



**No Body's Business but Mine:  
Uncovering the Dirty Practices of  
Menstruation Apps**

Picture Courtesy of Josefin (Unsplash)



## What we are going to talk about

- A bit of background to this project
- What's a menstruation app?
- How did this research start?
- What kind of data menstruation apps actually collect?
- Research methodology
- Research findings

**PRIVACY  
INTERNATIONAL**

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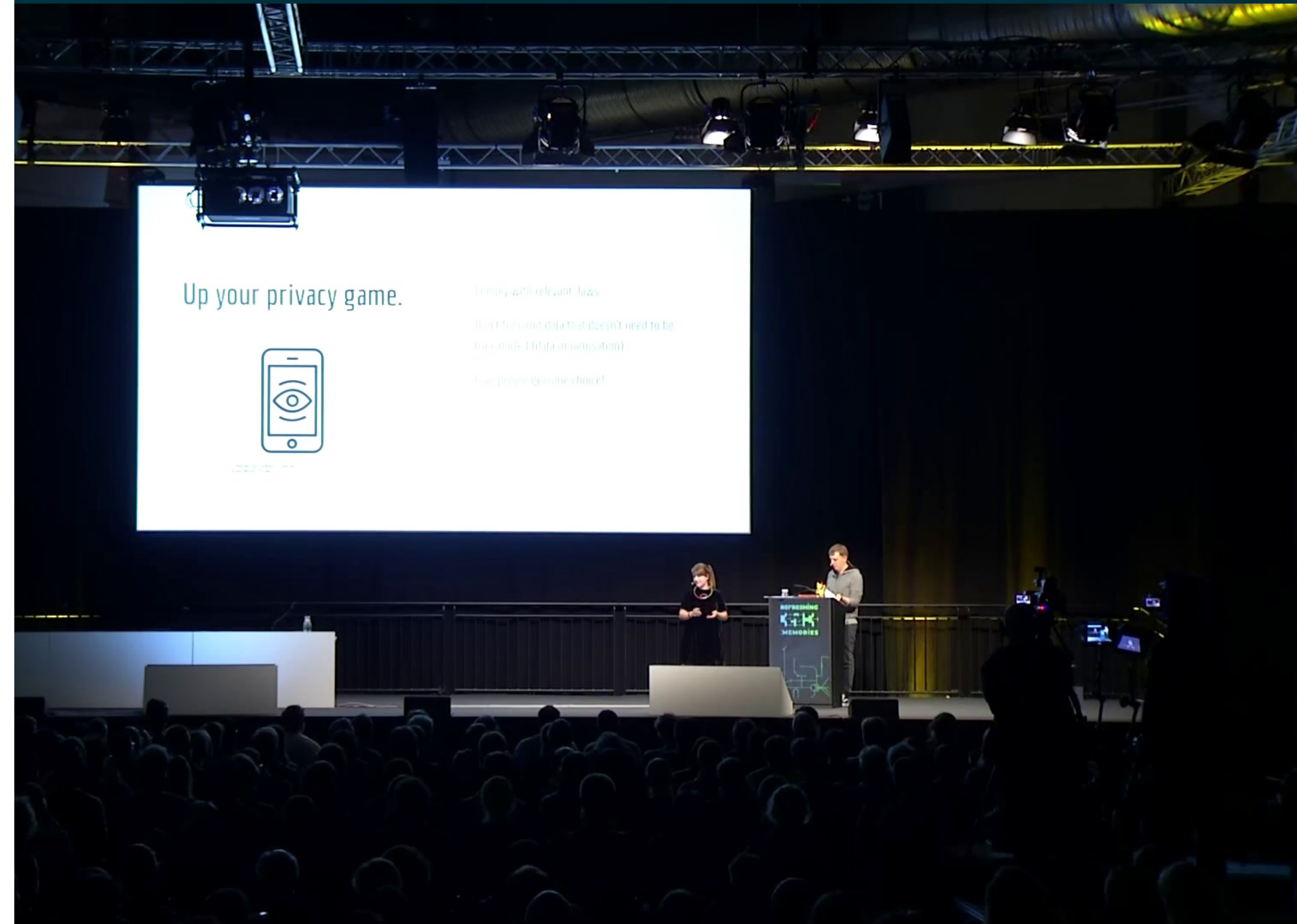
# How Apps on Android Share Data with Facebook

(even if you don't have a Facebook  
account)

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December 2018

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Up your privacy game.



- Comply with relevant laws
- Don't track and data that doesn't need to be
- Use people (assume a home)

Saturday, December 29, 2018

Privacy International - #36C3 2019 - No Body's Business but Mine: Uncovering the Dirty Practices of Menstruation Apps

Bible – Audio, Daily Verse, Study & Offline,  
Free BMI Calculator & Weight Loss Tracker  
Calorie Counter – MyFitnessPal  
Candy Crush Saga  
Clean Master – Antivirus, Cleaner & Booster Dropbox  
Duolingo: Learn Languages Free  
Family Locator – GPS Tracker (Formally Life360)  
HP ePrint  
Indeed Job Search  
Instant Heart Rate: HR Monitor & Pulse Checker  
KAYAK Flights, Hotels & Cars  
King James Bible (KJV) Free  
Muslim Pro – Prayer Times, Azan, Quran & Qibla  
My Talking Hank  
Opera Browser  
Period Tracker, My Calendar

Period Tracker Clue: Period & Ovulation Calculator  
Phone Tracker By Number  
Qibla Connect® Find Direction– Prayer, Azan,  
Quran )Salatuk (Prayer time **صلاتك**  
Security Master – Antivirus, VPN, AppLock, Booster  
Shazam  
Skater Boy  
Skyscanner – Cheap Flights, Hotels and Car Rental  
Speedtest by Ookla  
Spotify Music  
Super-Bright LED Flashlight  
The Weather Channel: Local Forecast & Weather Maps  
TripAdvisor Hotels Flights Restaurants Attractions  
Cleaner – Boost, Clean, Space Cleaner  
VK (vkontakte)  
WeChat  
Yelp



Bible – Audio, Daily Verse, Study & Offline,  
Free BMI Calculator & Weight Loss Tracker  
Calorie Counter – MyFitnessPal  
Candy Crush Saga  
Clean Master – Antivirus, Cleaner & Booster Dropbox  
Duolingo: Learn Languages Free  
Family Locator – GPS Tracker (Formally Life360)  
HP ePrint  
Indeed Job Search  
Instant Heart Rate: HR Monitor & Pulse Checker  
KAYAK Flights, Hotels & Cars  
King James Bible (KJV) Free  
Muslim Pro – Prayer Times, Azan, Quran & Qibla  
My Talking Hank  
Opera Browser  
**Period Tracker, My Calendar**

