

Mobile Open Observation of Daily Stressors (MOODS) Study



Applications User Manual

Version 1.1

Dear Participant,

Thank you for deciding to participate in the MOODS study! Your participation will help to advance science in the realms of stress detection, the understanding of stressors (the precipitants or causes of stress), and the application of mobile health (mHealth) to help advance the health and well-being of people.

This manual is designed to walk you through the processes to install the MOODS applications on your smartphone and the study-provided smartwatch. Below you will find the required steps for installing the study applications, some of the functions of the applications, and some common troubleshooting questions.

We encourage you to review the informed consent document carefully before deciding to participate in this study, as it describes what we ask you to do and how we will use the information collected from you in this study. Reviewing and agreeing to the informed consent is required before using the MOODS study applications. If you decide not to participate in the study, you are welcome to uninstall the MOODS study app from your phone at no penalty and with no lingering data collection. A copy of the informed consent form is also located on our website, and is linked here:

<https://moods.md2k.org/pdfs/consent.pdf>

We also have some common questions regarding the study and general use of the MOODS apps in our Frequently Asked Questions (FAQ) page, linked here:

<https://moods.md2k.org/index.html#FAQ>

We encourage you to provide feedback if anything in this document is unclear or if you have questions about the steps described below. Please email us at MOODS@md2k.org with any questions or feedback that you have.

With our sincere gratitude,

-The MOODS Study Team

Steps for starting the MOODS study

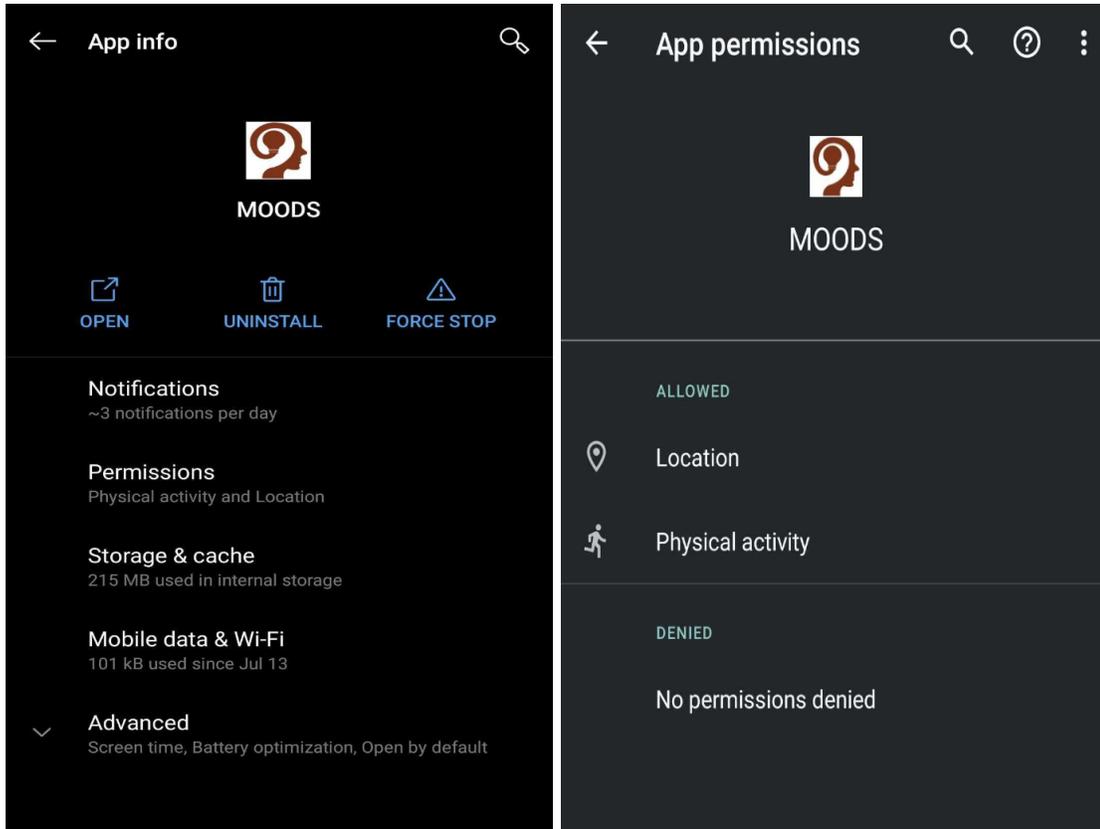
Phone setup and obtaining the smartwatch:

