

Welcome to REASSURe documentation

Developed by the London School of Hygiene & Tropical Medicine (LSHTM) with support from UNICEF, this tool enhances the management and analysis of SMART Surveys. These surveys play a vital role in assessing nutritional status and mortality rates. Traditionally, SMART surveys have been analyzed using the ENA software, which allows for the analysis of only one survey at a time. This new tool has been created to optimize the process when analyzing multiple SMART surveys across different administrative levels. It efficiently applies ENA results to several surveys simultaneously and incorporates additional features to further improve the analysis and management capabilities.

This document will explain how you can run the app to obtain the results you expect.

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Step 1: Access to R and RStudio

Both R and RStudio must be installed on your computer before moving on to Step 2.

If you already have RStudio on your computer, you can proceed directly to Step 2. If not, follow the instructions provided on this webpage: <https://posit.co/download/rstudio-desktop/>, or you can watch this YouTube video tutorial for a step-by-step guide: <https://www.youtube.com/watch?v=H9EBIFDGG4k>.

Step 1.1: Download R:

1. Copy and paste this link into your web browser: <https://posit.co/download/rstudiodesktop/>.
2. Follow the steps shown in Figures 1 to 5 to complete the installation.

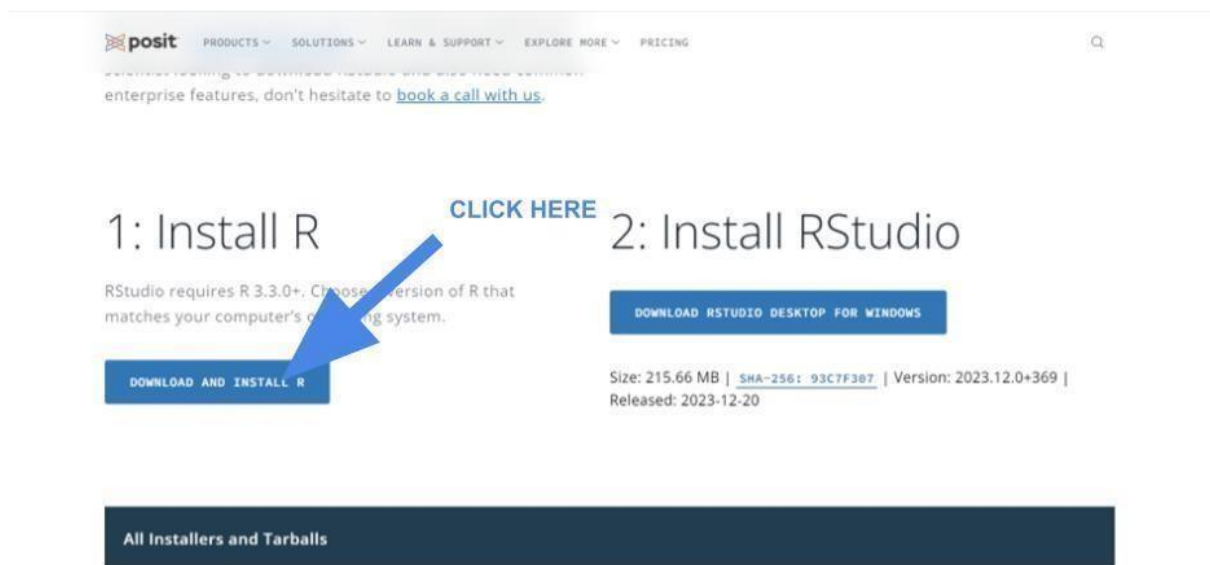


Figure 1: This screenshot shows the homepage where you can download RStudio.

The Comprehensive R Archive Network

Download and Install R

Precompiled binary distributions of the base system, and contributed packages, **Windows and Mac** users most likely want one of these versions of R:

- [Download R for Linux](#) (Debian, Ubuntu, Redhat, CentOS)
- [Download R for macOS](#)
- [Download R for Windows](#)

R is part of many Linux distributions, you should check with your Linux package management system in addition to the link above.

Source Code for all Platforms

Windows and Mac users most likely want to download the precompiled binaries listed in the upper box, not the source code. The sources have to be compiled before you can use them. If you do not know what this means, you probably do not want to do it!