**Period Tracker Clue: Period & Ovulation Calculator**  
Phone Tracker By Number  
Qibla Connect® Find Direction– Prayer, Azan,  
Quran )Salatuk (Prayer time **صلاتك**)  
Security Master – Antivirus, VPN, AppLock, Booster  
Shazam  
Skater Boy  
Skyscanner – Cheap Flights, Hotels and Car Rental  
Speedtest by Ookla  
Spotify Music  
Super-Bright LED Flashlight  
The Weather Channel: Local Forecast & Weather Maps  
TripAdvisor Hotels Flights Restaurants Attractions  
Cleaner – Boost, Clean, Space Cleaner  
VK (vkontakte)  
WeChat  
Yelp

**Update: We followed up with all the companies from the December report in March 2019, and over 60% had changed practices**

**So... What *exactly* is a menstruation app?**

Menstruation apps (or period trackers) are apps that women use to track their menstruation cycle.

Users enter the date of their last period and the number of days their cycle normally last and based on this the app tells them when their next period will be, what days of the month they are supposed to be the most fertile.

Some apps will also try and predict what mood or what physical symptoms you will experience. But we'll get onto this later.



## Why do people use them?

- Track their periods (as a method of contraception or because they have painful periods for instance and want to plan accordingly)
- To get pregnant (and find out what days they are most fertile)



How did this research start? 🤔





Picture Courtesy of Coding Rights, CC-BY-SA-3.0

Other organisations before us  
- and **Coding Rights** in particular -

have documented the extent of the data collection that is  
at stake with menstruation apps,

as well as the gender-normativity of those apps



**In fact it is not just the menstruation cycle you are sharing when you use  
a menstruation app...**



## These are a few of our favourite things (that menstruation apps collect about their users):

- Sex ~ *With whom? How often? Protected or Unprotected?*
- Smoking
- Drinking
- Partying
- Masturbation
- Sleep
- Coffee



## But they also want to know A LOT about your health...

- Blood pressure ?
- Swelling?
- Constipated?
- Acne?
- Vaginal discharge? Actually, what kind of vaginal discharge? Sticky? Creamy?
- Weight ?
- Hair loss?



**... And your mood. They really want to know about your mood!**

- Angry?
- Romantic? (Is that even a mood??)
- Calm?
- Sexy?
- Anxious?
- Sad ?

**This is the moment where we probably should say we are not making this up. Those are literal terms and questions asked about the menstruation apps we have looked at.**



**So we set out to look at the most popular menstruation apps..**

**(We'll spare you the free advertisement)**



**... And we did not find anything outrageous. Disappointingly**









**So we set out to look at apps that were popular in countries across South Asia, South-East Asia, Sub-Saharan Africa, the Middle-East and Latin America**



**And this is where things got interesting.**

**So... what exactly did we do?**



 الحاسبة الوردية	5 trackers 20 permissions	1.0.1
 Mi Calendario	7 trackers 13 permissions	2.10
 My Calendar	2 trackers 6 permissions	1.4
 Period Tracker	19 trackers 9 permissions	11.1
 Period Tracker MIA 🌸	6 trackers 9 permissions	1.35
 Ovulation Calculator & Period Cycle...	9 trackers 16 permissions	1.8.3
 My Period Tracker / Calendar	4 trackers 15 permissions	1.1.0.24
 ...	13 trackers	3.6.7.4

13

trackers

17

permissions



# Maya - Period, Fertility, Ovulation & Pregnancy

Version: 3.6.7.4

Creator: Plackal Tech

Downloads: 5,000,000+ downloads

[Other versions](#)

[On Google Play](#)

[APK fingerprint](#)

This report was automatically issued on May 10, 2019, 1 p.m..

This report was automatically updated on May 10, 2019, 1 p.m..

Signed by:

Fingerprint: 91256c932d0dc8d815c8dcba2c3b954670135996

Issuer: countryName=91, stateOrProvinceName=Karnataka, localityName=Bangalore, organizationName=Plackal Tech, organizationalUnitName=Dev Team, commonName=John Paul

Subject: countryName=91, stateOrProvinceName=Karnataka, localityName=Bangalore, organizationName=Plackal Tech, organizationalUnitName=Dev Team, commonName=John Paul

Serial: 1323391814

## 13 Trackers

We have found **code signature** of the following trackers in the application:

- [CleverTap](#)
- [Facebook Ads](#)
- [Facebook Analytics](#)
- [Facebook Login](#)
- [Facebook Places](#)
- [Facebook Share](#)
- [Flurry](#)
- [Google Ads](#)
- [Google Analytics](#)
- [Google CrashLytics](#)
- [Google DoubleClick](#)
- [Google Firebase Analytics](#)
- [Inmobi](#)

## 17 Permissions

We have found the following permissions in the application: ( 7 **Dangerous** )

	ACCESS_COARSE_LOCATION (android.permission) <i>Access Approximate Location (Network-Based)</i>	Dangerous
	ACCESS_FINE_LOCATION (android.permission) <i>Access Precise Location (GPS And Network-Based)</i>	Dangerous
	ACCESS_NETWORK_STATE (android.permission) <i>View Network Connections</i>	Normal
	CAMERA (android.permission) <i>Take Pictures And Videos</i>	Dangerous
	INTERNET (android.permission) <i>Have Full Network Access</i>	Normal
	READ_CALENDAR (android.permission) <i>Read Calendar Events And Details</i>	Dangerous



# Inspecting the data using PI's interception environment (Dynamic Analysis)

Home

# Privacy International's data interception environment

**Publish Date:** February 2019

**Virtual Machine Download:** [Privacy International's data interception environment \(VirtualBox OVA\)](#)



Available from <https://privacyinternational.org/mitmproxy19>



**And here is what we found..**

**Out of the six apps we looked at, five shared data with Facebook**



**Out of those five, three pinged Facebook to let them know when users  
open the app**

**The other two apps shared *every single piece of data* their users enter**

**Let's look at Maya**



The screenshot displays a network traffic analysis tool interface. On the left, a list of network requests is shown, including various GET and POST requests to domains like googleapis.com, youtube.com, and graph.facebook.com. The selected request is a POST to graph.facebook.com/v3.0/279652068750718/activities, which is highlighted in blue. On the right, the details of this request are shown, including headers like Accept-Language, Content-Type, and Host. The 'Form data' section shows a JSON object with fields such as format, sdk, custom\_events\_file, event, advertiser\_id, advertiser\_tracking\_enabled, installer\_package, anon\_id, application\_tracking\_enabled, extinfo, and application\_package\_name. The 'event' field, which contains 'CUSTOM\_APP\_EVENTS', is circled in red. At the bottom right, there are version numbers '0.0.0.8080' and 'v4.0.4'.