1. Download and install the MOODS app on your phone. A link to your application store is located in the “MOODS screening success! Next enrollment steps:” email. Use the email address and code associated with your screening email.
2. If you are using an Android phone, you can use your same Gmail account to login to the MOODS app when prompted.
3. If you are using an iPhone you can either use your Gmail or Apple account to start participating in the MOODS study.
4. Open the MOODS app and login with your Gmail account on Android or with your Gmail or Apple account on iOS.
 - a. If you are using your Apple account to login, there is no need to switch your login to a Gmail account after you receive your watch.
5. You will be asked to provide informed consent to participate in the study. Please review the consent form carefully, as it details what the study is asking you to do, and what will be done with your study information. After reviewing the document, you can choose to participate or not participate. If you choose not to participate, you will not be able to participate in the MOODS study. You can uninstall the MOODS app from your phone as you would any other app and no study information will be collected from your phone.
6. After providing informed consent, you will need to provide your mailing address so that we can ship you the smartwatch to start the study. The MOODS study team will confirm your shipping address within two business days via email, after which the watch will be shipped and a shipping confirmation email will be generated to your email address.
7. You should receive an email confirmation that the watch was shipped within two business days confirming your contact information.
8. The MOODS app requires the smartwatch to proceed any further. Please return to the MOODS app once you have received the smartwatch.

Please add MOODS@md2k.org to your “safe sender” list via the email account you are using for the MOODS study. This will help to ensure that all study emails (including weekly visualizations of your data) will reach your inbox (and are not marked as “junk”, “promotions”, or “spam”) for you to see. Gmail users may need to check their “Promotions” folder to ensure all study emails are routed to your inbox.

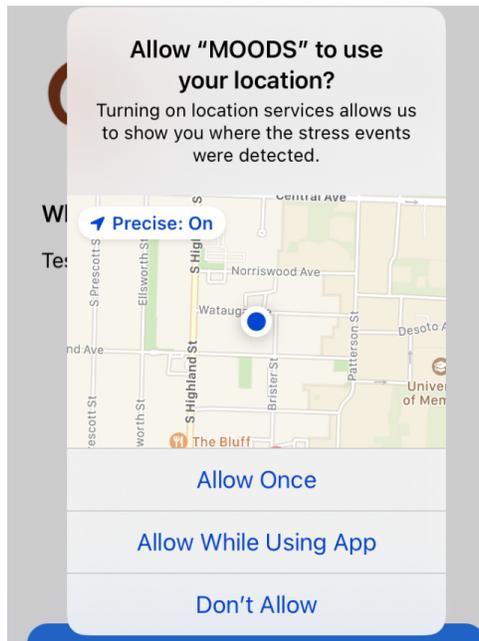
9. Please enable all permissions for the MOODS app; examples of these permissions are shown below for Android and iOS devices:

- a. Required **Android** permissions are shown in the below screenshots. (Images show that “Location” and “Physical Activity” permissions are required when prompted on your Android smartphone):

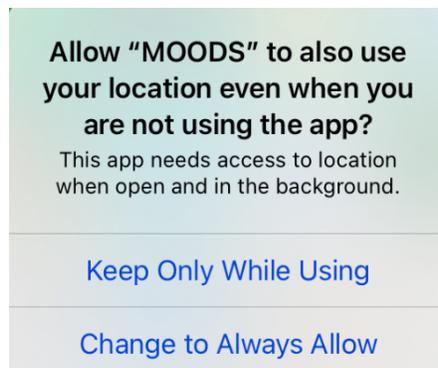


b. Required **iOS** permissions will be shown on your iPhone, and are shown in the below screenshots:

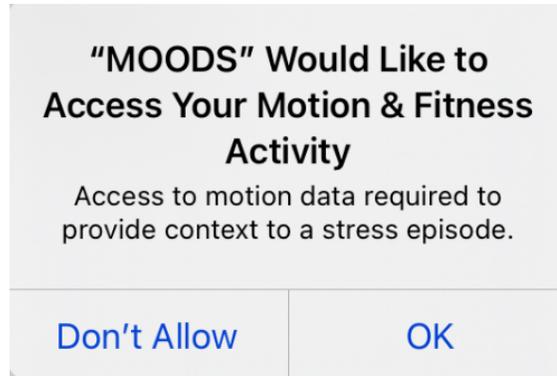
i. Screenshot image shows permission question “Allow ‘MOODS’ to use your location”: Choose “Allow While Using App”



