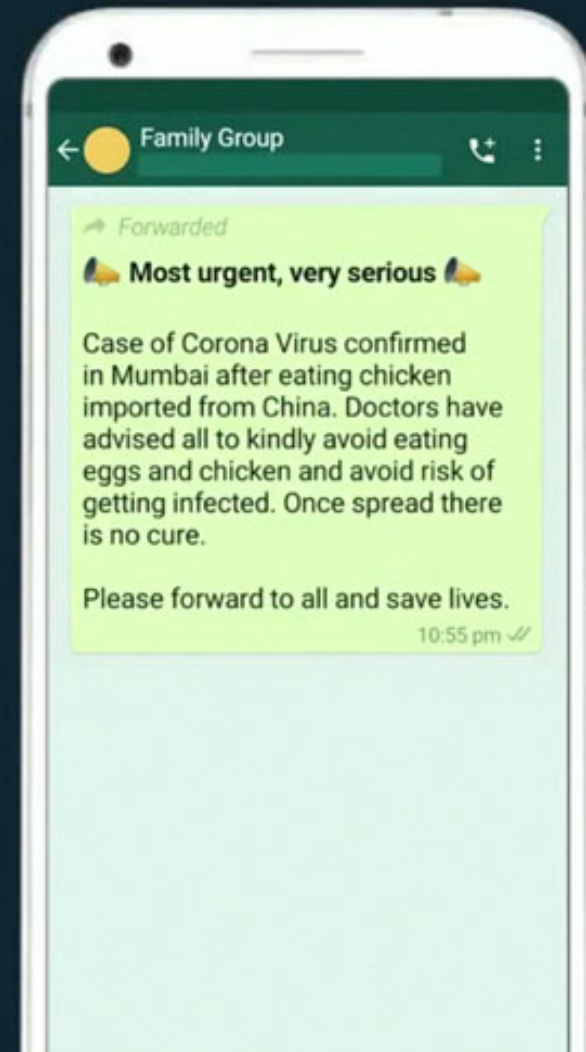
Date	Victims	Location	State	Deaths	Injuries	Arrests	
May 17, 2017	Two unidentified men	Sosomoli village	Jharkhand	2			Two men beaten to death on suspicion of being child abduct
May 17, 2017	Unidentified man	Shobhapur village, Koihan	Jharkhand	1			One man beaten to death on suspicion of being a child abdu
April 10, 2018	Rukmani (female, 65), Chandrasekaran (male, 34), Mohan Kumar (male, 34), Venkatesan (51), Gajendran	Athimur, Tiruvannamalai	Tamil Nadu	1	3	42 <sup>[31]</sup>	65 year old Rukmani and her family was travelling from Che stopping they gave chocolates to local children. The lady took family and beat them, <sup>[32]</sup> killing Rukmani, critically injuring th until an ambulance arrived. <sup>[33]</sup> Videos taken of the attack we been abducted were circulating on WhatsApp prior to the lyn attack.
April 29, 2018	1 man (30s)	Parasuramapatti, Gudiyatham, Vellore	Tamil Nadu	1			A 30 year old Hindi-speaking migrant worker is suspected of campaign.
May 11, 2018	Ganesh (30s)	Tiruvallur, Chennai	Tamil Nadu	1		20 <sup>[26]</sup>	A mentally-ill man who had been seen roaming the streets lik They broke his nose, gouged out an eye, and hung him from WhatsApp.
May 17, 2018	Uttam Kumar Verma (male), Ganesh Kumar Gupta (male), Vikas Verma (25), Gautam Verma (27), elderly woman (80s)	Nagadh	Jharkhand	4			Two brothers working for the Swachh Bharat campaign and brother sustained injuries in the attack. Police failed to rescu blamed for the attack. <sup>[23][24]</sup> Angry villagers torched two polit
June 8, 2018	Bharat Sonavne (male), Shivaji Shinde (male), and 7 other men	Chandgaon, Vajapur taluka	Maharashtra	2	7	400	Two men were beaten to death and seven others were injur receiving social media messages about a gang of robbers in
July 1, 2018	2 men, 2 women, 1 child	Malegaon	Maharashtra	0	4		A family of daily wage labourers were accused by a teenage The crowd attacked police and overturned a police vehicle. 1 Karnataka. <sup>[21]</sup>
July 16, 2018	Mohammed Azam (28), Salham Eid Al Kubasi, Noor Mohammed, 1 other man	Bidar district	Karnataka	1	3	32 <sup>[16]</sup> [17]	IT worker, Mohammed Azam was visiting a relative with three Villagers, suspecting them to be child-snatchers turned hosti blocked the road. The car flipped into a ditch and the men dr the police arrived, Azam was dead whilst the others had sus
July 19, 2018	1 woman (25)	Bhosh village, Morwa, Singrauli	Madhya Pradesh	1		14	Following the circulation of WhatsApp messages a group of a pick-axe. Her body was dumped in the jungle, but found st
April 18, 2020	Sushil Giri Maharaj (35), Nilesh Telgane (35), and Chikane Maharaj Kalpanikshgini (70)	Palghar	Maharashtra	3		110	See 2020 Palghar mob lynching. Three men who were drivr suspicion of being thieves after rumours were floated in the
May 12, 2017	Two men	Jadugora, East Singhbhum district	Jharkhand	2			Two people were beaten to death and as many injured by a

## January 2020

India's poultry industry lost **1300 crore rupees** in 3 weeks after speculation on social media that chickens are a cause of the spread of COVID-19.

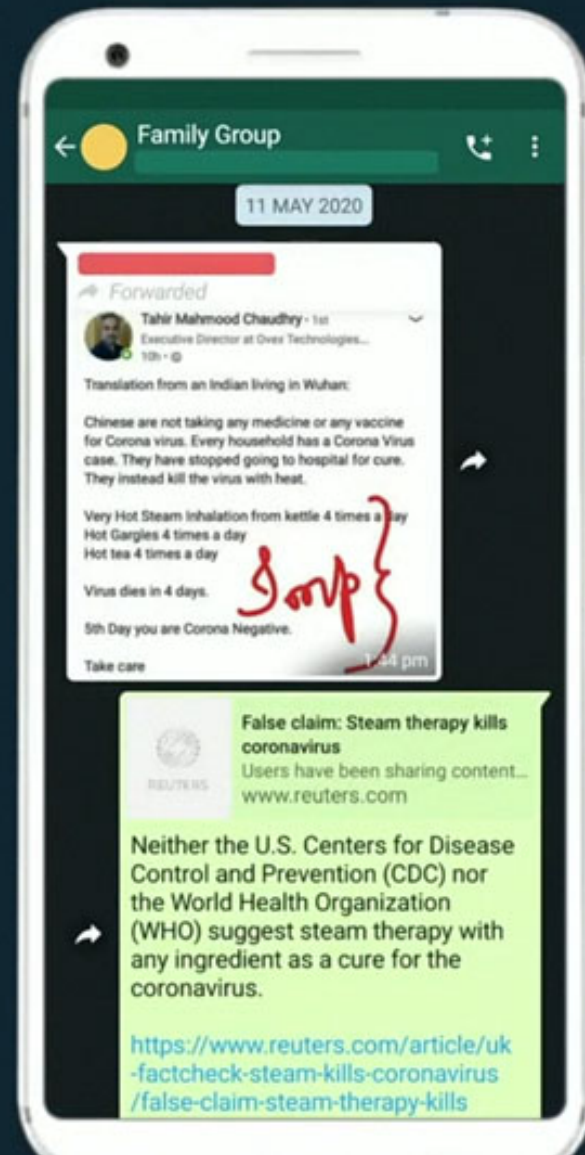
This dented demand for chicken and prices fell to nearly half.

## Chicken prices in Maharashtra



## Other COVID-19 rumours

- No need to go to the hospital, can be cured by drinking hot tea.
- Is a bacterial infection genetically engineered by China.
- Can be cured by steam inhalation.
- Is caused by 5G spectrum.





Munich Security  
Conference **msc**  
Münchner Sicherheitskonferenz

Munich Security  
Conference **msc**  
Münchner Sicherheitskonferenz

Munich Security  
Conference **msc**  
Münchner Sicherheitskonferenz

Munich Security  
Conference **msc**  
Münchner Sicherheitskonferenz

**Tedros Adhanom Ghebreyesus**  
Director-General of the World Health Organization

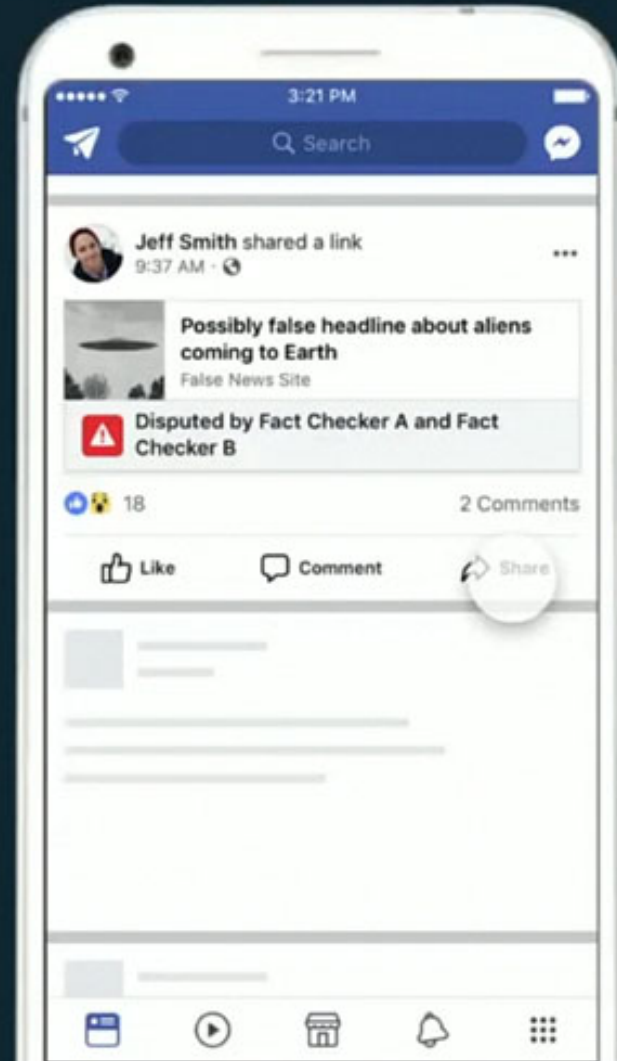
Munich Security  
Conference **msc**  
Münchner Sicherheitskonferenz

Munich Security Conference **msc**

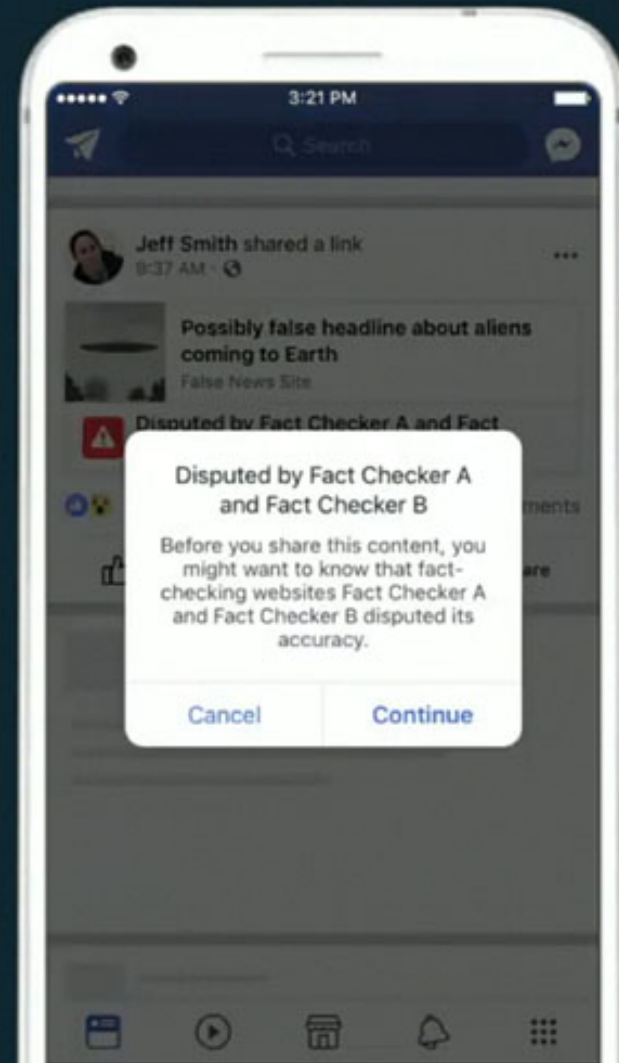
## Social Media

Facebook, Twitter, Instagram, Youtube, etc.