Maya started sharing data with Facebook *before* you get to agree to their privacy policy



This is what things look like when Maya asks you to enter health data



https://auditrecording-pa.googleapis.com/google.interstitial.api.auditrecording.v1.A... POST 311b
https://googleads.g.doubleclick.net/mads/gma?submodel=Pixel&native_template... GET 200 88.8kb 630ms
https://googleads.g.doubleclick.net/mads/gma?submodel=Pixel&native_template... GET 200 89.0kb 836ms
https://googleads.g.doubleclick.net/pagead/adview?ai=C4YhNToXVXle9KcbGb7z... GET 200 0 256ms
https://wzrkt.com/a1?os=Android&t=30110&z=WRK-6KK-954Z&ts=1557497421 POST 200 919b 248ms
https://pagead2.googleadsyndication.com/pcs/activeview?xai=AKAOjsuh1Oaw57j0... GET 200 42b 262ms
https://ssl.google-analytics.com/batch POST 200 357b 122ms
https://app.maya.live/v1/user/notes-symptom PUT 200 298b 412ms
https://wzrkt.com/a1?os=Android&t=30110&z=WRK-6KK-954Z&ts=1557497447 POST 200 1.1kb 35ms
https://wzrkt.com/a1?os=Android&t=30110&z=WRK-6KK-954Z&ts=1557497447 POST 200 919b 36ms
https://app.maya.live/user/server-timestamps GET 200 622b 128ms
https://app.maya.live/user/analytics PUT 200 826b 132ms
https://graph.facebook.com/v3.0/279652068750718/activities POST 200 1.9kb 500ms
https://wzrkt.com/a1?os=Android&t=30110&z=WRK-6KK-954Z&ts=1557497464 POST 200 928b 42ms
https://graph.facebook.com/v3.0/279652068750718/activities POST 200 1.7kb 89ms

```

Accept-Language: en_GB
Content-Type: multipart/form-data; boundary=3i2ndDfv2rThiSisAbouNdArYfORhtTPEefj3q2f
Transfer-Encoding: chunked
Host: graph.facebook.com
Connection: Keep-Alive
Accept-Encoding: identity

Form data:
format: json
sdk: android
custom_events_file: [{"_eventName": "Symptoms Edited", "_eventName_md5": "83e85f28fe59d3...
event: CUSTOM_APP_EVENTS
advertiser_id: 4a75c863-97b3-4b1f-97bd-1f95910b8c...
advertiser_tracking_enabled: true
installer_package: com.android.vending
anon_id: XZa4a847fd-5de4-4f2c-954a-b386c26519de
application_tracking_enabled: true
extinfo: ["a2", "in.plackal.lovecyclesfree", 174, "3.6.7.4", "8.1.0", "Pixel", "
application_package_name: in.plackal.lovecyclesfree
  
```

View: auto Multipart form

https://googleads.g.doubleclick.net/mads/gma?submodel=Pixel&native_template... GET 200 88.8kb 630ms
https://googleads.g.doubleclick.net/mads/gma?submodel=Pixel&native_template... GET 200 89.0kb 836ms
https://googleads.g.doubleclick.net/pagead/adview?ai=C4YhNToXVXle9KcbGb7z... GET 200 0 256ms
https://wzrkt.com/a1?os=Android&t=30110&z=WRK-6KK-954Z&ts=1557497421 POST 200 919b 248ms
https://pagead2.googleadsyndication.com/pcs/activeview?xai=AKAOjsuh1Oaw57j0... GET 200 42b 262ms
https://ssl.google-analytics.com/batch POST 200 357b 122ms
https://app.maya.live/v1/user/notes-symptom PUT 200 298b 412ms
https://wzrkt.com/a1?os=Android&t=30110&z=WRK-6KK-954Z&ts=1557497447 POST 200 1.1kb 35ms
https://wzrkt.com/a1?os=Android&t=30110&z=WRK-6KK-954Z&ts=1557497447 POST 200 919b 36ms
https://app.maya.live/user/server-timestamps GET 200 622b 128ms
https://app.maya.live/user/analytics PUT 200 826b 132ms
https://graph.facebook.com/v3.0/279652068750718/activities POST 200 1.9kb 500ms
https://wzrkt.com/a1?os=Android&t=30110&z=WRK-6KK-954Z&ts=1557497464 POST 200 928b 42ms
https://graph.facebook.com/v3.0/279652068750718/activities POST 200 1.7kb 89ms

```

Accept-Language: en_GB
Content-Type: multipart/form-data; boundary=3i2ndDfv2rThiSisAbouNdArYfORhtTPEefj3q2f
Transfer-Encoding: chunked
Host: graph.facebook.com
Connection: Keep-Alive
Accept-Encoding: identity

{"_eventName": "Blood Pressure High": "1", "Triggerd From": "Home", "Swelling": "1", "Acne": "1"}, "_eventName": "Sig
  
```

View: auto Multipart form



.../auditrecording-pa.googleapis.com/google.internal.api.auditrecording.v1.A...	POST	200	311b	1ms
.../googleads.g.doubleclick.net/mads/gma?submodel=Pixel&native_template...	GET	200	89.0kb	571ms
.../googleads.g.doubleclick.net/mads/gma?submodel=Pixel&native_template...	GET	200	90.7kb	608ms
.../googleads.g.doubleclick.net/pagead/adview?ai=CdkInToXVXIL2KIXYbY3D...	GET	200	0	244ms
.../pagead2.googleadsyndication.com/pagead/gen_204?zx=44p03jdz8fl7&id=g...	GET	204	0	225ms
.../wzrkt.com/a1?os=Android&t=30110&z=WRK-6KK-954Z&ts=1557497535	POST	200	919b	35ms
.../pagead2.googleadsyndication.com/pcs/activeview?xai=AKAOjss75V1Te0a0B...	GET	200	42b	240ms
.../lh3.googleusercontent.com/proxy/hh66St-FsOTJL9F5yhFWLKLAvsYYsntr...	GET	200	16.9kb	36ms
.../lh4.googleusercontent.com/proxy/LnY_HmzI9I9C_tbidBplrd19WBPPVf9tjx...	GET	200	1.5kb	65ms
.../ssl.google-analytics.com/batch	POST	200	351b	37ms
.../app.maya.live/v1/user/notes-love	PUT	200	278b	408ms
.../app.maya.live/v1/user/notes-pill	PUT	200	278b	115ms
.../wzrkt.com/a1?os=Android&t=30110&z=WRK-6KK-954Z&ts=1557497566	POST	200	1.2kb	38ms
.../wzrkt.com/a1?os=Android&t=30110&z=WRK-6KK-954Z&ts=1557497566	POST	200	919b	52ms
.../graph.facebook.com/v3.0/279652068750718/activities	POST	200	2.2kb	634ms

```

Accept-Language      en_GB
Content-Type         multipart/form-data; boundary=3i2ndDfv2rTHiSisAbouNdArY
                    efj3q2f
Transfer-Encoding    chunked
Host                 graph.facebook.com
Connection           Keep-Alive
Accept-Encoding      identity