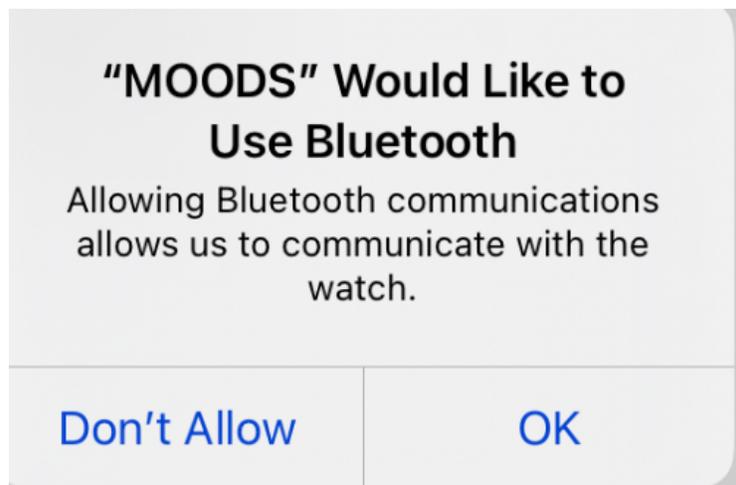
ii. Screenshot image shows permission question “Allow ‘MOODS’ to also use your location even when you are not using the app. This app needs access to location when open and in the background.”: Choose “Change to Always Allow”



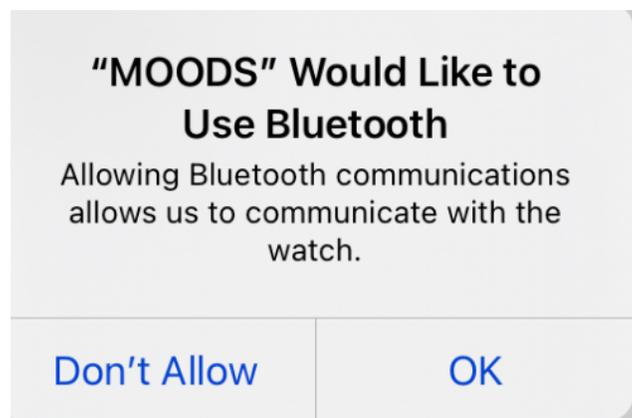
iii. Image shows permission question “‘MOODS’ Would Like to Access Your Motion & Fitness Activity. Access to motion data required to provide context to a stress episode.”: Choose “OK”



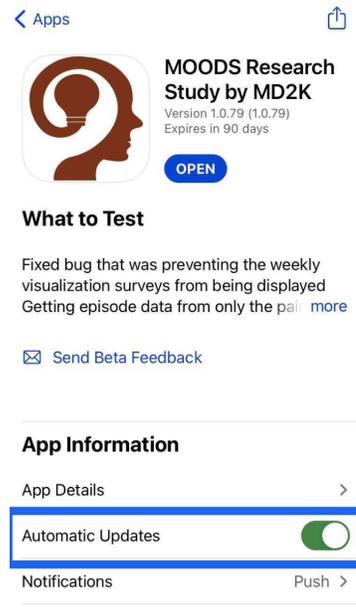
- iv. Image shows permission question "MOODS' would like to use Bluetooth. Allowing Bluetooth communications allows us to communicate with the watch.": Choose "OK"



- v. Image shows "MOODS' Would Like to Use Bluetooth. Allowing Bluetooth communications allows us to communicate with the watch.": Choose "OK"

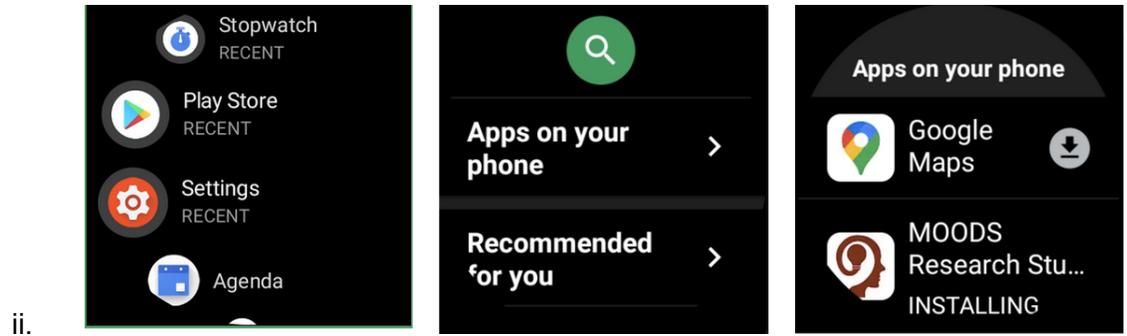


- vi. Please enable automatic updates for the MOODS app in TestFlight.

