'It is true, I received on WhatsApp':

The Effects of WhatsApp on Misinformation Beliefs and Polarization

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WhatsApp 101

WhatsApp

Usage in Brazil

WhatsApp is an end-to-end encrypted messaging app

- Close to 2 billion active users.
- Same number of active users of YT. Only behind Facebook.
- Allows for both direct and group communication.
- Allows for audio and video calls, as well as sharing of media content.

WhatsApp 101

WhatsApp

Usage in Brazil

- 66% of the Brazilian eligible voters has a social media account, and 65% have an WhatsApp account (Datafolha 2018) – 150 million people in 2022.
- It is the most used app for all purposes: talk to family & friends, do business & pay bills, consume news, talk politics, among others (Reuters Institute, 2021).
- It is used by 48% of population to read news, despite having no “news feed” (Reuters Institute, 2021)

Motivation

Disinformation Spreads on WhatsApp Ahead of Brazilian Election

Give this article

Fake News Is Poisoning Brazilian Politics. WhatsApp Can Stop It.

Oct. 17, 2018

Source: here and here

Literature

- No research so far on the causal effects of WhatsApp on users' likelihood to fall for misinformation and other political attitudes.
- Asimovic et. al. 2021 and Alcott et. al. 2020 use deactivation experiments on Facebook as an strategy to identify causal effects of social media usage.
- WhatsApp deactivation is considerably more challenging.
    - WhatsApp is the most used app for all purposes in Brazil.
    - No easy way back to the app.
    - Little policy implication.

Intervention

Our Solution: WhatsApp Media Deactivation.

- Media (videos and images) represent the main channel through which misinformation and polarizing content spreads on WhatsApp (Resende et al. 2019; Freitas Melo et al. 2019, Garimella and Tyson, 2018, Garimella and Eckles, 2020, Machado et al. 2019).

- Reduce exposure to media received on WhatsApp, and cut exposure to misinformation and polarizing content ahead of the election in Brazil.

Experiment: Offers respondents a monetary incentive to:

- Disable their automatic download of media on WhatsApp.
- Do not watch any media on WhatsApp.

Treatment Period: Three weeks:

- **Start:** Two weeks the before presidential elections in Brazil.
- **End:** One week after the voting day.

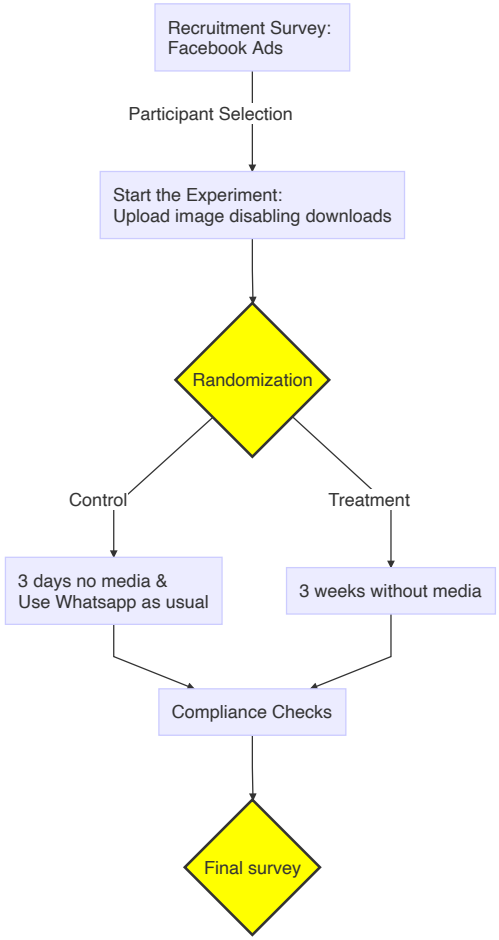
Overview of the Experiment

Design

Filtering Questions

Treatment Groups

Timeline



Overview of the Experiment

Design

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- Time spent on WhatsApp > 10 minutes every day
- Should not use desktop WhatsApp
- Accept to join the study
- ? Received images about politics on WhatsApp ?

Overview of the Experiment

Design

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Timeline

Treatment

- 3 weeks with automatic download disabled
- 3 weeks without consuming media
- Weakly screenshots of storage of media consumption on WhatsApp

Control

- 3 days with automatic download disabled
- 3 days without consuming media
- Weakly screenshots of storage of media consumption on WhatsApp

Overview of the Experiment

Design

Filtering Questions

Treatment Groups

Timeline

- **Start Recruitment:** Between September 2th - 5th
- **Start the Experiment** September 15th
- **Activation of the Control + First Compliance**: September 18th
- **Treatment duration**: From September 15th to October 6th
- **Presidential Election**: October 2

Measuring Compliance I

Automatic Download

Measuring Compliance II: Media Consumption

Storage Information

Outcomes

Misinformation

- False Headlines published by fact-checking webpages during the month of the experiment + True headlines from mainstream media.