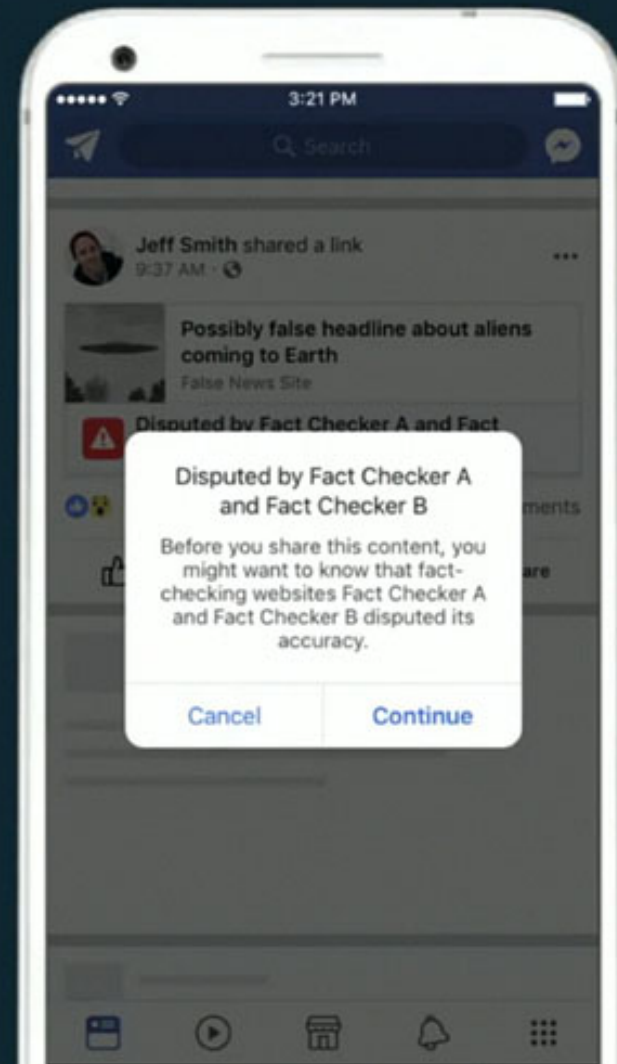


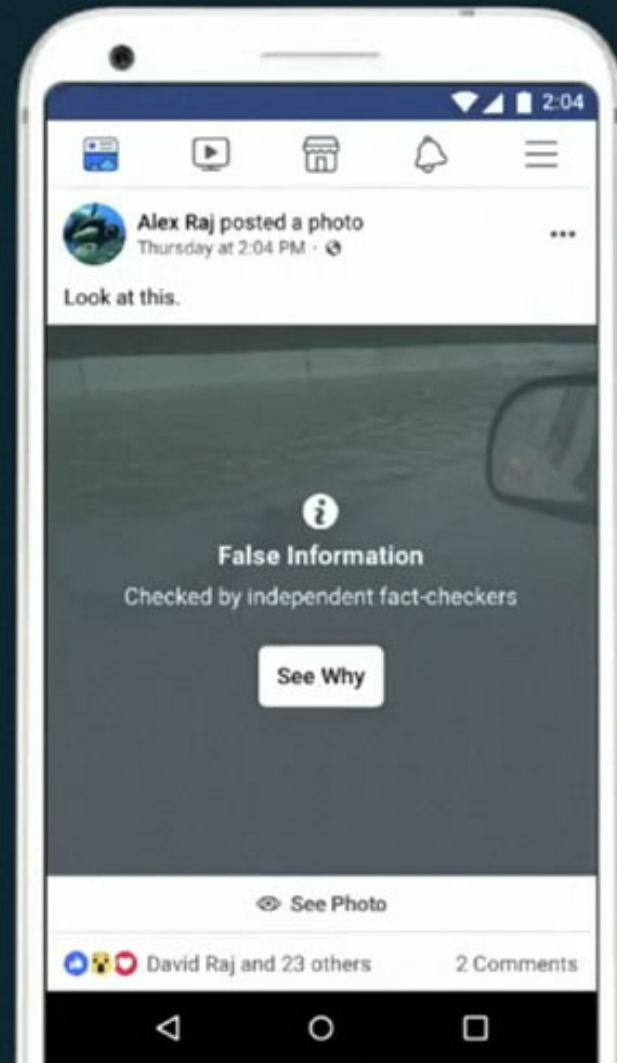






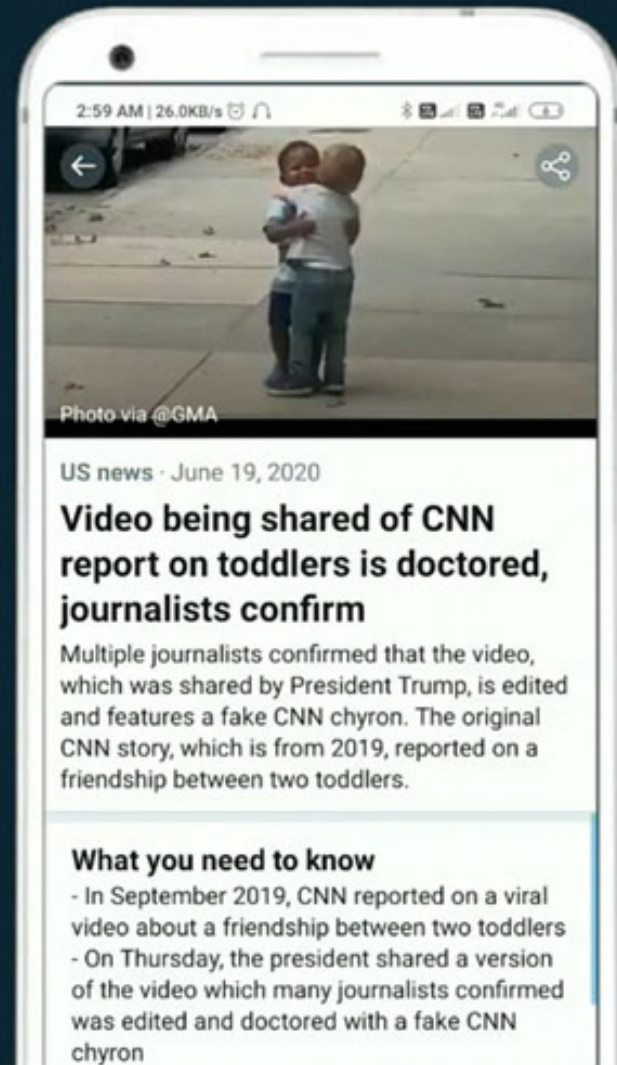
- ✦ No explanation for why it's fake
- ✦ Strong language/symbols can cause backfire effect, make beliefs stronger.
- ✦ Users assume content without marker is reliable, has been fact-checked.