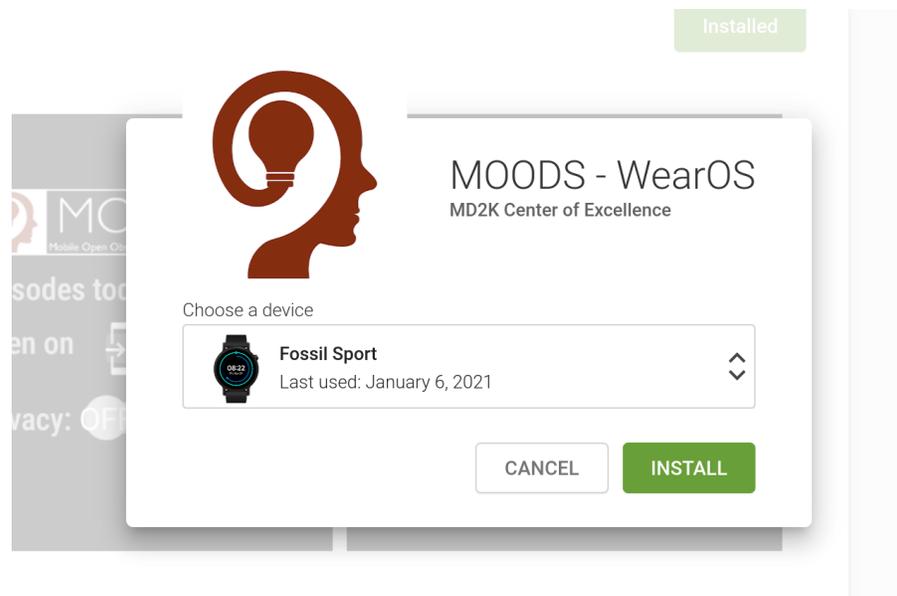


After your watch arrives:

10. Install the WearOS app on your phone via your app store. (This is required for both Android and iOS.)
11. Setup the Fossil watch with your smartphone (The WearOS app guides you through this process). You may need to charge the watch using one of the provided charging cables to continue setting up the watch with your phone.
12. If the watch requires an operating system (OS) update, then please allow the update process to complete before proceeding any further.
13. iOS users will need to first visit <https://play.google.com/apps/testing/org.md2k.moods> to enroll as tester to install the MOODS app on your smartwatch. Android users will have already done this and can ignore this step.
14. Install the MOODS app on your smartwatch after the watch is successfully paired and set up with the WearOS app on your phone. You can either install the MOODS smartwatch app via (a) the smartwatch itself (Android users only) or (b) via the Play store on the web.
 - a. **(Android users only)** - Installation can be done via the Play store app on the smartwatch.
 - i. Via your smartwatch - Play store -> Apps on my phone

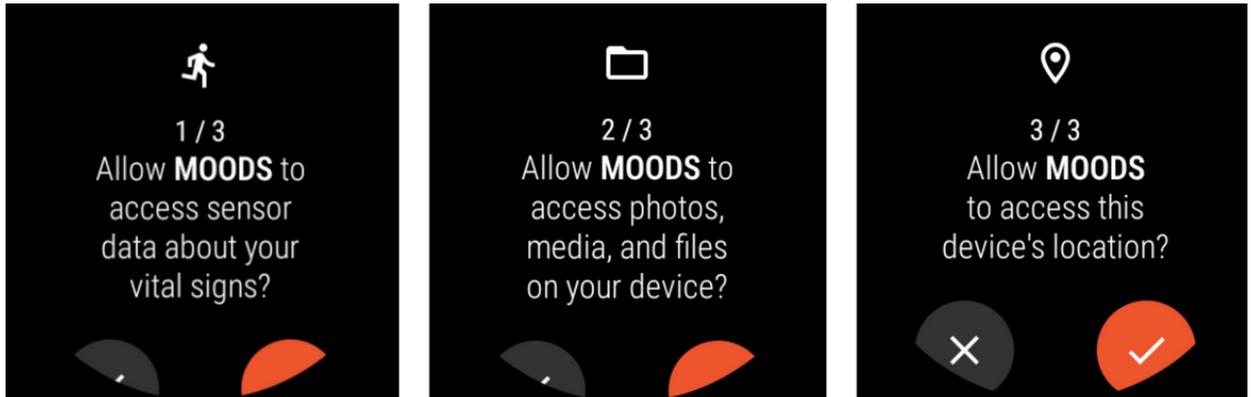


- b. **(Either iOS phone or Android phone users)** - Via the Play Store web interface by visiting <https://play.google.com/store/apps/details?id=org.md2k.moods> to install the MOODS app on your smartwatch.