Polarization

- Affective polarization (Feeling Thermometer)
- Social Polarization (i.e. Watching the world cup with an outgroup)
- False Polarization ('Where do I observe the two main candidates?')
- Issue Polarization?

Subjective Well-being

- How did you feel last week? (Happy, Anxious, etc...)

Hypotheses

- H1a: Users using the Media-Constrained WhatsApp will display a higher ability to accurately identify FALSE headlines compared to their counterparts using the regular WhatsApp.
- H1b: Users using the Media-Constrained WhatsApp will display lower ability to to accurately identify TRUE headlines from mainstream news compared to their counterparts using the regular WhatsApp.
- H2: Users using the Media-Constrained WhatsApp will display lower levels of outgroup partisan polarization compared to their counterparts using the regular WhatsApp.
- H3: Users using the Media-Constrained WhatsApp will display higher levels of the aggregated index of subjective well-being compared to their counterparts using the regular WhatsApp.

One-Week Pilot Study

Summary

Recruitment: Facebook Ads

Experimental Condition:

- **Treatment** Full-week of no media
- **Control**: Three days with no media.

Experiment Assignment: After uploading proof of disabling automatic download of media.

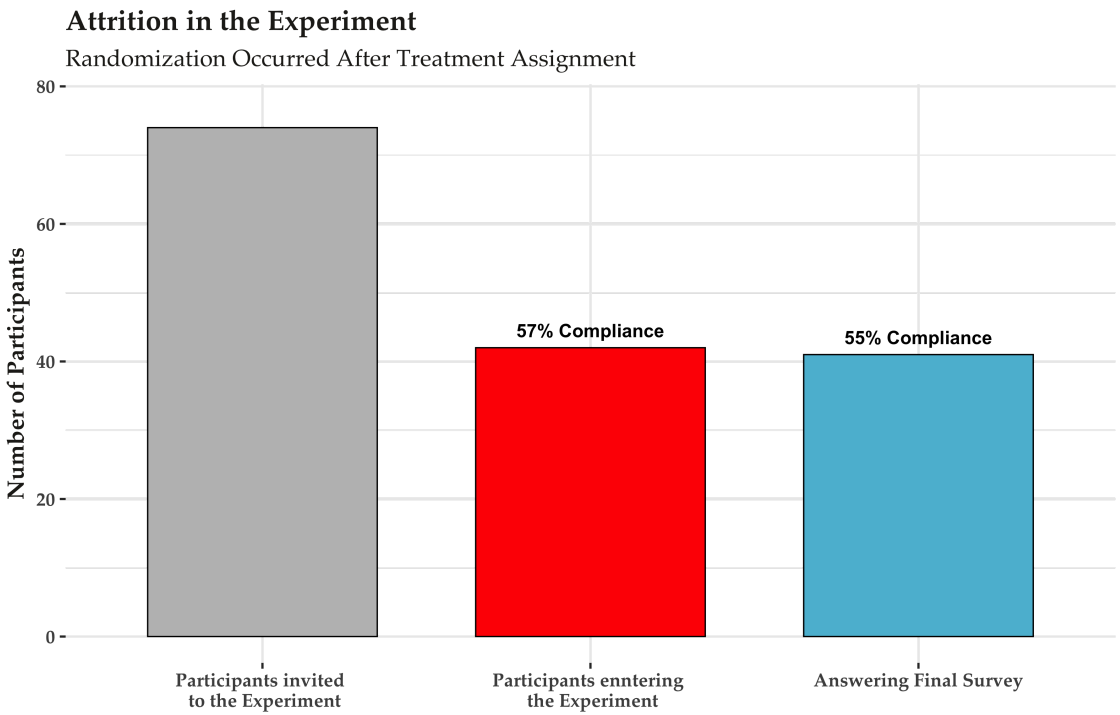
Responses:

- 540 complete responses for the screening
- 317 passed the filters
- 74 invited to join the experiment (August 19-20)

Attrition Rate

Results

Notes



Attrition Rate

Results

Notes

We recruited 540 completes in the screening, from which 317 passed all the screening questions.

To invite participants, we block randomized on gender, education and age to select 74 out of 317. This probably give us a lower bound for the attrition rate.