```

```

.../en Name": "Pill Data Edited", "_eventName_md5": "8f0327adc67e0f52d4ef60e31e133f9f", "_logT

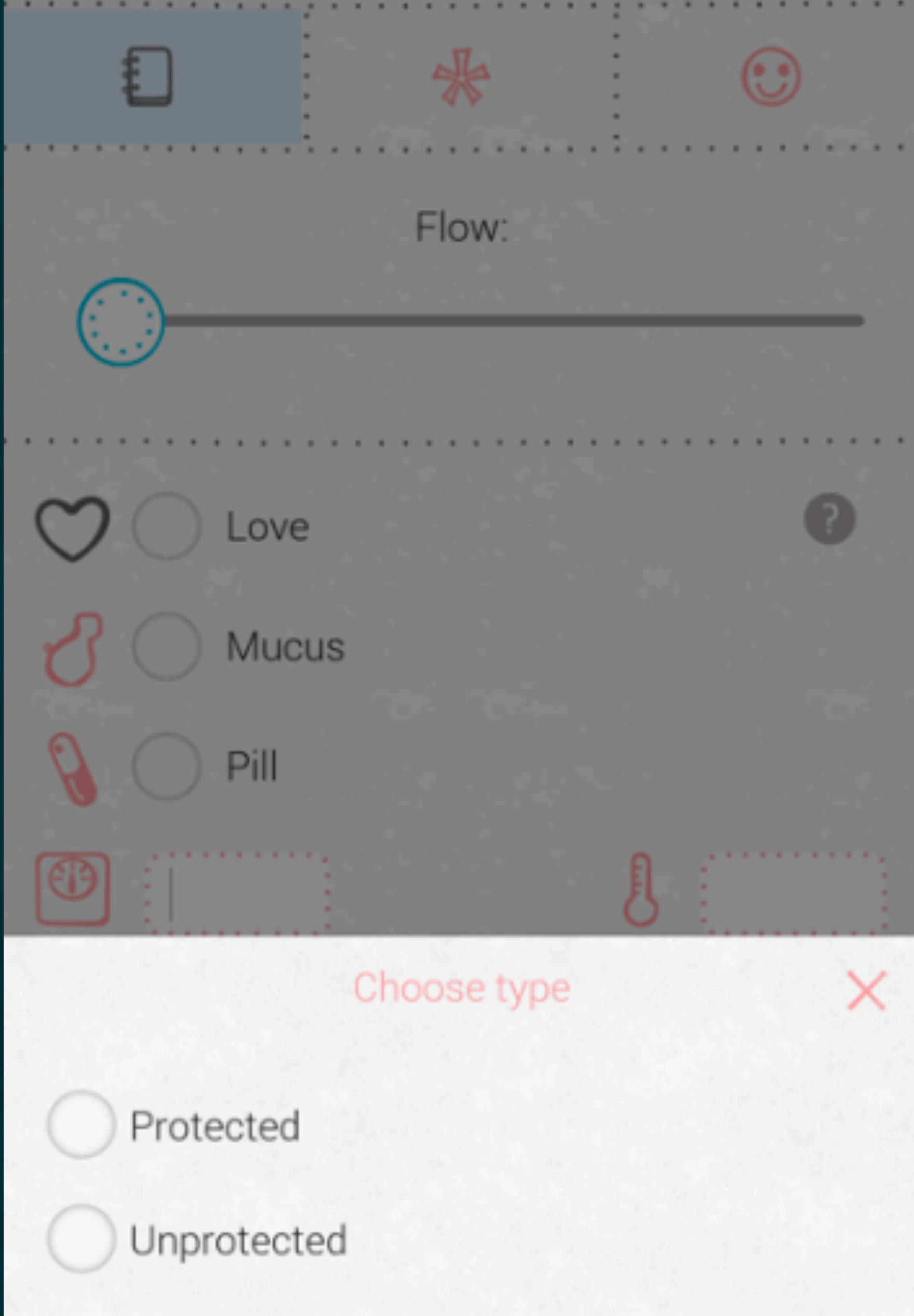
```