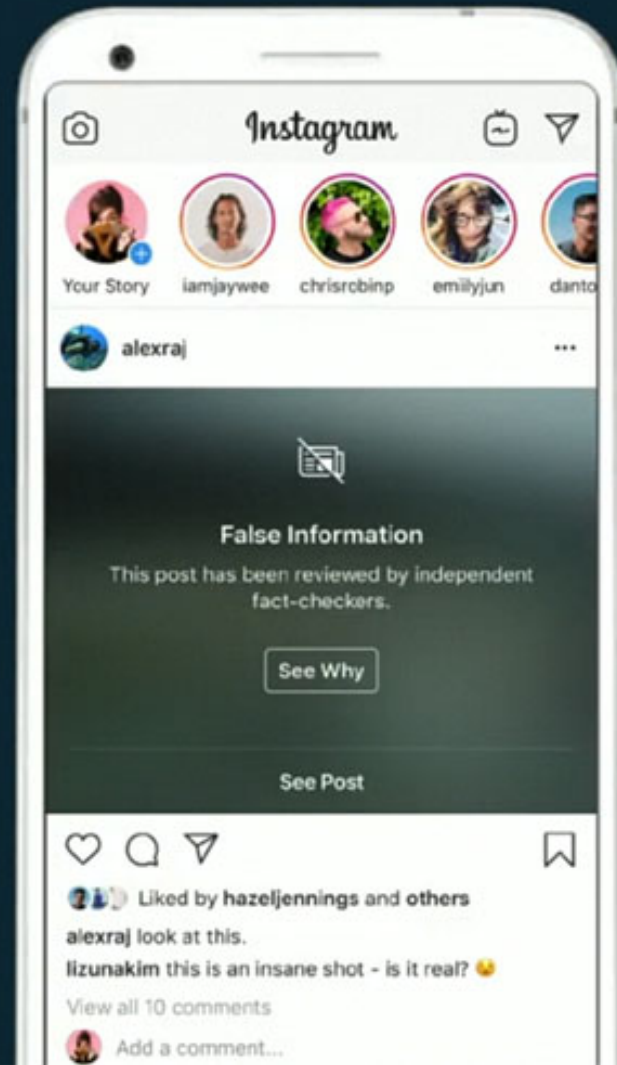


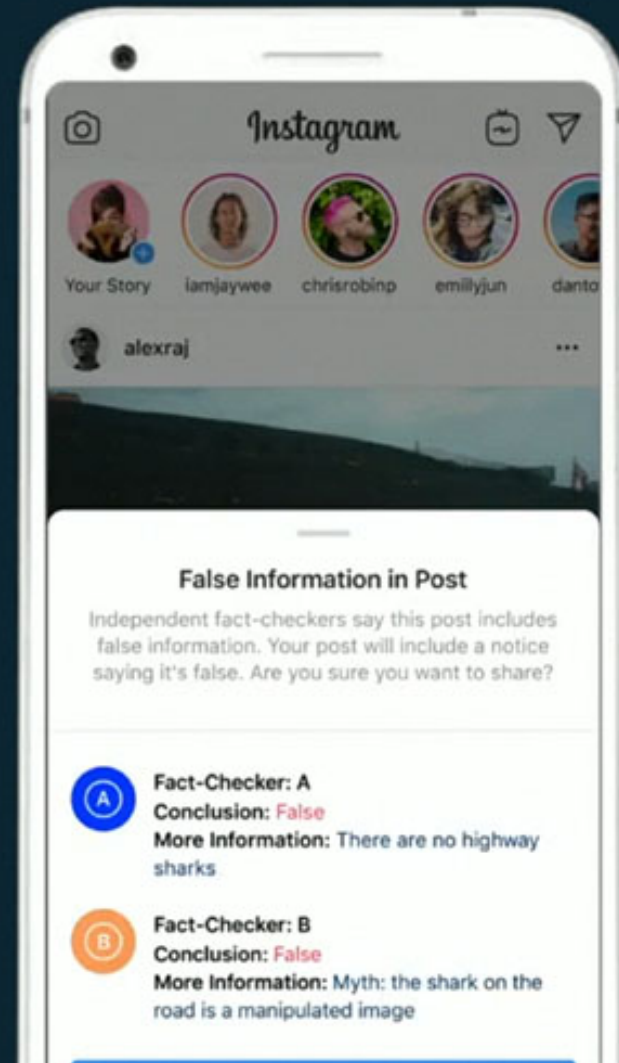


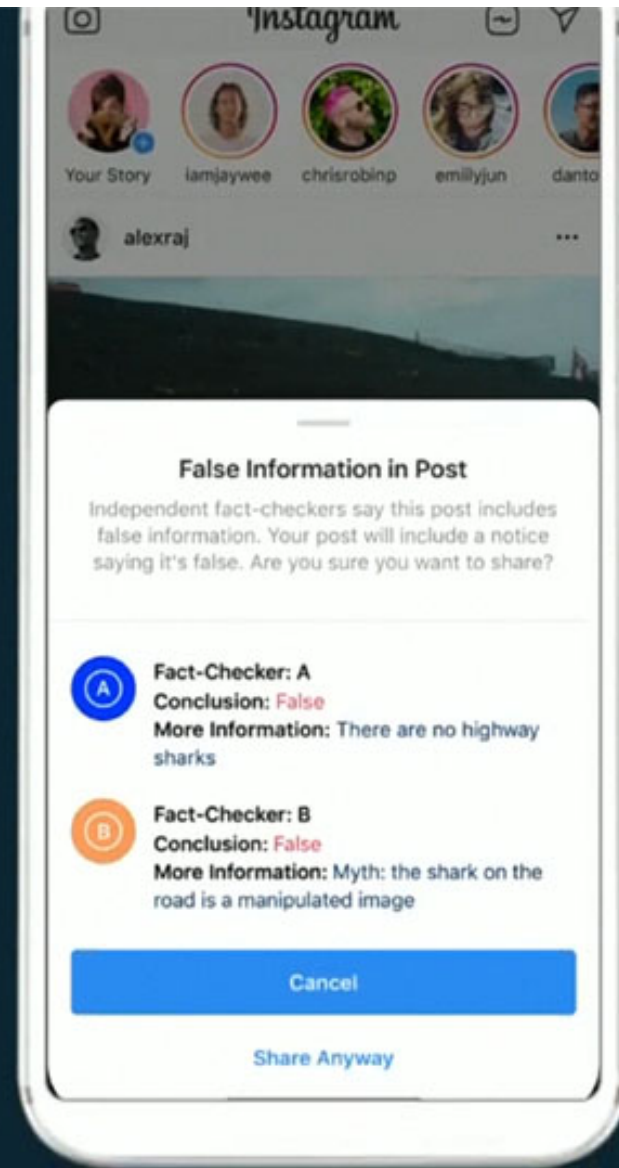




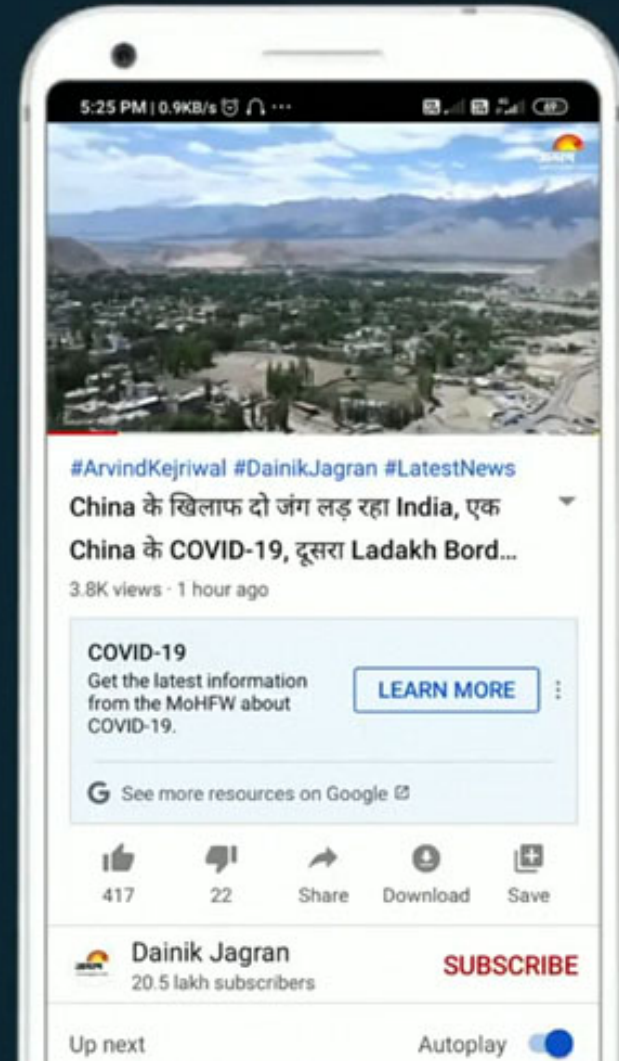








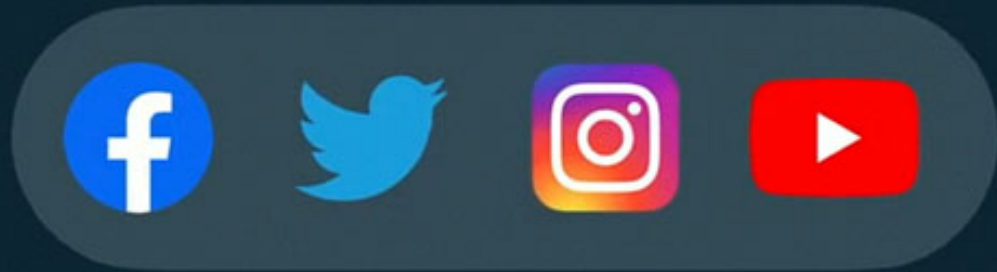




## Social Media apps

Have taken steps to reduce misinformation





### **Recognising fake media**

Using database of items fact-checkers or news sites have identified as fake.



### **Alerting users**

The UI either obscures the media in some way, or adds an alert next to it.



### **Providing reliable information**

Links to reliable resources or fact-checks about the issue.



**Messaging App**

WhatsApp





## Messaging App

WhatsApp

**Misinformation circulates widely on WhatsApp, and typically in the form of unsourced, anonymous rumours that do not link to any external sources.**

Understanding Misinformation on Mobile Instant Messengers (MIMs) in Developing Countries, Pasquetto et al.



**Messaging App**

WhatsApp



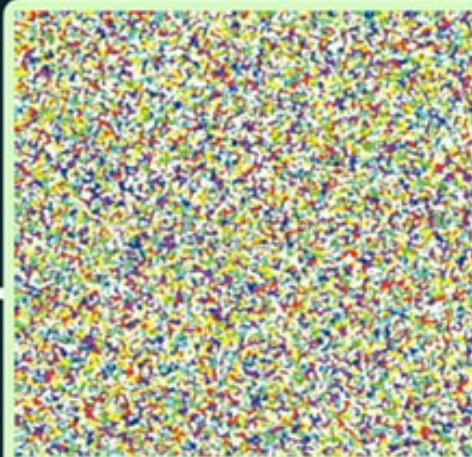
**End to End encryption**

# End to End encryption



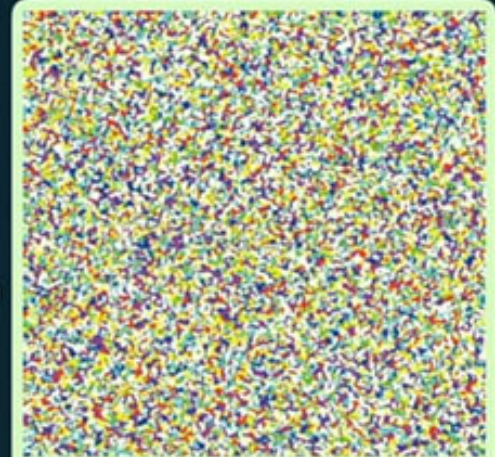
India on the eve of Diwali as seen from space. Image by NASA 🙏🙏🙏

Sender



\$#@^#R@\$S#! 134#-\$-!\$ l-Cr2C  
\$#@ !@CF@C 43%\$T%#@%^\$FD

WhatsApp server



\$#@^#R@\$S#! 134#-\$-!\$ l-Cr2C  
\$#@ !@CF@C 43%\$T%#@%^\$FD

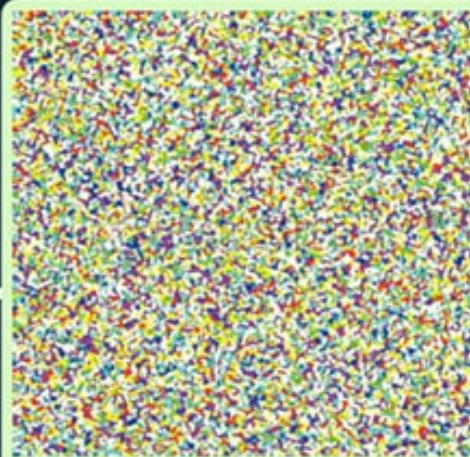
Receiver

# End to End encryption



India on the eve of Diwali as seen from space. Image by NASA 🙏🙏🙏

Sender



\$#@^#R@\$#\$#! 134#-\$-!\$ !-Cr2C  
\$#@ !@CF@C 43%\$T%#@%\$FD

WhatsApp server



India on the eve of Diwali as seen from space. Image by NASA 🙏🙏🙏

Receiver





## End to End encryption



### User privacy

Even if messages are intercepted  
between the two devices, they  
can't be read.





## End to End encryption



### User privacy

Even if messages are intercepted between the two devices, they can't be read.



### Content moderation

No way to see what users are sending to each other, so no way to moderate content.



## Checkpoint

4 month research project to study misinformation around elections.

Contracted 2 other organisations to run a fact-check helpline on WhatsApp,



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4 month research project to study misinformation around elections.

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User that received election-related  
misinformation on WhatsApp



proto LEARNING  
MEDIA



MEEDAN



## Checkpoint

4 month research project to study misinformation around elections.

Contracted 2 other organisations to run a fact-check helpline on WhatsApp,

## Data gathering



## Steps taken since 2017





## Steps taken since 2017



### **“Forwarded” marker**

Frequently forwarded and very frequently forwarded messages are marked with single and double arrow respectively.



### **Forwarding limit**

Reducing how many people or groups a single message can be forwarded to from unlimited to 10 to 5 and recently to 1.