- i. Choose the Fossil Sport option from the devices menu in the Play Store listing.
- ii. Note, the smartwatch needs to be on the charger so that it can connect to Wi-Fi to download the app.
- iii. You may have to wait until the app is downloaded and installed on your smartwatch from the Play Store.

15. Once the MOODS app is installed on the smartwatch, navigate to the app, open it, and agree to the list of permissions the app requests:

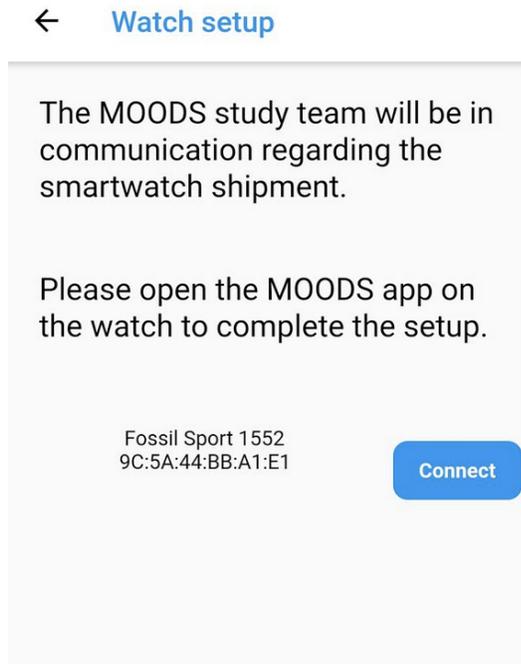


- a. Access to sensor data is required to detect your stress episodes.
- b. Access to photos, media, and files is required to store the sensor data on your device.
- c. Access to the device's location permission is required to communicate to the phone over Bluetooth.

Connecting the smartwatch and phone app:

16. While the MOODS app on the smartwatch is open, open the MOODS app on the phone.
- a. The MOODS app on your phone will display your Fossil smartwatch and may list other devices that are in Bluetooth range of your phone. Find the Fossil smartwatch in this list.

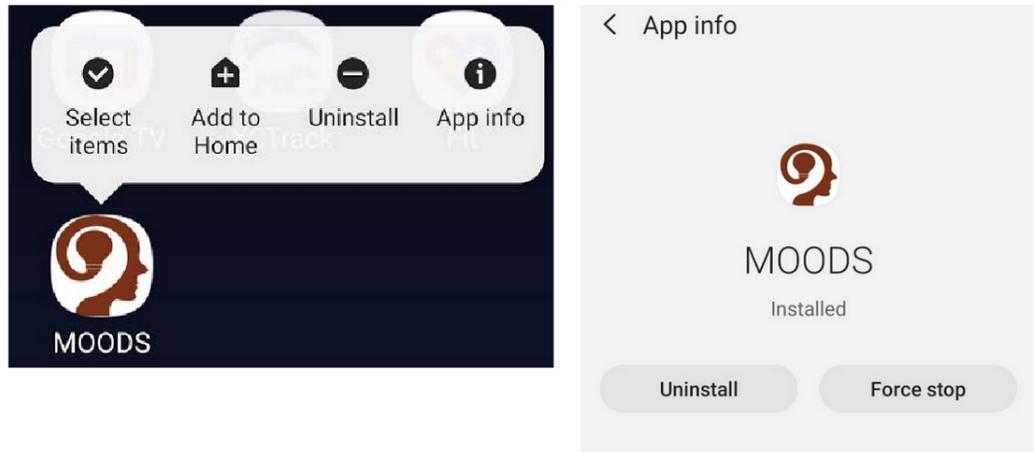
- b. Connect to the Fossil smartwatch from the list of devices displayed by pressing the connect button from the MOODS app on your smartphone.