View: auto Multipart form

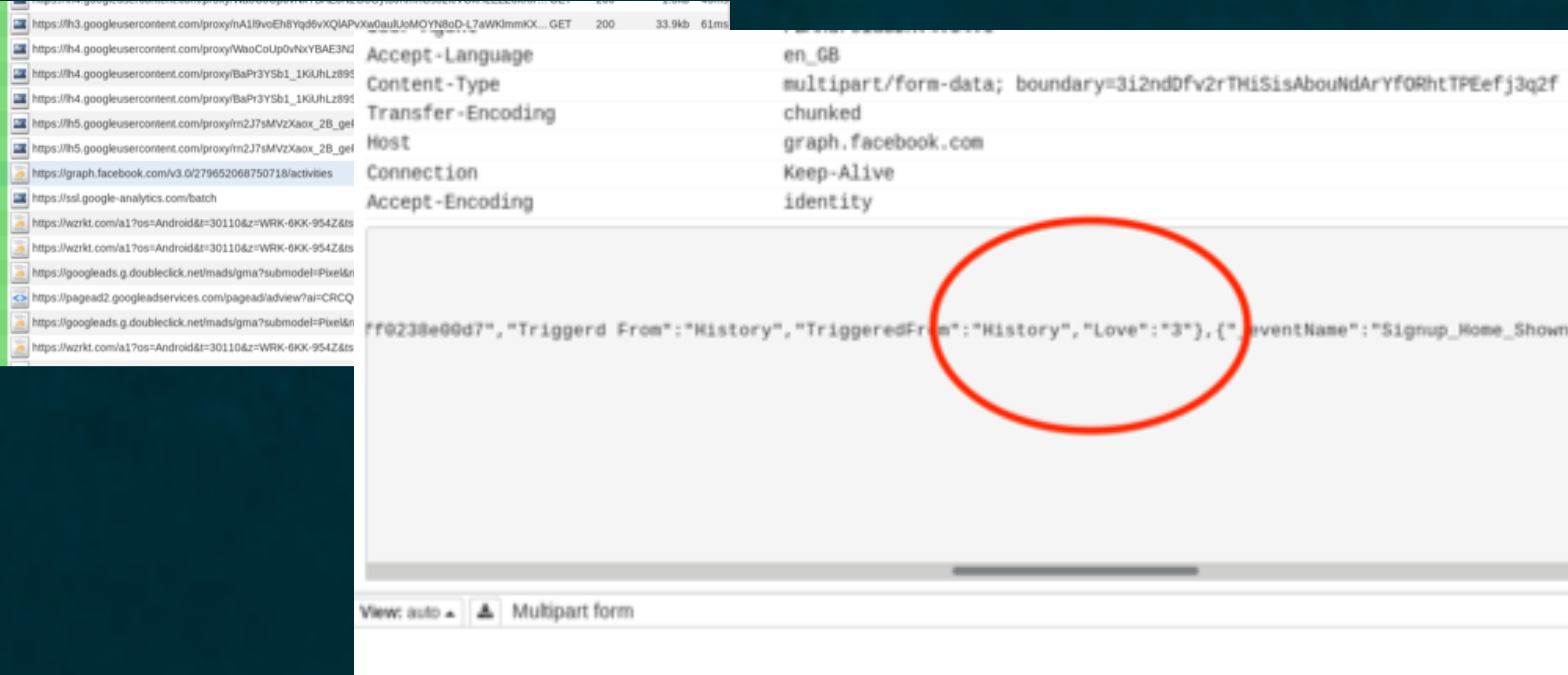
mode showhost anticache anticomp

0.0.0

This is what things looked like when Maya shared your contraceptive practice



This is what things look like when Maya asks about your sex life.



The data shared with Facebook when you have sex was a little bit more "cryptic." It was shared as Love 2 when you have protected sex and Love 3 when you have unprotected sex.



ps://app.maya.live/v1/user/notes-pm	POST	200	276b	113ms
ps://wzrkt.com/a1?os=Android&t=301110&z=WRK-6KK-954Z&ts=1557497566	POST	200	1.2kb	38ms
ps://wzrkt.com/a1?os=Android&t=301110&z=WRK-6KK-954Z&ts=1557497566	POST	200	919b	52ms
ps://graph.facebook.com/v3.0/279652068750718/activities	POST	200	2.2kb	634ms
ps://googleads.g.doubleclick.net/pagead/adview?ai=CVi4vTibVXNyRNiq1bO6...	GET	200	0	259ms
ps://pagead2.googleadsyndication.com/pagead/gen_204?zx=dpd0duf594qy&id=...	GET	204	0	242ms
ps://googleads.g.doubleclick.net/mads/gma?submodel=Pixel&native_template...	GET	200	88.8kb	1s
ps://googleads.g.doubleclick.net/mads/gma?submodel=Pixel&native_template...	GET	200	89.0kb	673ms
ps://wzrkt.com/a1?os=Android&t=301110&z=WRK-6KK-954Z&ts=1557497678	POST	200	919b	63ms
ps://pagead2.googleadsyndication.com/pcs/activeview?xai=AKAOjsv49UIVZv6p8...	GET	200	42b	259ms
ps://ssl.google-analytics.com/batch	POST	200	353b	36ms
ps://app.maya.live/v1/user/notes-note	PUT	200	345b	397ms
ps://wzrkt.com/a1?os=Android&t=301110&z=WRK-6KK-954Z&ts=1557497704	POST	200	1.1kb	35ms
ps://wzrkt.com/a1?os=Android&t=301110&z=WRK-6KK-954Z&ts=1557497704	POST	200	919b	40ms
ps://graph.facebook.com/v3.0/279652068750718/activities	POST	200	2.0kb	413ms

Accept-Language	en_GB
Content-Type	multipart/form-data; boundary=3i2ndDfv2rTHiSisAbouNdAr efj3q2f
Transfer-Encoding	chunked
Host	graph.facebook.com
Connection	Keep-Alive
Accept-Encoding	identity

```

om": "Home", "TriggeredFrom": "Home", "Notes": "Something very sensitive entered here"}, {"_

```

View: auto Multipart form

Maya also had a diary section where people were encouraged to write their personal thoughts. The text that gets entered is shared entirely with Facebook.

**Maya also shared all your health data not just with Facebook but with  
CleverTap as well**



	https://googleads.g.doubleclick.net/mads/gma?submodel=Pixel&native_tem... GET	200	88.4kb	1s	
	https://pagead2.googleadservices.com/pagead/adview?ai=COEctqBsnXbT6... GET	200	0	139ms	
	https://googleads.g.doubleclick.net/pagead/conversion?ai=COEctqBsnXbT... GET	200	42b	182ms	
	https://tpc.googlesyndication.com/pagead/images/adchoices/iconx2.png GET	200	886b	91ms	
	https://lh3.googleusercontent.com/kT8hu7v5XVSLN7kj3fJ9H3YAz1ajcHuzP... GET	200	7.8kb	78ms	
	https://lh3.googleusercontent.com/0Vz1ys58CccF5MhwLw7xBpLWNC4Vhi7... GET	200	882b	154ms	
	https://googleads.g.doubleclick.net/mads/gma?submodel=Pixel&native_tem... GET	200	92.2kb	589ms	
	https://lh3.googleusercontent.com/0YHmqkFbZoPy-ZaXPujUMcDxxBi7aDsl... GET	200	954b	42ms	
	https://lh3.googleusercontent.com/N3GMiFTG_hNQ0iOddwg7_vo5CrJnZeA... GET	200	6.7kb	86ms	
	https://lh5.googleusercontent.com/proxy/NDNaDx_02p-enhrft32W_WtrvCgJ... GET	200	16.6kb	33ms	
	https://wzrkt.com/a1?os=Android&t=30110&z=WRK-6KK-954Z&ts=1562844... POST	200	986b	49ms	
	https://ssl.google-analytics.com/batch	POST	200	359b	36ms
	https://graph.facebook.com/v3.0/279652068750718/activities	POST	200	1.7kb	123ms
	https://app-measurement.com/config/app/1%3A71534028169%3Aandroid%... GET	200	175b	42ms	
	https://app-measurement.com/a	POST	204	782b	27ms
	https://app-measurement.com/v1/user/notes-symptom	PUT	200	290b	117ms
	https://wzrkt.com/a1?os=Android&t=30110&z=WRK-6KK-954Z&ts=1562844... POST	200	1.1kb	34ms	
	https://wzrkt.com/a1?os=Android&t=30110&z=WRK-6KK-954Z&ts=1562844... POST	200	986b	34ms	
	https://graph.facebook.com/v3.0/279652068750718/activities	POST	200	1.9kb	121ms