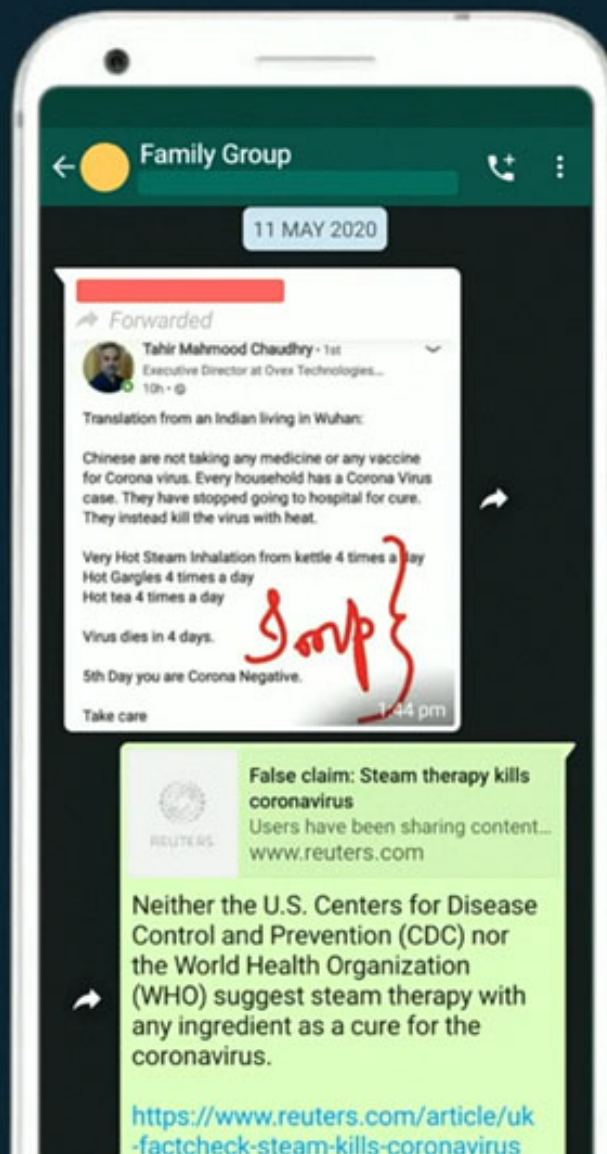
### **Information campaigns**

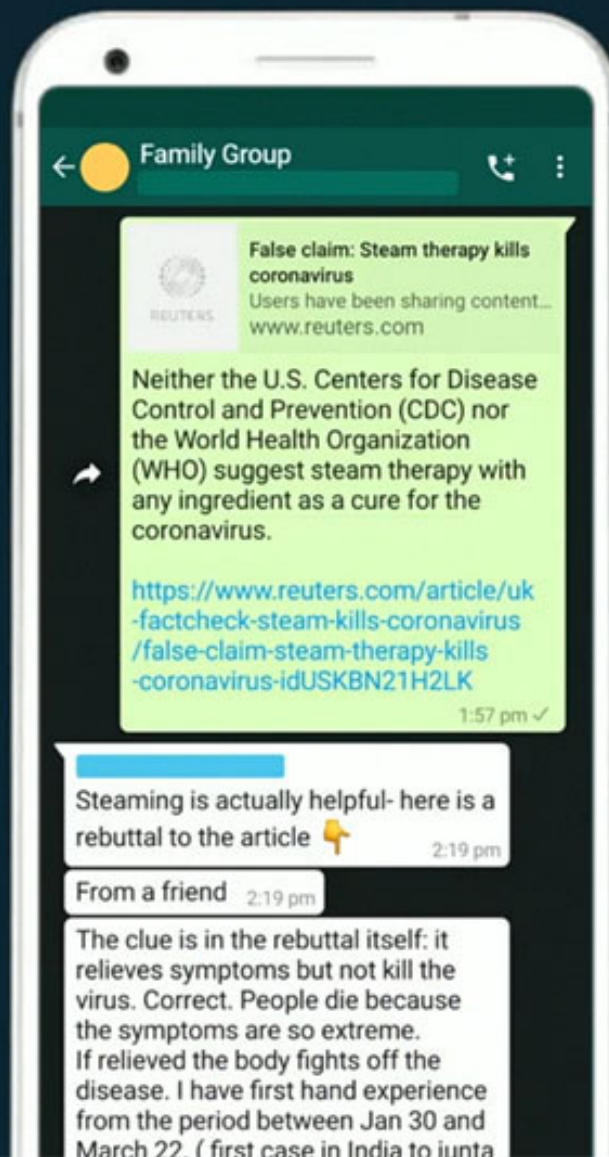
Newspaper advertisements, street plays, radio shows to tell people about the dangers of sharing fake news.

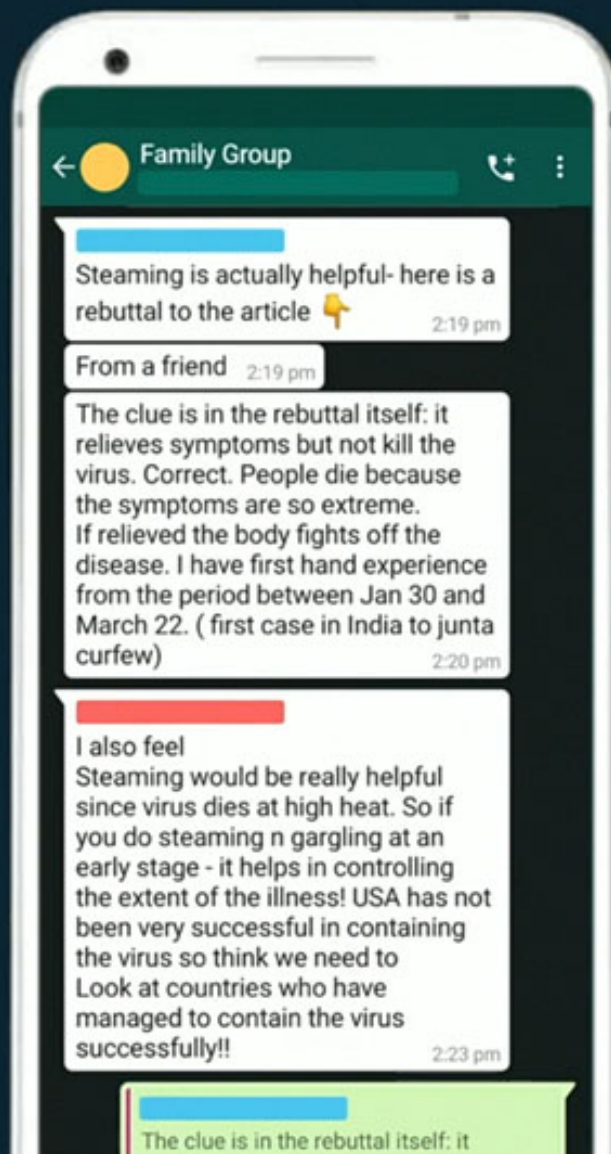


## **User Driven Fact-checking**

Users will correct other users when they post something wrong.

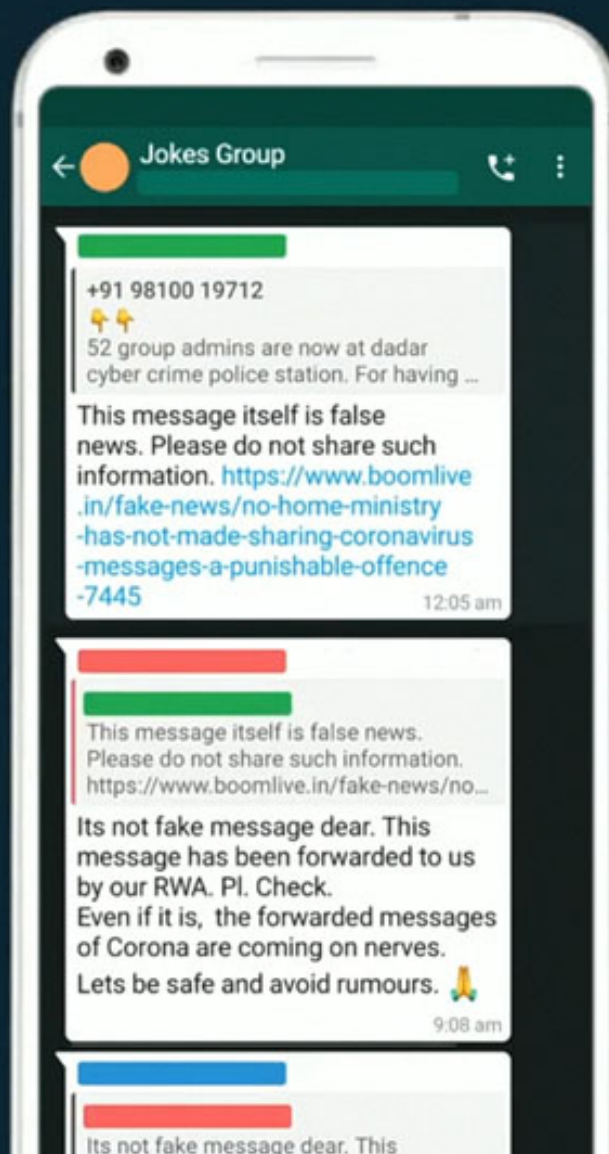


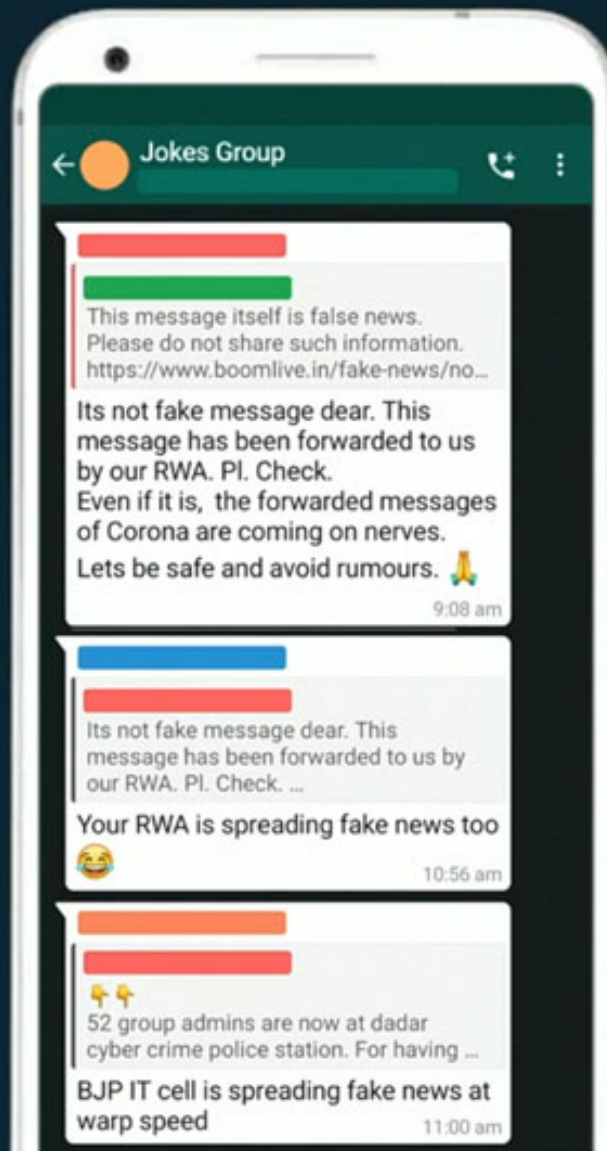












# Why people rarely correct others

## **Stressful**

There is a chance of offending someone, especially an older person.

## **Takes effort**

Fact-checking someone takes a lot more effort than forwarding a message.

## **Low ability**

People with lower technological or media literacy may find the process difficult.

## **Volume**

There are just so many messages on WhatsApp each day that a bulk of them are ignored.

Why people rarely correct others

## ...and it might not work even when they do

### **Trust in known people**

WhatsApp conversations are usually between known people, and there is trust in social circles.

### **Personal beliefs**

People may outright reject facts when they do not align with their worldview or personal beliefs.

### **Seen an an attack**

People do not like being corrected, especially in social groups. It may be seen as disrespectful to correct an elder.

### **Repetition enforces belief**

Repetition of false facts can cause them to be remembered as true, and the source may be forgotten.



Why people rarely correct others  
...and it might not work even when they do  
**...but it's still worth doing.**

**Works sometimes**

Someone who is deeply convinced about a subject may not listen to a factcheck, an unsure person may.

**Bystanders may doubt**

Groups can have up to 256 members, people other than the poster may benefit from the correction.

**Unsourced corrections**

According to Badrinathan et al. (2020), even unsourced corrections from other users can cause people to reconsider beliefs.

**Identity of corrector**

If the correction is coming from a known, trusted person, people are more likely to believe the fact-check.

## PRIMARY RESEARCH

# Understanding misinformation

### Consumers of fake news



#### WhatsApp users

Qualitative interviews with 10 users at Kanjurmarg station.