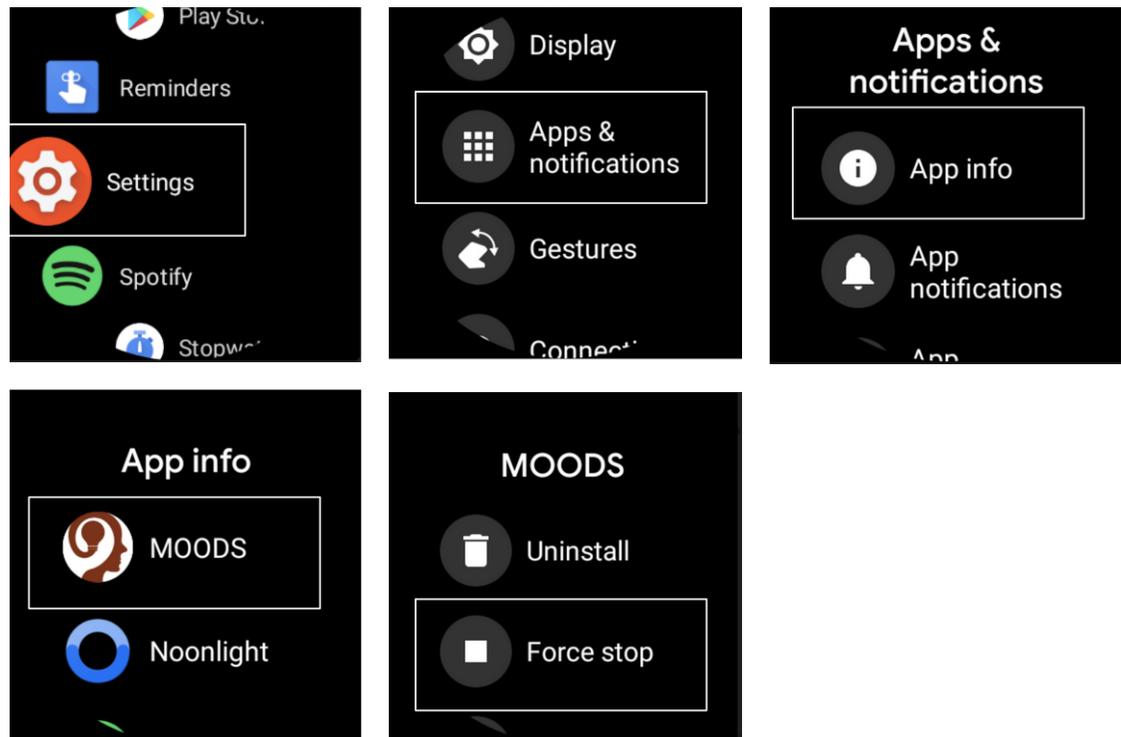
Watch connection troubleshooting:

- i. If the Fossil watch does not appear in the device list, force stop the apps on both the phone and watch and try again. These troubleshooting instructions are subsequently listed in this document.
- ii. If nothing happens when the connect button is pressed
 1. Force stop the MOODS app on both the phone and watch and try again
 2. If connecting the watch and the phone is still unsuccessful, factory reset the watch via the watch's Settings menu. You will then need to restart the procedure (see the "After Your Watch Arrives" section).

iii. Procedure to force stop the MOODS app on the phone:



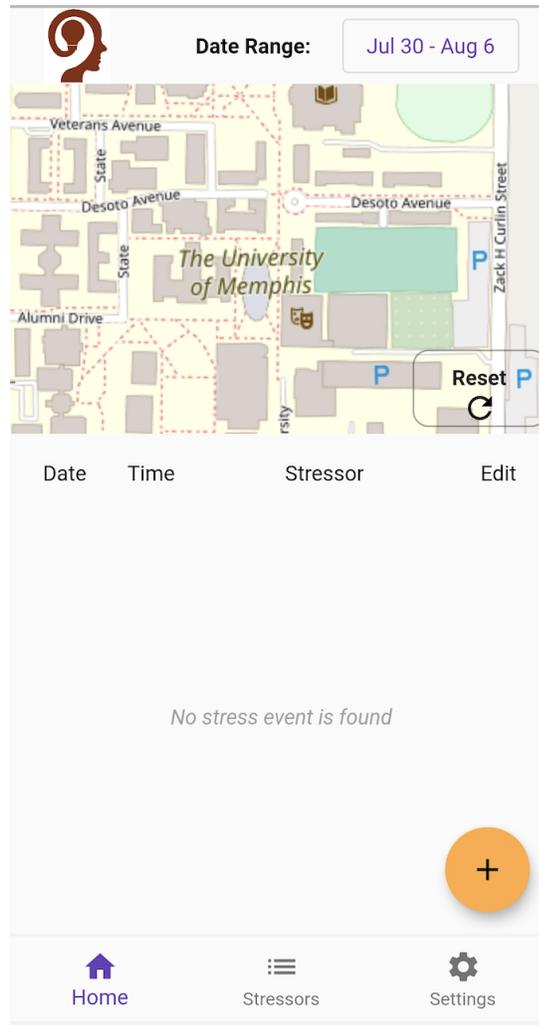
iv. Procedure to force stop the MOODS app on the watch:



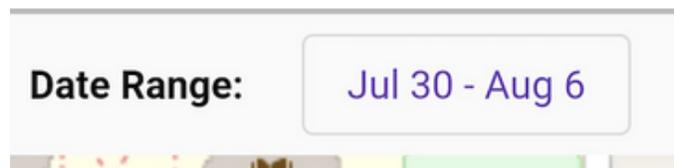
17. Both the MOODS app on the phone and the watch should take you to the main app screen upon successful connection.

a. The main app screen is different on both the watch and your phone.