transparent mode showhost anticache anticompat

```

    "useIP": false
  },
  "arp": {
    "av": "3.6.7.4",
    "d_ts": 1562844067,
    "dh": 1523021718,
    "hgt": 4,
    "i_n": 6568434,
    "id": "WRK-6KK-954Z",
    "j_n": 6568434,
    "ks": "{ }",
    "k": "[ \\\"pouetpouet@mailinator.com\\\"]",
    "sv": 30110,
    "v": 1,
    "wdt": 2
  },
  "f_ts": 1562588008,
  "g": "__8b9af377408b49deaddcd0338e6bd21f",
  "id": "WRK-6KK-954Z",
  "imp": 0,
  "l_ts": 1562844075,
  "tk": "336-320",
  "tlc": [],
  "type": "meta"
},
{
  "async": false,
  "ep": 1562844104,
  "evtData": {
    "Diarrhea": 1,
    "Nausea": 1,
    "Triggerd From": "Home"
  }
},

```

And yes, all the information that was shared was tied to your email address and unique identifiers.



**Now let's at look at MIA**

The very first thing MIA asks their users is the reason why they are using the app:

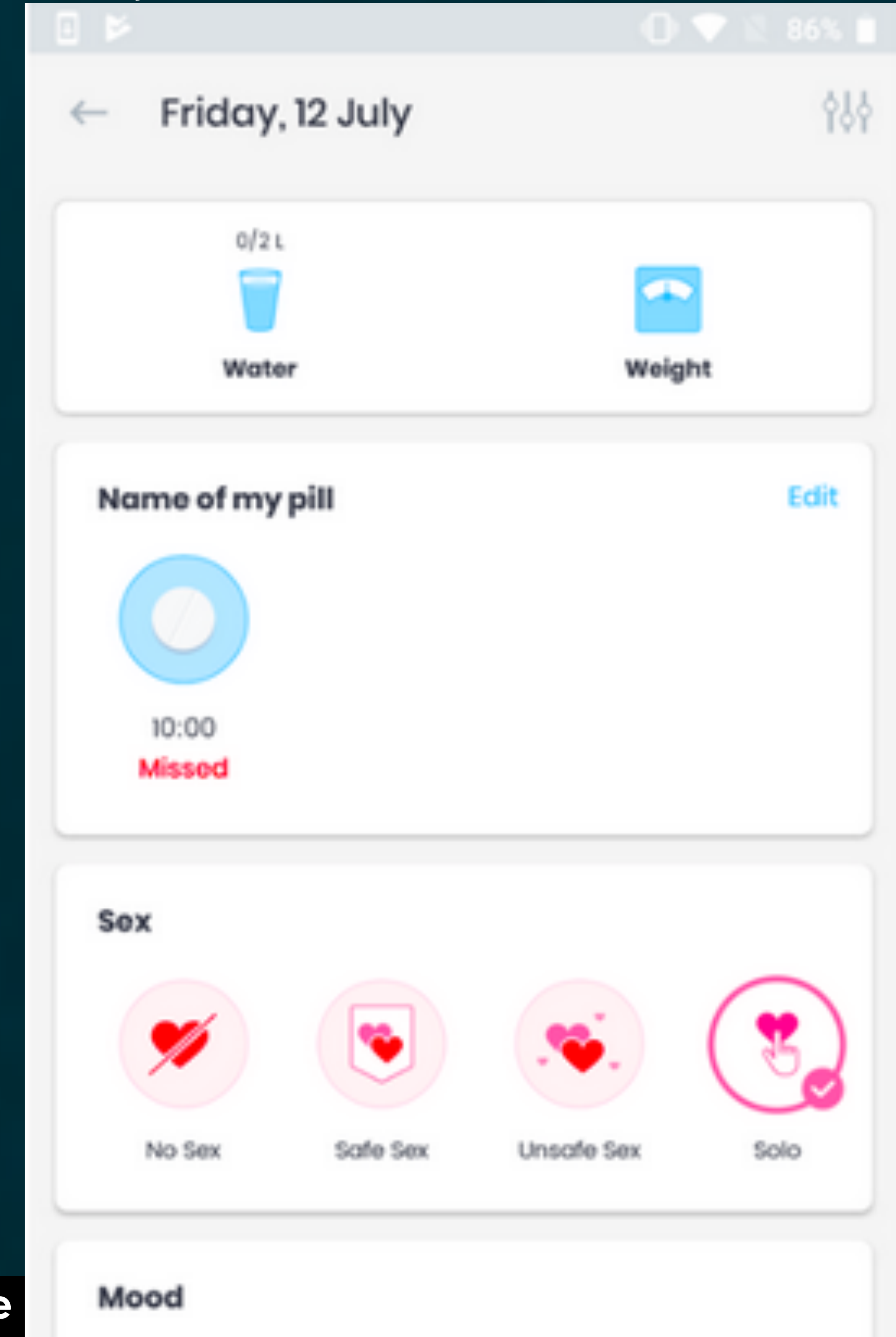
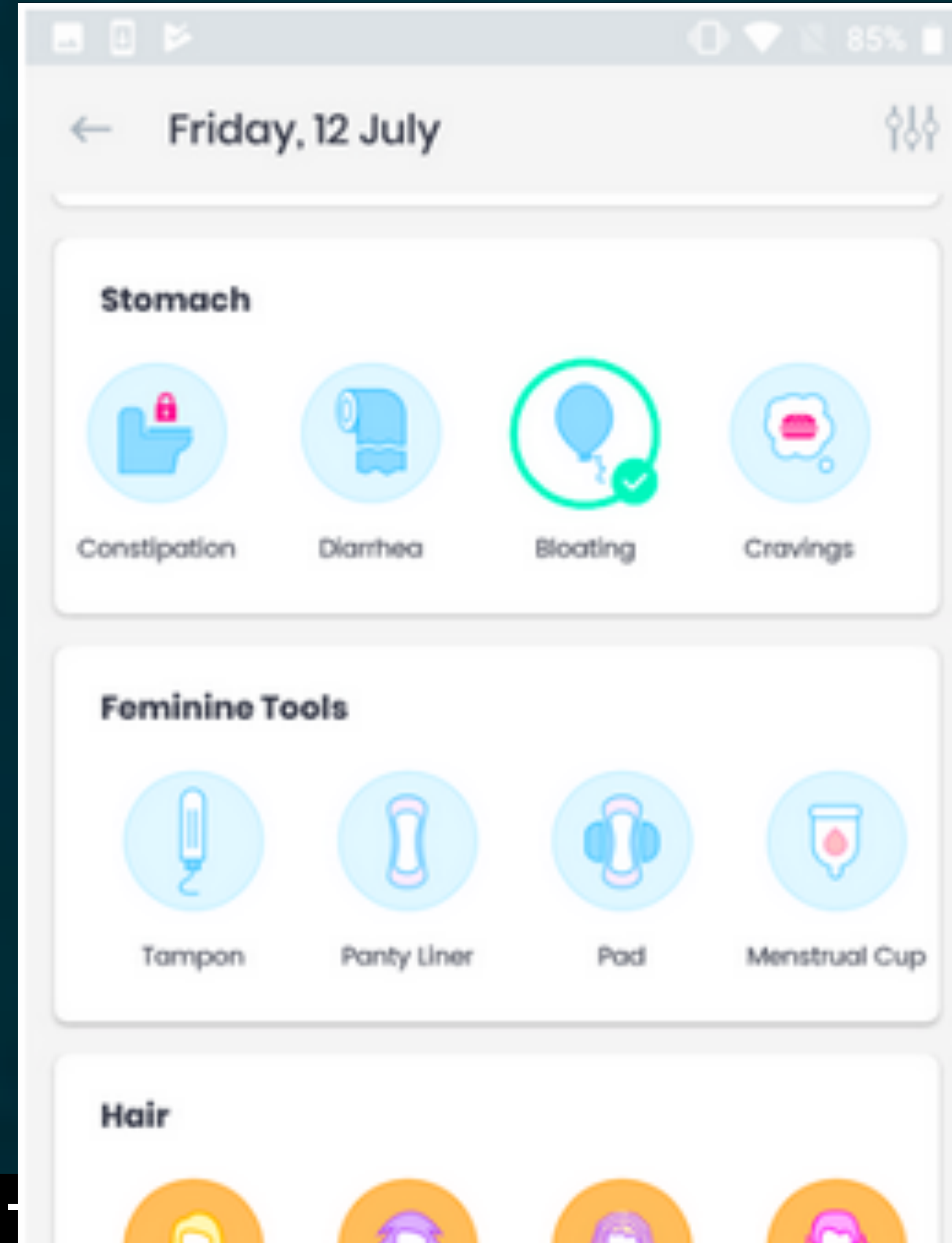
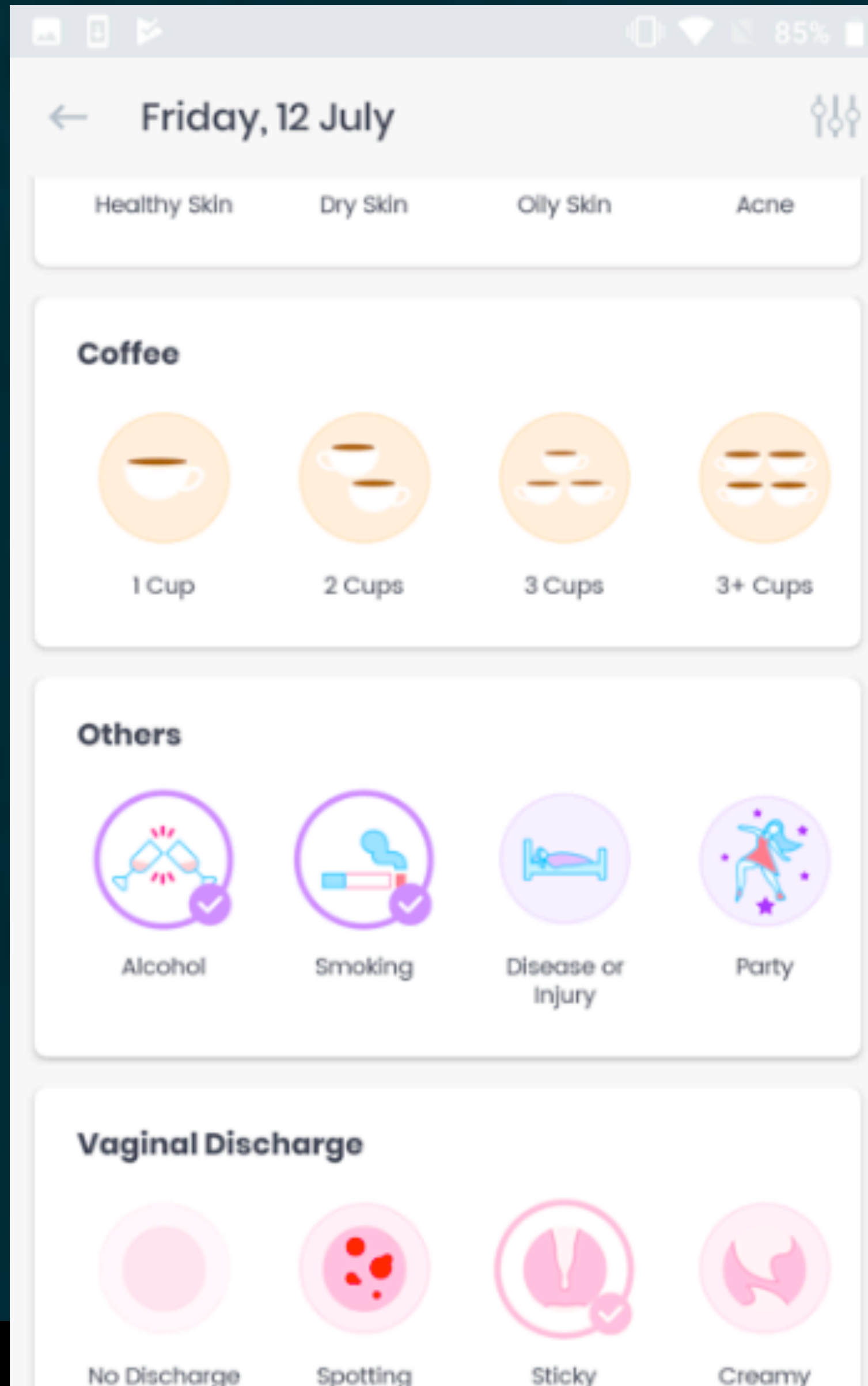
- To get pregnant
- Or to track their periods

It doesn't actually change how you can use the app but it means they get to gather the most important piece of data they can get about you.