### Researchers



#### Tattle

Civic tech project involving technologists, data scientists, public policy researchers, designers



#### Prof. Anandi Hattiangadi

Talk called "The Epistemology of Fake news"  
Using computer simulations to investigate complex social systems.

### Journalists



#### The News Minute

Journalist Anna Isaac gave a talk on how fake news impacts her job as a journalist.

### Fact-checkers



#### Factchecker.in

Indian fact-checking website.



#### Boom Live

Fact-checking website, content in English, Hindi and Bengali. Recently expanded to Myanmar + Bangladesh.



#### Alt News

Non-profit fact checking website founded and run by former software engineer Pratik Sinha.



## Media Literacy

Try and make people more aware about misinformation, improve their ability to detect suspicious content.



## Fake news sharer

Forwards 5 WhatsApp messages daily



## Elderly

Watch prime time news, not as used to technology



## Easier Factchecking

Try and make the process of factchecking easier for a person who is motivated to correct others on a WhatsApp group.



## Busy professional

Tired of junk-filled WhatsApp forwards



## Adolescent

Understands fake news better than parents



## Easier Factchecking

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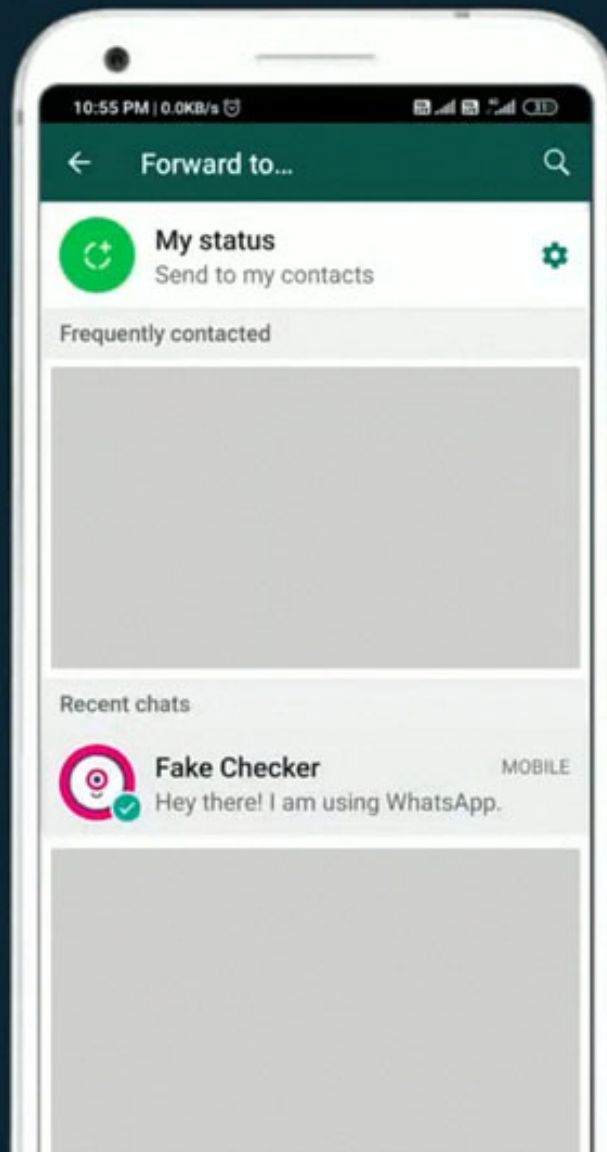
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## Factchecks on WhatsApp?





## Factchecks on WhatsApp?



## Factchecks on WhatsApp?



## Factchecks on WhatsApp?

**So why aren't more people  
building WhatsApp bots?**

General

## IFCN Fact Checking Organizations on WhatsApp

WhatsApp cares deeply about the safety of our users and we continue to focus on preventing misinformation. If the information you receive sounds suspicious or inaccurate, we encourage you to double-check information with these [IFCN Fact Checking Organizations](#) or via the IFCN Fact Checking chatbot, at +1 (727) 2912606.

Country/Region	Organization	WhatsApp Number
India	AFP	+91 73700 07000
India	Alt News	+91 98252 55790
India	Boom	+91 77009 06111 +91 77009 06568
India	Digit Eye	+91 96328 30256
India	Fact Crescendo - Hindi	+91 90490 53770
India	Fact Crescendo - Malayalam	+91 90490 46809
India	Fact Crescendo - Marathi	+91 90490 43487
India	Factly	+91 96031 32132
India	India Today	+91 73700 07000
India	Newschecker	+91 99994 99044
India	Newsmobile	+91 88268 00707
India	Vishvas News	+91 92052 70823



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	India	AFP	<a href="#">+91 73700 07000</a>
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	India	Boom	<a href="#">+91 77009 06111</a> <a href="#">+91 77009 06588</a>
	India	Digit Eye	<a href="#">+91 96328 30256</a>
	India	Fact Crescendo - Hindi	<a href="#">+91 90490 53770</a>
	India	Fact Crescendo - Malayalam	<a href="#">+91 90490 46809</a>
	India	Fact Crescendo - Marathi	<a href="#">+91 90490 43487</a>
Daily updates	India	Factly	<a href="#">+91 96031 32132</a>
	India	India Today	<a href="#">+91 73700 07000</a>
	India	Newschecker	<a href="#">+91 99994 99044</a>
Daily updates	India	Newsmobile	<a href="#">+91 88268 00707</a>
	India	Vishvas News	<a href="#">+91 92052 70923</a>

## PRIMARY RESEARCH

# Why are Indian Factchecking websites not building WhatsApp bots?



Newschecker



Boom LIVE



Alt News



### Reliance on grants for funding

Fact-checking organisations are often resource constrained and didn't have budgets for developing software.



### No way to automate the process (API restrictions)

The websites typically don't maintain a searchable database of claims, and WhatsApp is very selective with bot API access.



### Responding to user tips is not a priority

High volume of messages being managed through regular WhatsApp interface, hard to keep track.

## PRIMARY RESEARCH

# Other problems faced by Indian Factchecking websites



Newschecker



Boom LIVE



Alt News



### Journalistic fact-checking is labor intensive

There is too much misinformation to address all of it. Fact-checkers are fighting a losing battle.



### Local language content requires native speakers

Important to have fact-checkers that speak languages other than English, Hindi.

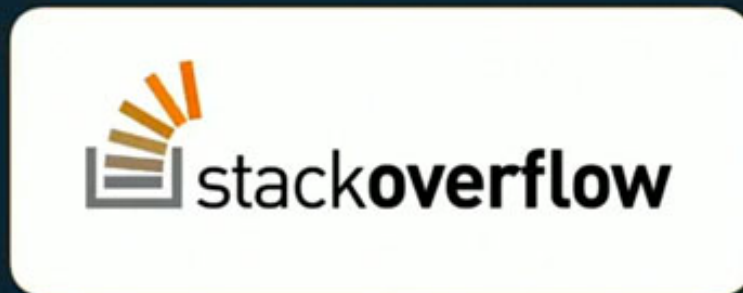


### Content can be text, image, images of text, audio, video

Different modalities pose different challenges—e.g. videos often are real, but titled incorrectly.

## CROWDSOURCING

### Why would crowdsourcing work?

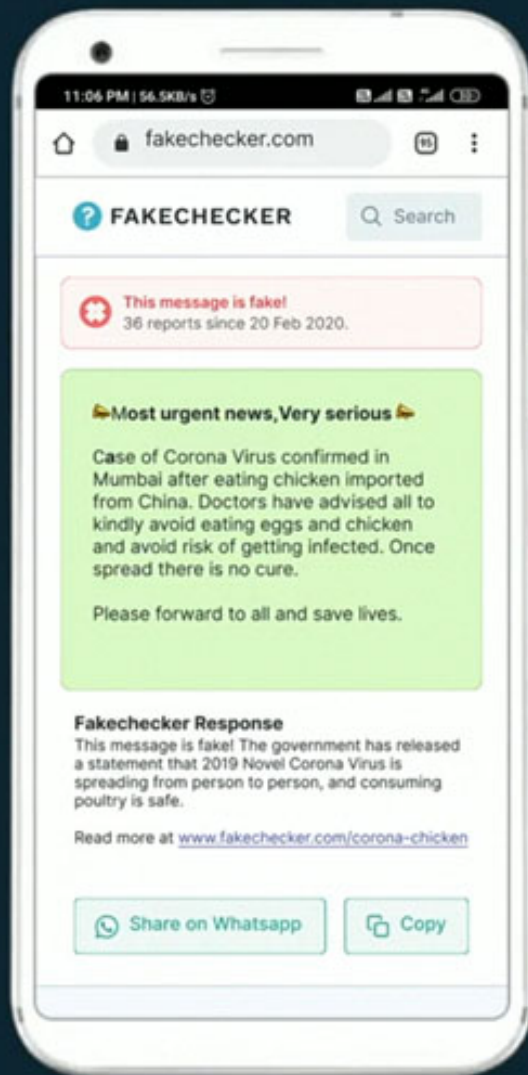


#### ◆ Stackoverflow

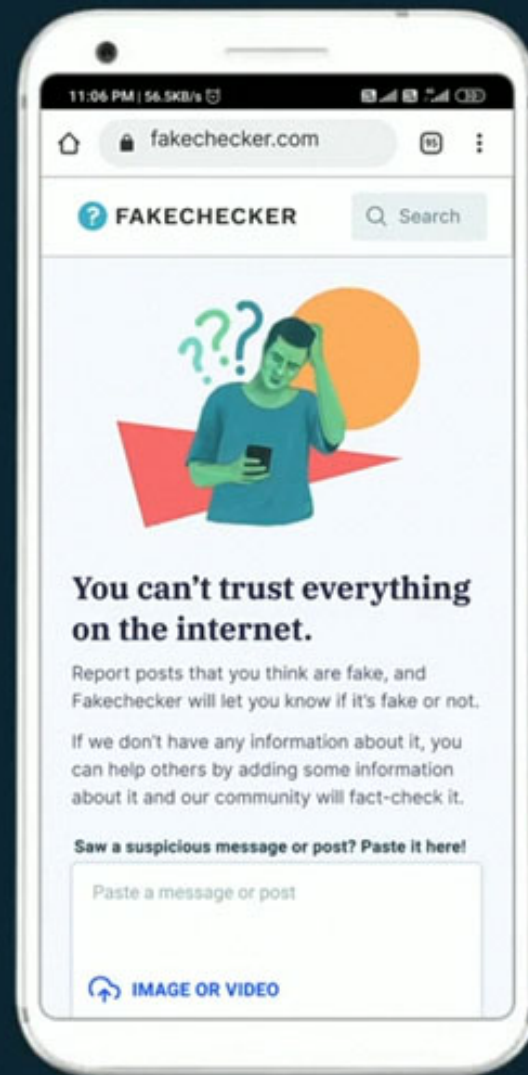
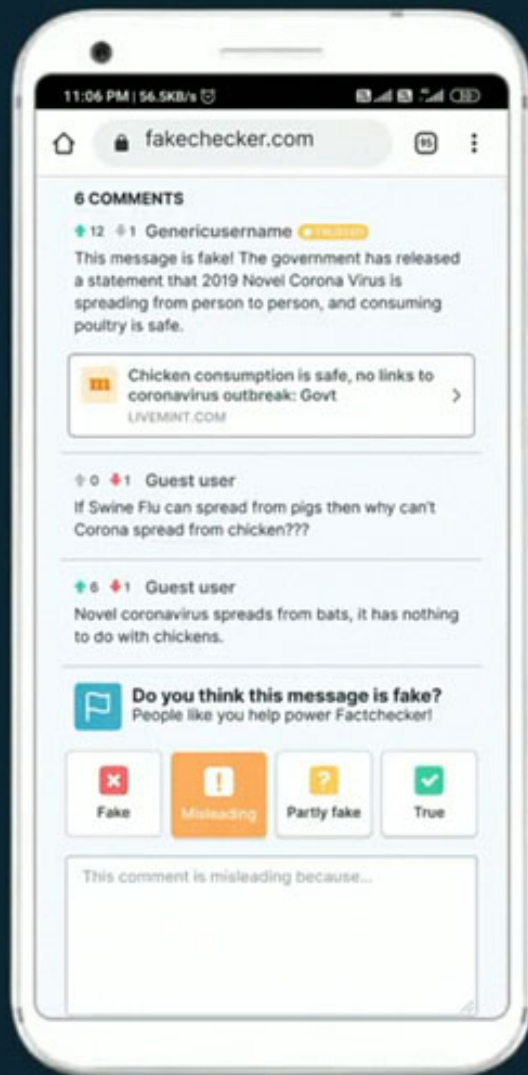
- Q&A site for professional, enthusiast programmers.
- Gamification: Badges, reputation points, slowly unlocking features.
- As of 2011, 92% of the questions were answered, in a median time of 11 minutes.