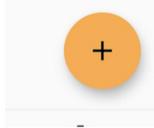
- b. The home screen of the MOODS app on your phone will depict a map of your stress episodes, a list of your detected stress events, an “add” button to manually enter stress episodes, and the app’s menu options.



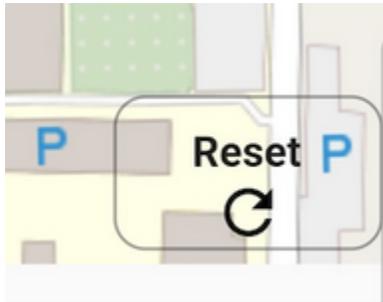
- c. Use the “Date Range” option to check back on a stress episode that is outside the default date range. Click on the Date Range button to choose your own desired start and end dates.



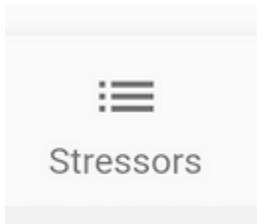
- d. Use the “Plus (+)” button to manually add a stress episode not detected by our system.



- e. Use the following button to reset the position of the map if you had moved it around. This will reposition the map and set the zoom level to display the locations of all the stress episodes for the chosen date range.



- f. Use the following button to view the list of your stressors. This shows the breakdown of all your annotations over the course of the study. It is sorted based on the number of occurrences for you to see what are the most common stressors.



- g. The home screen of the MOODS app on the watch depicts how many stress or non-stress episodes were detected so far today and the button to toggle privacy mode on and off.



- h. Privacy mode stops the smartwatch from detecting information about your physiology and movement for one hour. After one hour, privacy mode automatically turns off to resume data collection. Because stress detection requires your physiology, no stress episodes can be detected when privacy mode is on. This feature is available as it allows you to pause data collection without having to take off the watch. Note that location information may still be logged if a stress episode began to be detected around the time the privacy mode was turned on. If you see this stress episode on your MOODS app, you can mark the episode as Private if you want.

At the end of your day:

18. Make sure that the smartwatch is connected to Wi-Fi before you put the smartwatch on its charger when you've taken it off at the end of your day.
19. Ensure that you charge the smartwatch every night before you go to sleep to ensure you are able to continue participating in the study the next day.

Daily Stressor Annotations:

Each day, you will receive a notification on your smartphone to annotate the stress events that were detected by the smartwatch on that day. The annotation process must be completed once you open the MOODS app after you receive the notification. This helps us to ensure that you are annotating your most recent recollection of the stress event(s).

You can also manually add stressors using the Plus “+” icon, as shown in the screenshot above.

If there are any episodes that you do not want included in the final, public dataset, you may mark that episode as “private”. If you mark an episode as "private", it will be removed from your list of stress episodes. The MOODS research team will still be able to see the episode, but the episode will not be shared outside of the study team or used for research.

If you would like the time when you are notified to change, you can go to "Settings -> Change daily notification time" in order to set up your preferred notification time. We suggest that you set a time in the evening so you will have time to review the weekly visualizations prior to the weekly surveys (more on that below).

Weekly Visualization Emails:

Please add MOODS@md2k.org to your “safe sender” list via the email account you are using for the MOODS study. This will help to ensure that all study emails (including weekly visualizations of your data) will reach your inbox (and are not marked as “junk”, “promotions”, or “spam”) for you to see. Gmail users may need to check their “Promotions” folder to ensure all study emails are routed to your inbox.

Each week, personalized visualizations of your data will be sent to the email address you have provided. Please review these visualizations to see what you can learn about your stress and see what is useful, not so useful, and what could be improved. You are welcome to provide feedback to us via the MOODS@md2k.org email address.

Weekly Surveys:

Once every week, you will also receive notifications on your smartphone to complete a survey that asks you various questions about the visualizations and your stress. This survey will come at the same time that you are notified to annotate your daily stressors.