- The latest release (2023-10-31, Eye Holes) [R-4.3.2.tar.gz](#), read [what's new](#) in the latest version.
- Sources of [R alpha and beta releases](#) (daily snapshots, created only in time periods before a planned release).
- Daily snapshots of current patched and development versions are [available here](#). Please read about [new features and bug fixes](#) before filing corresponding feature requests or bug reports.
- Source code of older versions of R is [available here](#).
- Contributed extension [packages](#)

Questions About R

- If you have questions about R like how to download and install the software, or what the license terms are, please read our [answers to frequently asked questions](#) before you send an email.

Supporting CRAN

- CRAN operations, most importantly hosting, checking, distributing, and archiving of R add-on packages for various platforms, crucially rely on technical, emotional, and financial support by the R community.

Please consider making [financial contributions](#) to the R Foundation for Statistical Computing.

Figure 2: After accessing the website, navigate to the section for downloading R

R for Windows

Subdirectories:

| | |
|-----------------------------|---|
| base | Binaries for base distribution. This is what you want to install R for the first time . |
| contrib | Binaries of contributed CRAN packages (for R >= 3.4.x). |
| old-contrib | Binaries of contributed CRAN packages for outdated versions of R (for R < 3.4.x). |
| Rtools | Tools to build R and R packages. This is what you want to build your own packages on Windows, or to build R itself. |

Please do not submit binaries to CRAN. Package developers might want to contact Uwe Ligges directly in case of questions / suggestions related to Windows binaries.

You may also want to read the [R FAQ](#) and [R for Windows FAQ](#).

Note: CRAN does some checks on these binaries for viruses, but cannot give guarantees. Use the normal precautions with downloaded executables.

R-4.3.2 for Windows

[Download R-4.3.2 for Windows](#) (79 megabytes, 64 bit)

[README on the Windows binary distribution](#)

[New features in this version](#)

This build requires UCRT, which is part of Windows since Windows 10 and Windows Server 2016. On older systems, UCRT has to be installed manually from [here](#).

If you want to double-check that the package you have downloaded matches the package distributed by CRAN, you can compare the [md5sum](#) of the .exe to the [fingerprint](#) on the master server.

Frequently asked questions

- [Does R run under my version of Windows?](#)
- [How do I update packages in my previous version of R?](#)

Please see the [R FAQ](#) for general information about R and the [R Windows FAQ](#) for Windows-specific information.

Other builds

- Patches to this release are incorporated in the [patched snapshot build](#)
- A build of the development version (which will eventually become the next major release of R) is available in the [development snapshot build](#).
- [Previous releases](#)

Note to webmasters: A stable link which will redirect to the current Windows binary release is [CRAN MIRROR:bin/windows/base/release.html](#).

Figure 3. Continue following the instructions to select the appropriate version for your operating system.

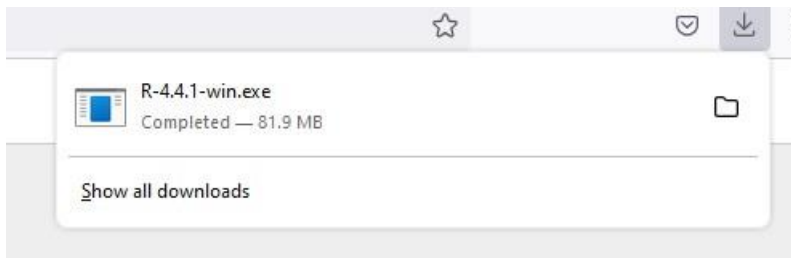


Figure 4: Once the .exe file is downloaded, double-click on it to start the installation process.