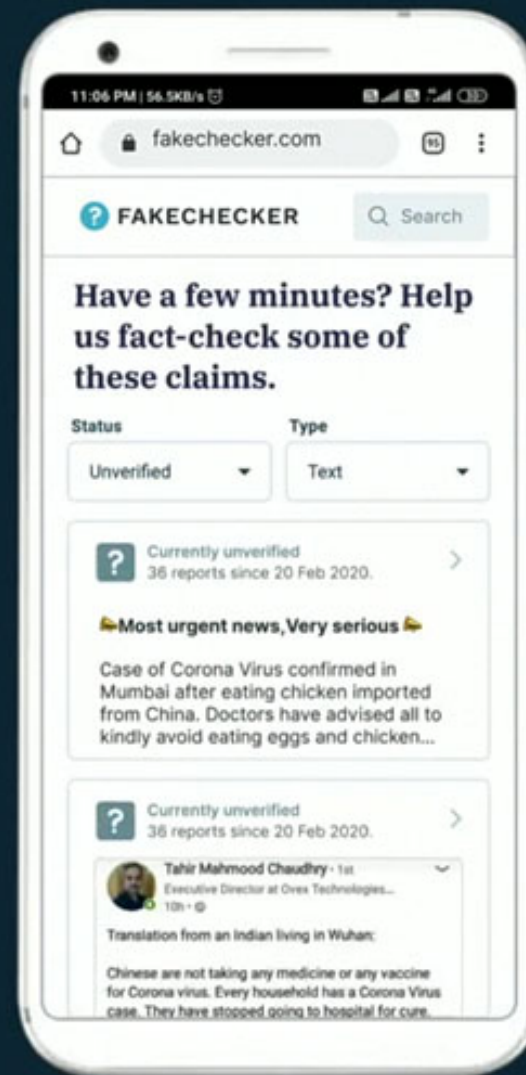
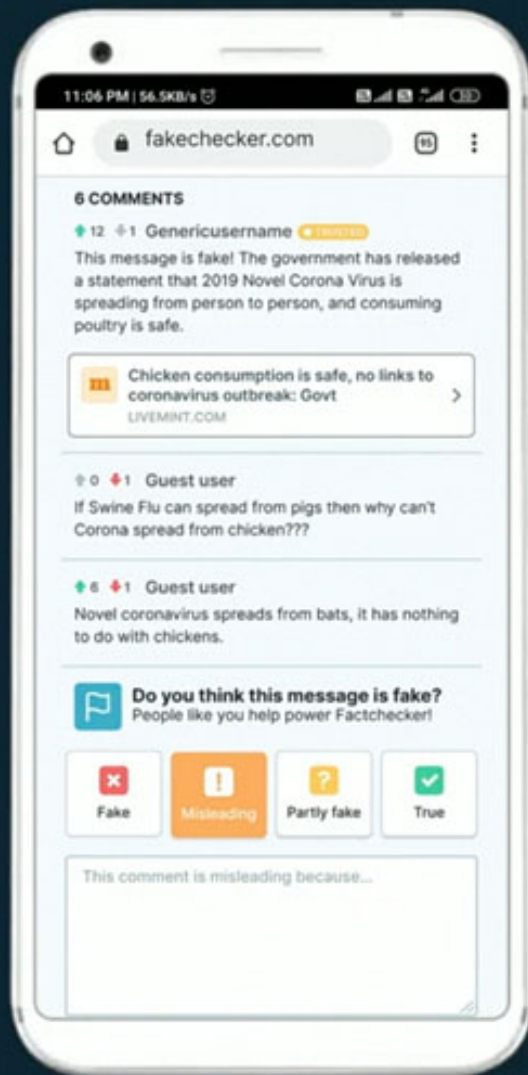
#### ◆ Wikipedia

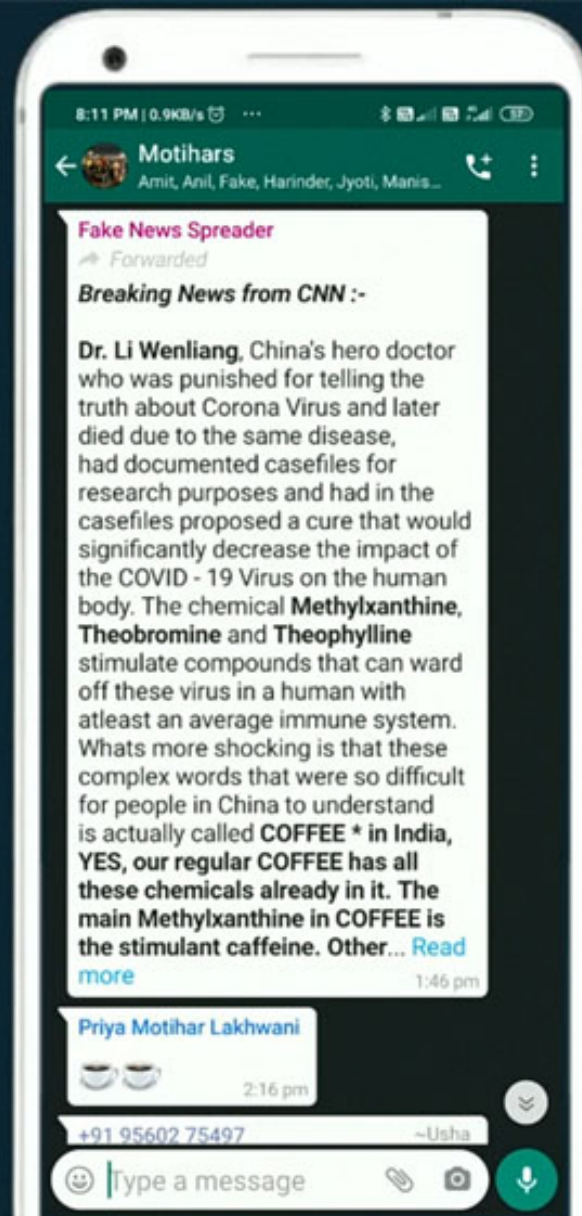
- 5th most popular website in the world.
- 40 million+ articles in 309 languages.
- Sometimes has edit wars and errors.
- Open nature generally leads to self-correction.
- 77% of articles are written by 1% of editors.
- Complicated edit process.











8:11 PM | 0.9KB/s

Motihars

Amit, Anil, Fake, Harinder, Jyoti, Manis...

**Fake News Spreader**

Forwarded

**Breaking News from CNN :-**

Dr. Li Wenliang, China's hero doctor who was punished for telling the truth about Corona Virus and later died due to the same disease, had documented casefiles for research purposes and had in the casefiles proposed a cure that would significantly decrease the impact of the COVID - 19 Virus on the human body. The chemical **Methylxanthine**, **Theobromine** and **Theophylline** stimulate compounds that can ward off these virus in a human with atleast an average immune system. Whats more shocking is that these complex words that were so difficult for people in China to understand is actually called **COFFEE** \* in India, **YES, our regular COFFEE has all these chemicals already in it. The main Methylxanthine in COFFEE is the stimulant caffeine. Other...** [Read more](#)