Overall Troubleshooting:

MOODS app not running on the watch

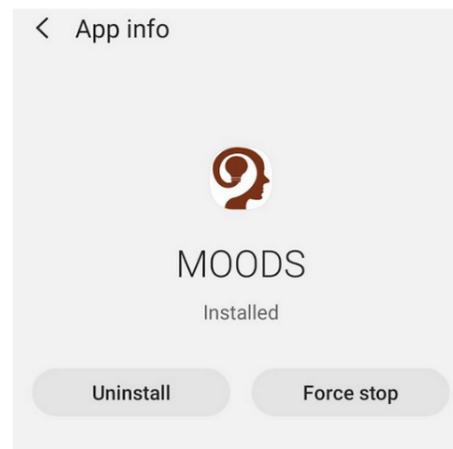
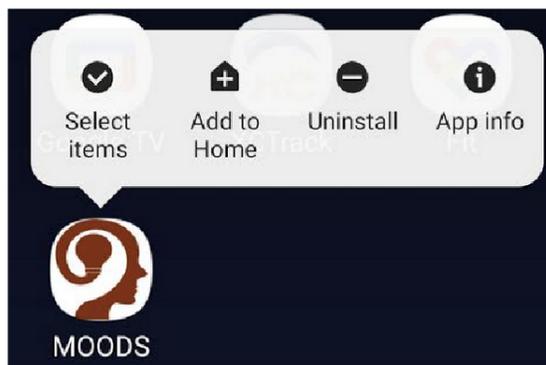
The best way to check if the MOODS app is running on the smartwatch is to check if the green LED light under the smartwatch is on. If it is off, launch the MOODS app on the smartwatch. If this does not start the green LED light, restart the watch.

Please refer here to learn about restarting your watch

<https://www.wareable.com/android-wear/how-to-turn-off-restart-wear-os-smartwatch-7727>

MOODS app is unresponsive on your phone (Android platform)

You may force stop the MOODS app and relaunch it. To do this, navigate to the MOODS application icon in the apps list on your phone. Enter the App Info page by tapping and holding the app icon until the menu appears to access the App info screen. Then, tap the Force stop button. Navigate back to the MOODS app and tap the icon to re-open the app.



No stress episodes displayed for daily annotation

This can happen for a few reasons -

First, check to make sure the MOODS app is running on the smartwatch. To check if the MOODS app is running on your watch, you can periodically check the underside of the watch to check if the green LED lights are lit. You can also open the MOODS app on your watch to make sure it is running. If you are experiencing problems getting stress episodes to appear, you may want to open the MOODS app on the smartwatch when you remove it from the charger.

Next, please ensure that you do not enable battery saving mode on the smartwatch. While this can make the battery last longer, it will also turn off the ability of the watch to detect your stress. It is okay if the watch runs out of battery after a few hours - just recharge the smartwatch with one of the two study-provided charging cables when it is convenient for you.

Were the phone and the smartwatch within Bluetooth communication distance (e.g., were they close together in the same room)? If the phone cannot communicate with the smartwatch, then no stress episodes will be transferred to your phone from the smartwatch.

Finally, make sure that the smartwatch is connected to Wi-Fi before you put the smartwatch on its charger when you've taken it off at the end of your day.

App running on the watch but no episodes detected. (Both Android and iOS)

It is possible that no stress episodes have been detected. Ensure that you are wearing the smartwatch continuously throughout the day (stress episodes are detected via the smartwatch), and check back the next day.

Map loads slowly on your phone

Downloading the Map data can sometimes be slow depending on the speed of your Internet connection.

Stress annotation being prompted at a time other than the set time.

Sometimes, the daily stress annotation prompt can notify you at a different time from your selected time. This can happen on some Android phones such as Samsung: Disable the phone from trying to battery optimization for the MOODS app. This can help ensure that you are prompted at the set time.

App loads slowly

The MOODS app can sometimes load slowly depending on the speed of the Internet connection between your phone and our servers.

Watch battery drains quickly

The MOODS app running on the smartwatch requires more resources to function properly compared to the other apps installed on the watch. This results in the smartwatch battery draining quickly. We recommend that you have the extra charger that we have provided to you handy so that you can charge your watch throughout the day at a place that is convenient for you (i.e., where you won't lose it).

You will need to charge your smartwatch when you get a notification reminding you to recharge your watch or if you see that your watch has run out of battery. The smartwatch will stop collecting data at approximately 7% battery power. At and under this point, stress episodes will likely not be collected.

We recommend that you do not enable battery saving mode on the watch at any time, as this will prematurely disable the watch from collecting your stress episodes. Instead, simply place that smartwatch on one of its chargers as soon as it is convenient for you.