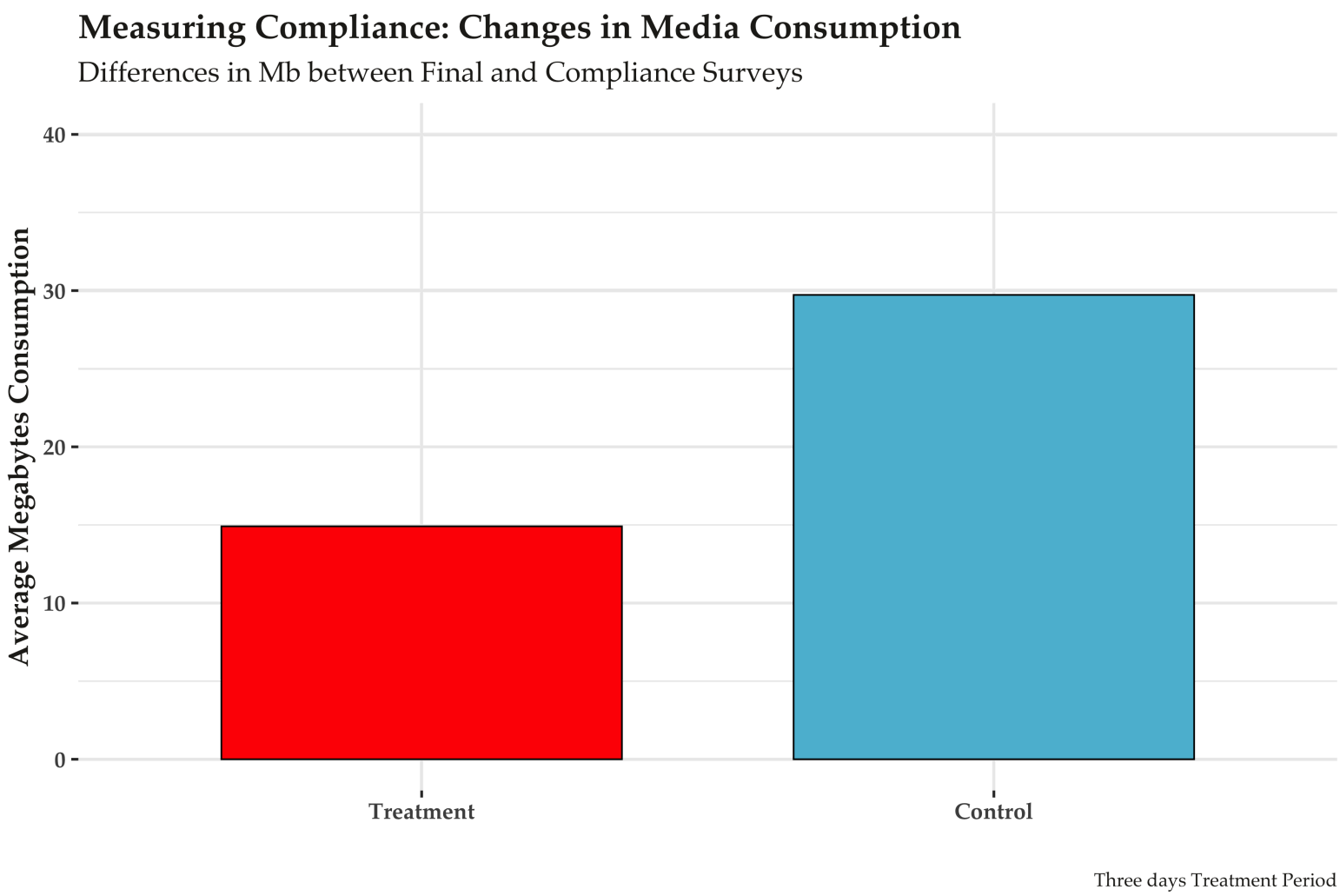
In addition, we started with email communication, and moved later to direct WhatsApp messages. The later is way more effective.

Evaluating Compliance Checks

Evaluating Compliance Checks

	Treatment	Control
Participants	23	19
Uploaded Correct Treatment Assignment (CR)	23 (100%)	18 (94%)
Uploaded First Compliance Check (CR)	22 (95%)	13 (72%)
Uploaded Second Compliance Check (CR)	21 (91%)	13 (72%)
Upload Correct both Compliance Checks (CR)	18 (78%)	12 (63%)
Answered Final Survey	23 (100%)	18 (94%)

Changes in Media Consumption



Comparing Demographics

Comparing Social Demographics

	All (N=467)		Compliers (N=42)		Never-Takers (N=32)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Age	2.7	1.2	2.6	1.2	2.9	0.9
Gender	1.1	0.3	1.1	0.3	1.2	0.4
Education	4.9	1.2	4.8	1.1	4.9	1.3
Politics	2.9	0.7	2.8	0.8	3.0	0.7
Ideology	5.5	2.9	5.1	3.3	**5.7**	3.0
WhatsApp usage per day	5.6	1.6	5.8	1.3	5.6	1.3
Received Images about Politics	0.8	0.4	0.9	0.3	0.9	0.3

All variables are converted to a numeric scale

Open Questions

Mechanisms for misinformation

- Working with exposure (Have you seen this headline before?). What else is important to be included in the survey?

Headlines selection

- Any advice on how to select the headlines? Should we take advantage of the compliance survey and add some headline tasks while collecting screenshots for compliance?

Compliance: What can we do better?

Descriptive information: Which data should we collect?

What else?

Thanks!

Power Analysis

Effect Size in SD

Power Analysis

Alcott et. al.

- **Polarization index:** -0.16
- **News Knowledge index:** -0.19
- **Subjective well-being index:** 0.09

Asimovic et. al.

- **Outgroup Regard index:** -0.24
- **News Knowledge index:** -0.27
- **Subjective well-being index:** 0.18

Power Analysis

Effect Size in SD

Power Analysis