1:46 pm

Priya Motihar Lakhwani

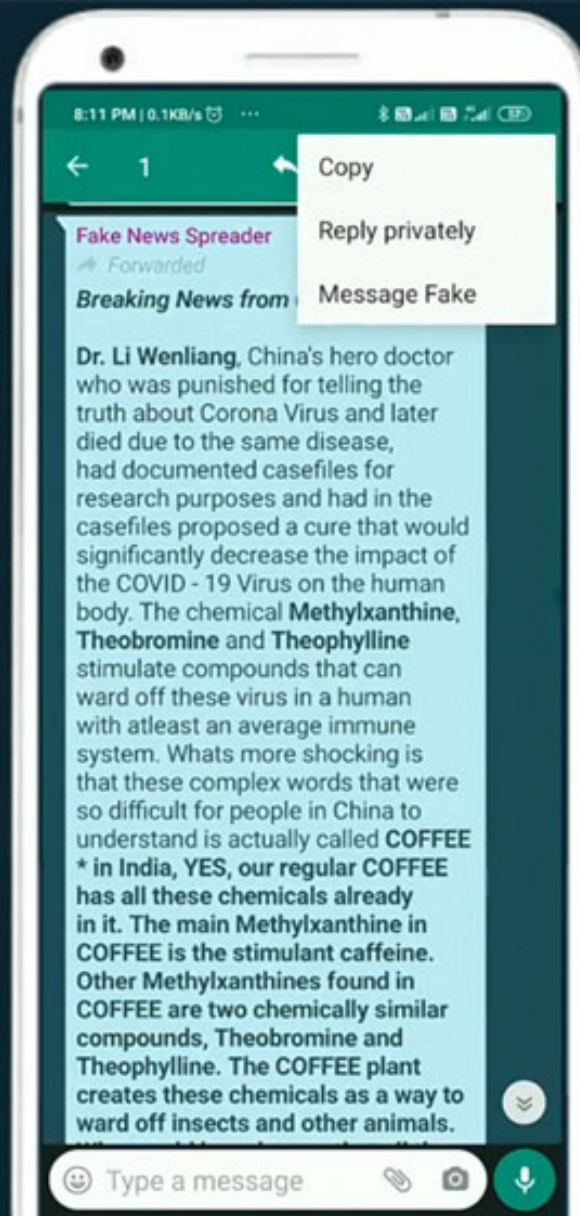


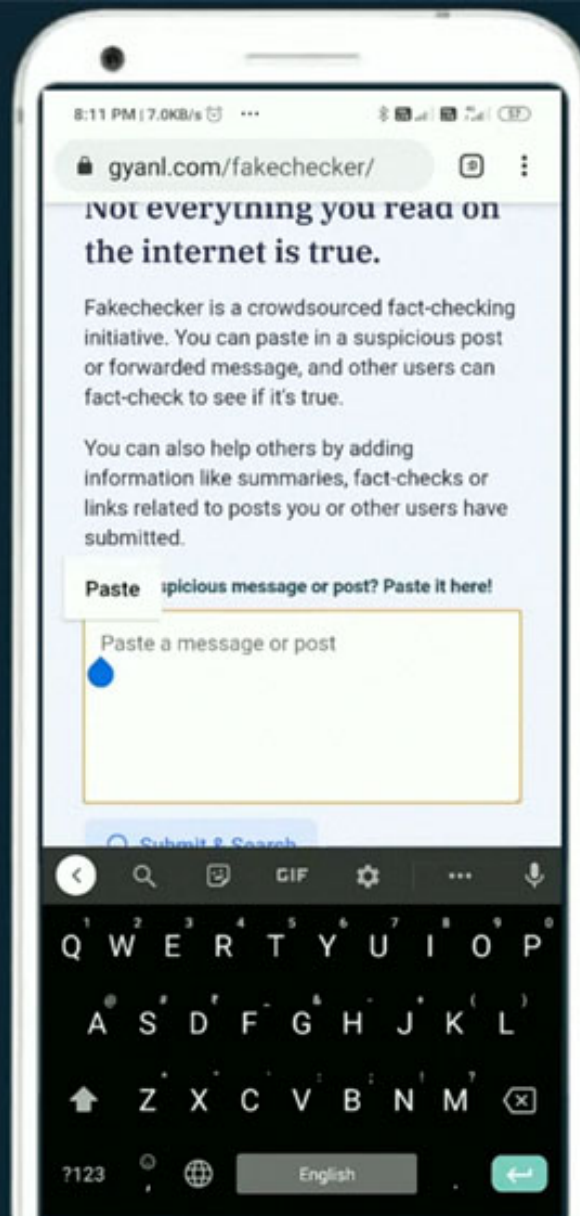
2:16 pm

+91 95602 75497

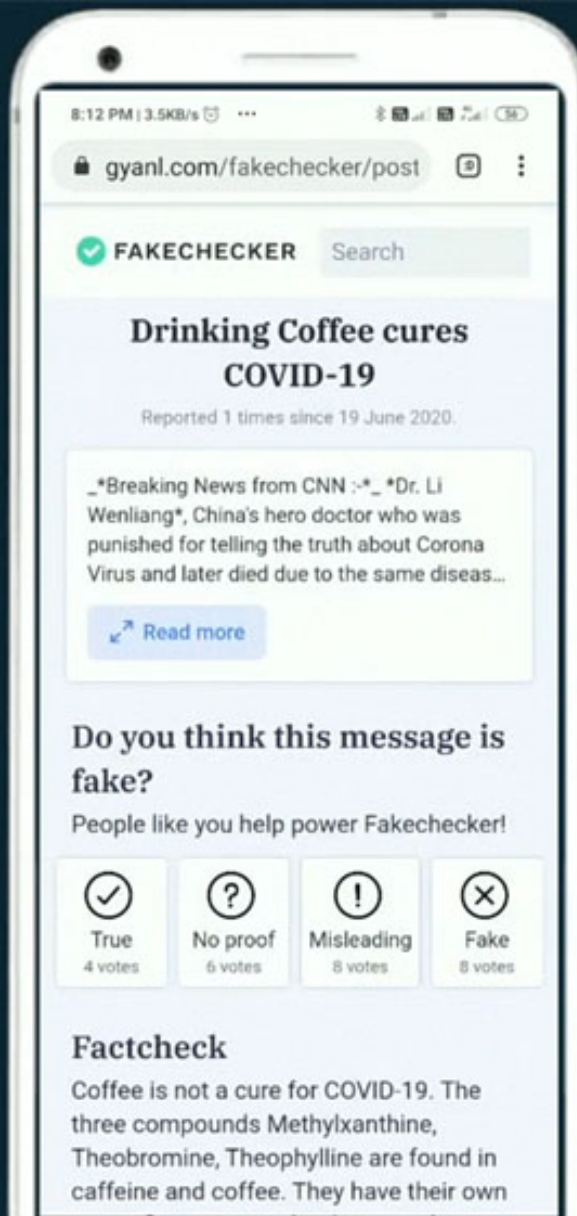
~Usha

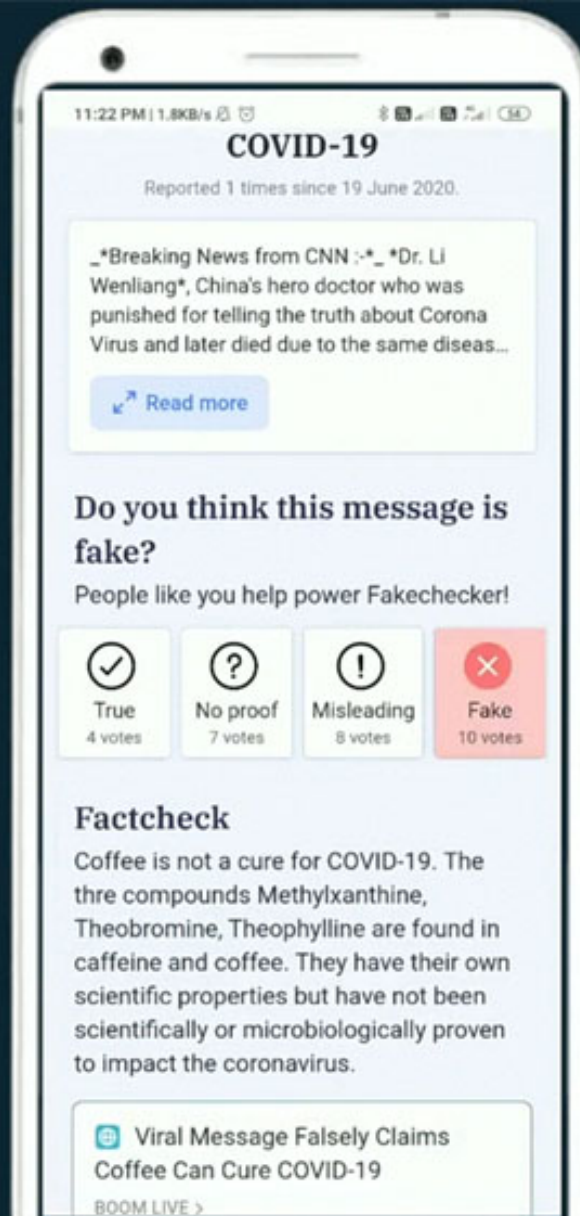
Type a message











11:22 PM | 1.8KB/s

## COVID-19

Reported 1 times since 19 June 2020.

\_\*Breaking News from CNN :-\*\_ \*Dr. Li Wenliang\*, China's hero doctor who was punished for telling the truth about Corona Virus and later died due to the same diseas...

[Read more](#)

### Do you think this message is fake?

People like you help power Fakechecker!



True

4 votes



No proof

7 votes



Misleading

8 votes



Fake

10 votes

### Factcheck

Coffee is not a cure for COVID-19. The three compounds Methylxanthine, Theobromine, Theophylline are found in caffeine and coffee. They have their own scientific properties but have not been scientifically or microbiologically proven to impact the coronavirus.

[Viral Message Falsely Claims Coffee Can Cure COVID-19](#)

BOOM LIVE >

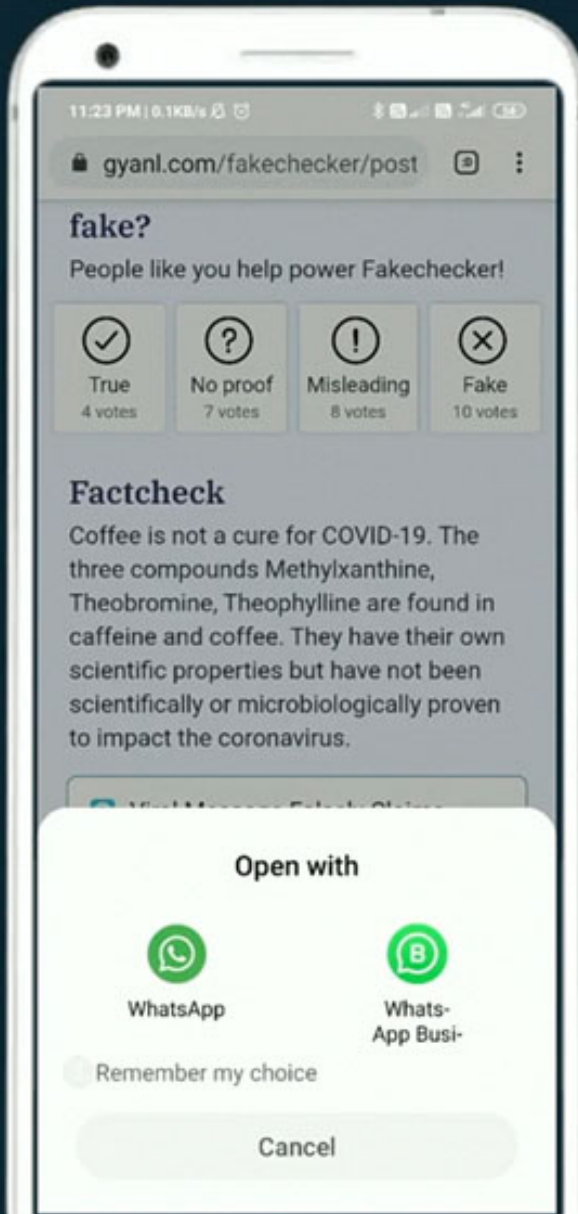
### Viral Message Falsely Claims Coffee Can Cure COVID-19

There is no scientific evidence supporting the theory that coffee cures COVID-19

By - Shachi Sutaria [Bannedfortalkin](#)  
13 Jun 2020 8:10 PM



A viral message claiming that the deceased Chinese COVID-19 whistleblower Dr. Li Wenliang found that coffee was a potential cure for COVID-19 is fake. BOOM could not find any evidence supporting both the claims, that the doctor left behind



11:23 PM | 0.1KB/s

gyanl.com/fakechecker/post

## fake?

People like you help power Fakechecker!



True

4 votes



No proof

7 votes



Misleading

8 votes



Fake

10 votes

## Factcheck

Coffee is not a cure for COVID-19. The three compounds Methylxanthine, Theobromine, Theophylline are found in caffeine and coffee. They have their own scientific properties but have not been scientifically or microbiologically proven to impact the coronavirus.