They shared it **immediately** with Facebook and AppsFlyer.

MIA collects all sorts of information about sex, your health and lifestyle. It doesn't immediately get shared with Facebook but Mia offers you the

option to read articles tailored based on what you selected.



the



Friday, 12 July

Personal Feed



## Cycle day 12

DAILY ADVICE

Your estrogen levels are at their peak now but they will drop right after ovulation.

Right before ovulation, you may experience ...



Women's Health

### Masturbation: What You Want to Know But Are Ashamed to Ask



This is what you see if you select "masturbation" for example

Now the articles you got shared with Facebook and AppsFlyer, which meant that they got to know what you selected in the sex, symptoms and lifestyle sections.

The screenshot displays a network traffic analysis tool interface. On the left, a list of network requests is shown, including various image requests from 'mia-cdn.fabiosacdn.com' and API calls to 'events.appsflyer.com' and 'api.mia.healthv2.3'. The selected request is a POST to 'https://graph.facebook.com/v3.3/332030227274903/activities'. The right pane shows the details of this request, including headers like 'Accept-Language: en\_GB' and 'Content-Type: application/x-www-form-urlencoded'. The body of the request is shown as a decoded gzip URL-encoded form, with a red circle highlighting the following JSON snippet: 

```
tent_title": "9 Popular Myths About Masturbation", "content_type": "content"), {"_eventName": "fb_mobile_level_achie
```

(This is what \*they\* saw when we selected masturbation)







https://mia-cdn.fabiosacdn.com/contents/large/15426515475bf2fe9b316fc6.71688409.jpeg	GET	0b	...
https://mia-cdn.fabiosacdn.com/contents/large/15578716745cdb3c3ad275a0.08001729.jpeg	GET	0b	...
https://mia-cdn.fabiosacdn.com/contents/large/15578721235cdb3dfbf5c66.27273134.jpeg	GET	0b	...
https://events.appsflyer.com/api/v4/androidevent?buildnumber=4.8.19&app_id=health.mia.app	POST	2.0kb	187ms
https://api.mia.health/v2.3/client-quizzes/list?language=eng	GET	2b	424ms
https://mia-cdn.fabiosacdn.com/contents/large/15506687855c6d53f11361a0.75198570.jpeg	GET	200	641.0kb 3s
https://mia-cdn.fabiosacdn.com/contents/large/15571759365cd09e80c2d914.57956643.jpeg	GET	200	166.4kb 1s
https://mia-cdn.fabiosacdn.com/contents/large/15433403185bfd811e98c403.63506044.jpeg	GET	200	709.0kb 3s
https://mia-cdn.fabiosacdn.com/contents/large/15578716745cdb3c3ad275a0.08001729.jpeg	GET	200	146.4kb 1s
https://events.appsflyer.com/api/v4/androidevent?buildnumber=4.8.19&app_id=health.mia.app	POST	200	1.9kb 254ms
https://events.appsflyer.com/api/v4/androidevent?buildnumber=4.8.19&app_id=health.mia.app	POST	200	1.9kb 260ms
https://mia-cdn.fabiosacdn.com/contents/large/15578721235cdb3dfbf5c66.27273134.jpeg	GET	200	199.0kb 1s
https://events.appsflyer.com/api/v4/androidevent?buildnumber=4.8.19&app_id=health.mia.app	POST	200	2.0kb 73ms
https://events.appsflyer.com/api/v4/androidevent?buildnumber=4.8.19&app_id=health.mia.app	POST	200	2.0kb 120ms
https://mia-cdn.fabiosacdn.com/contents/large/15423649845bee9f38c6bc53.81533243.jpeg	GET	200	161.6kb 596ms
https://mia-cdn.fabiosacdn.com/contents/large/15481813685c475f78cac501.15750661.jpeg	GET	200	525.0kb 7s
https://mia-cdn.fabiosacdn.com/contents/large/15426515475bf2fe9b316fc6.71688409.jpeg	GET	200	165.9kb 688ms
https://mia-cdn.fabiosacdn.com/contents/large/15555012745cb710da05a4b5.37938811.jpeg	GET	200	361.8kb 6s
https://mia-cdn.fabiosacdn.com/contents/large/15499761605c62c260a1d546.17571474.jpeg	GET	200	566.0kb 7s
https://mia-cdn.fabiosacdn.com/contents/large/15423652255beea029b7d9d7.27525651.png	GET	200	779.6kb 7s
https://mia-cdn.fabiosacdn.com/contents/large/15506652475c6d461f4d47f5.72947958.jpeg	GET	200	778.4kb 8s
https://graph.facebook.com/v3.2/332030227274903/activities	POST	200	855b 210ms
https://people-pa.googleapis.com/google.internal.people.v2.InternalPeopleService/ListContactGroups	POST		74b ...
https://mia-cdn.fabiosacdn.com/contents/large/15571754835cd09c8b0a5d7.60222577.jpeg	GET	200	254.0kb 2s

View: auto ▲ [decoded gzip] URLEncoded form

```

"content_title": "I had unprotected sex - What should I do?", "content_type": "content"), {"_eventName": "insights_show

```

Unprotected sex!

**Why are menstruation apps obsessed with finding out if you are trying to get pregnant?**

**Because when a person is pregnant, their consumer habits change**



**In other words it's peak advertising time**

# In other *more* words and pictures



Picture Courtesy of Maria Cruz, CC BY-SA 4.0

¢ 10



Picture Courtesy of Pixabay

\$1.50

Price of a non-pregnant person's data vs price of a pregnant's person data in the US.  
*Vertesi (2014)*

**Hang on a second... Why do you use the past tense when you talk about data sharing?**



**Both Maya and MIA stopped using the Facebook SDK when we wrote to them about our research, before we published it.**



## We got this interesting response from AppsFlyer:

*Our terms and conditions actually restrict app owners from using our service to collect personal information such as health information.*

## Conclusion:

- Research works! It's fun, easy to do and companies are listening.
- You should do it too!
- Using Apps is the only way some individuals interact with technologies, we need to take care as a lot more about the privacy and security implications at stake when people use them



**Thanks for listening...  
Questions?**



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Weatherhead  
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*Find out more about this and our other projects at <https://privacyinternational.org>  
We can be contacted throughout Congress via DECT, our number is 7748 (PRIV)*