### Open with



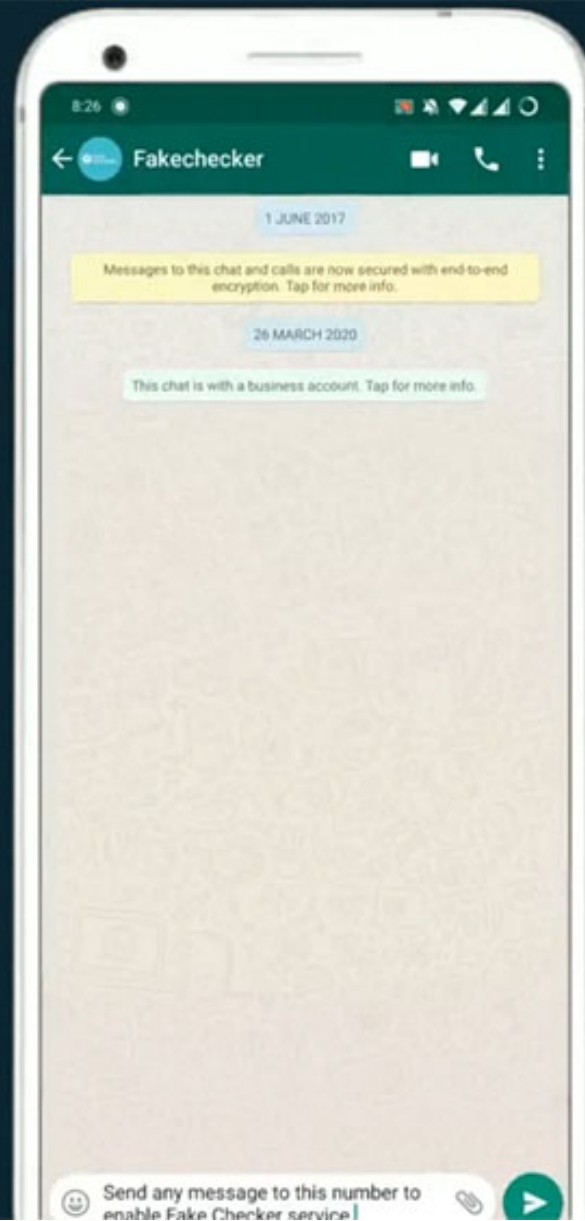
WhatsApp



WhatsApp Business

Remember my choice

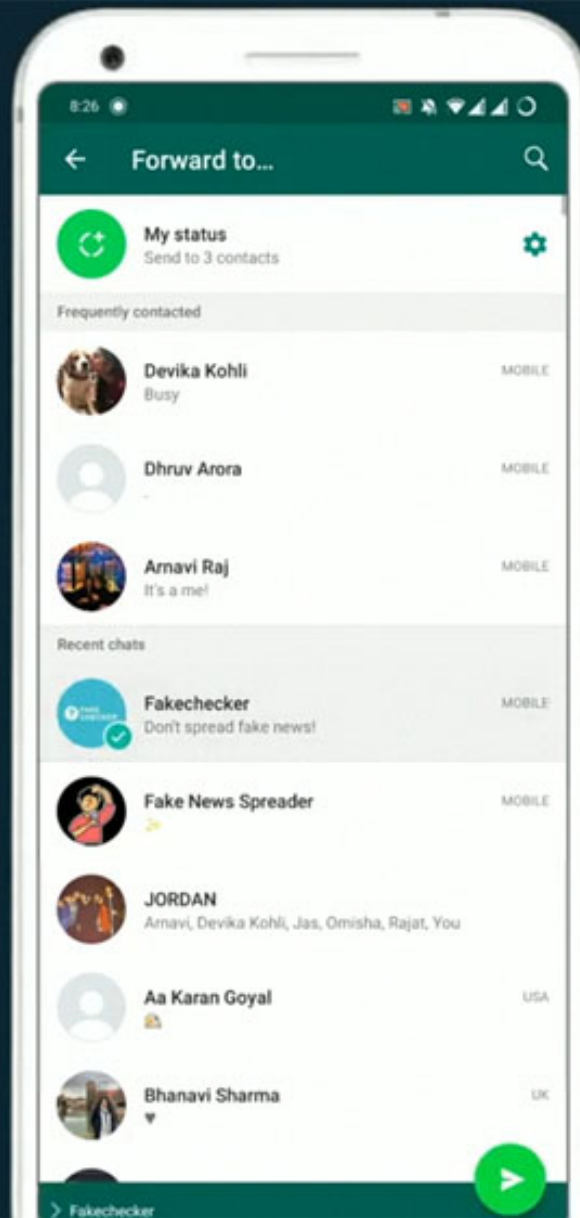
Cancel

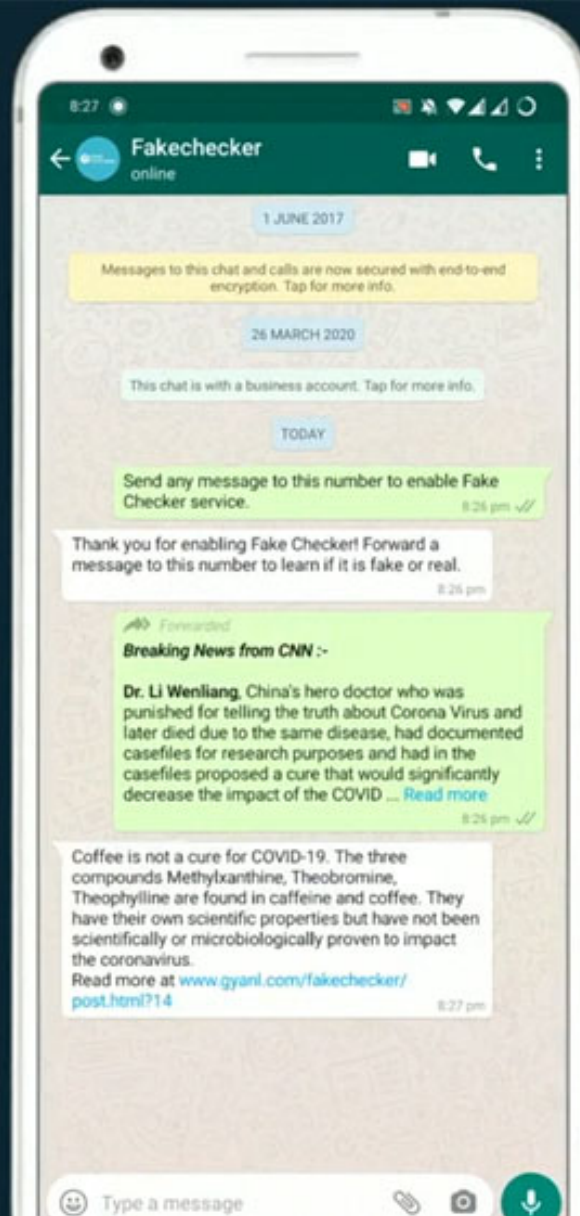












8:27

Fakechecker  
online

1 JUNE 2017

Messages to this chat and calls are now secured with end-to-end encryption. Tap for more info.

26 MARCH 2020

This chat is with a business account. Tap for more info.

TODAY

Send any message to this number to enable Fake Checker service. 8:26 pm ✓

Thank you for enabling Fake Checker! Forward a message to this number to learn if it is fake or real. 8:26 pm

Forwarded

**Breaking News from CNN :-**

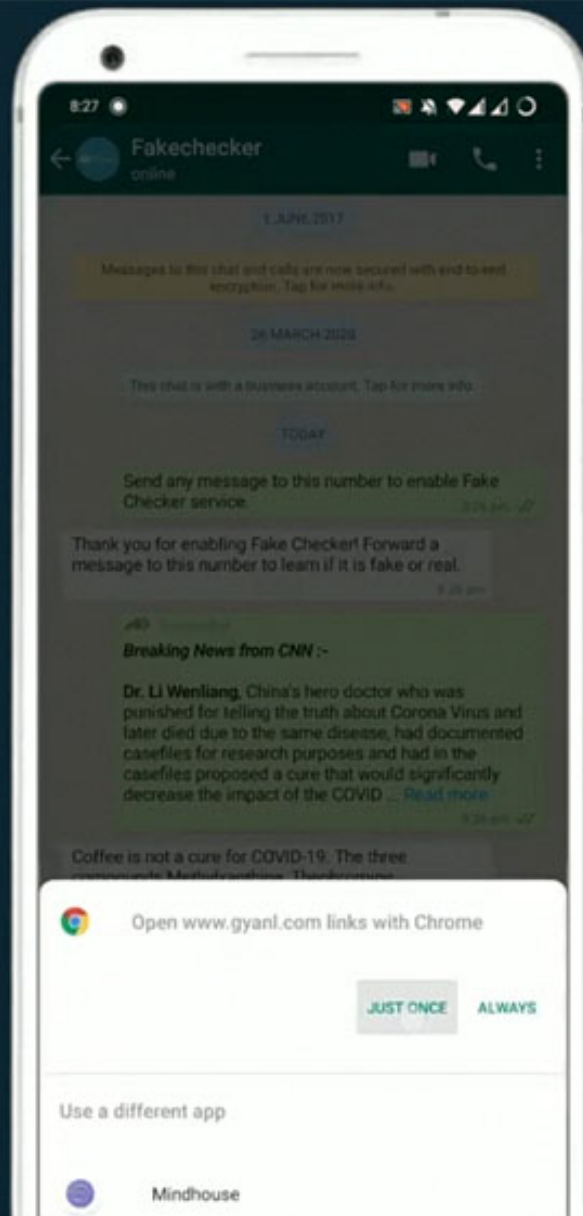
**Dr. Li Wenliang**, China's hero doctor who was punished for telling the truth about Corona Virus and later died due to the same disease, had documented casefiles for research purposes and had in the casefiles proposed a cure that would significantly decrease the impact of the COVID ... [Read more](#)

8:26 pm ✓

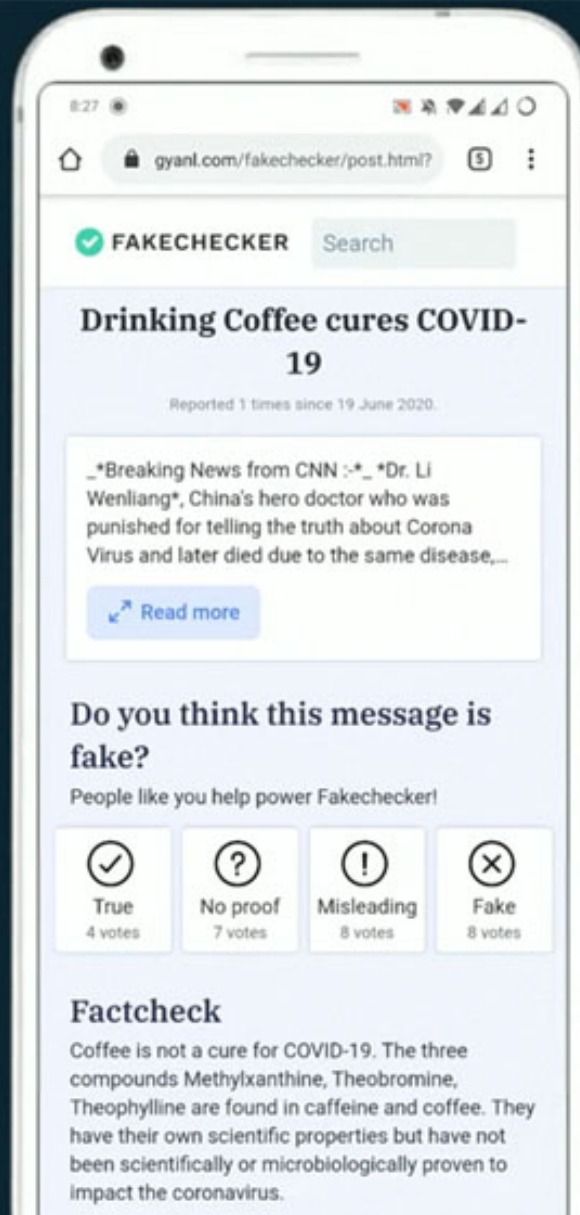
Coffee is not a cure for COVID-19. The three compounds Methylxanthine, Theobromine, Theophylline are found in caffeine and coffee. They have their own scientific properties but have not been scientifically or microbiologically proven to impact the coronavirus. Read more at [www.gyanil.com/fakechecker/post.html?14](http://www.gyanil.com/fakechecker/post.html?14)

8:27 pm

Type a message







# User Evaluation

10 users

## ◆ Self-explanatory website

The website was largely self-explanatory, and people understood how it worked within a few minutes.

## ◆ Successful task completion

All users were able to successfully complete tasks like submitting a post, adding and editing a factcheck, adding a summary, voting and commenting.

## ◆ People found it useful

A number of users commented that they would find something like this useful, and asked if they could share it with family members.

## ◆ Too easy to edit

A number of people made changes to the content on the page to see what would happen, and realised they couldn't change things back to how they were. An undo option was required.

## ◆ Only 1 person returned to post

Only one person submitted something to the website after the user testing session, suggesting that motivations to use the tool are not very high.

# Expert Evaluation

**Tattle, Civic Tech organisation working in fake news.**

## ◆ Promising idea

There is interest in working on fake news, but it is currently diffused. It would be good to have a platform to organise around.

## ◆ Try to build a community before building technology

A suggestion that I could try building a community of volunteer fact-checkers on an existing platform like Reddit, and try to funnel users from there.

## ◆ Potential for misuse

An archive of misinformation can be misused by people who want to share misinformation!

## ◆ As a tool for fake news researchers

Access to fake news content on WhatsApp is an issue I had stumbled upon earlier, but not focused on. There could be a researcher mode which offers an overview of fake news stories, tracks their spread over time, etc.

## ◆ Would like to take this forward!

I will be working with Tattle over the next few months to refine the design and publicly release it.

**Thank you!**

**You can try the prototype at [gyanl.com/fakechecker](https://gyanl.com/fakechecker)**