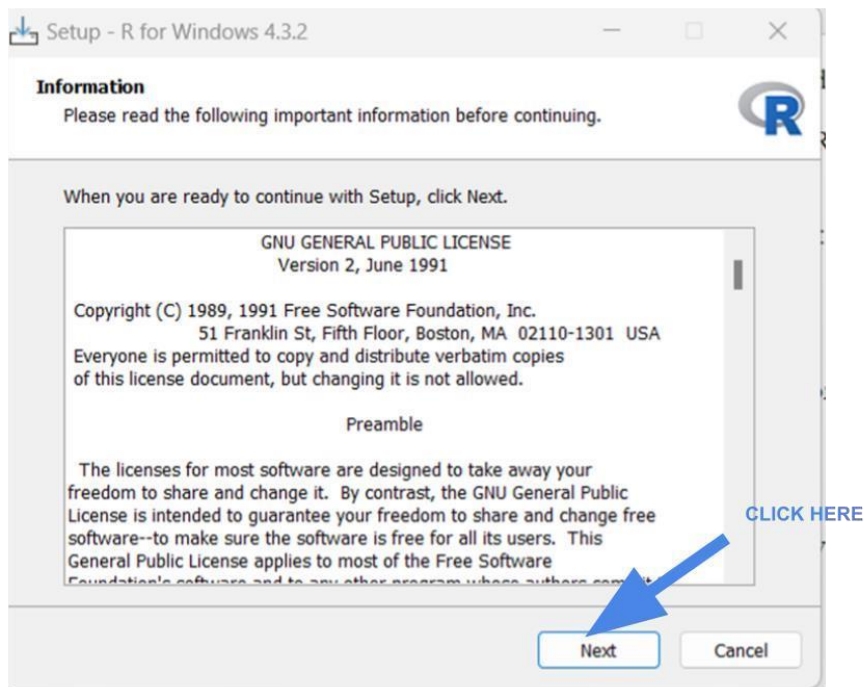


Figure 5: Click "Next" through the installation prompts until the installation is complete.

Step 1.2: Download RStudio:

1. Copy and paste this link into your web browser: <https://posit.co/download/rstudiodesktop/>.
2. Follow the steps shown in Figures 6 and 7 to complete the download.

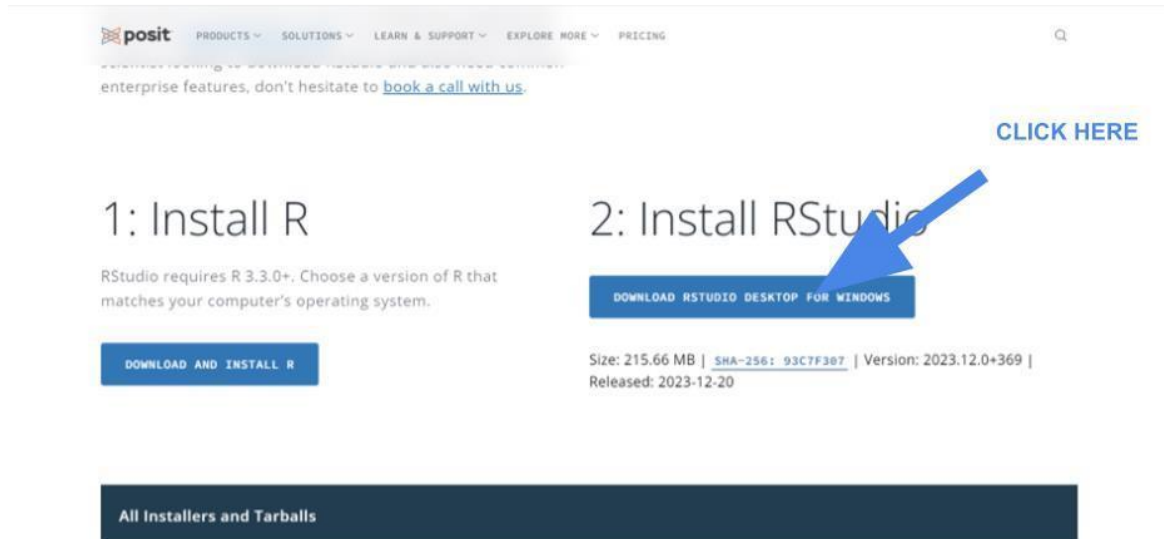


Figure 6: This screenshot shows the download page for RStudio, similar to the R page.

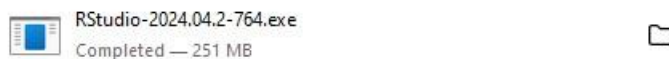


Figure 7: Once the file is downloaded, you will see this screen. Double-click to install.

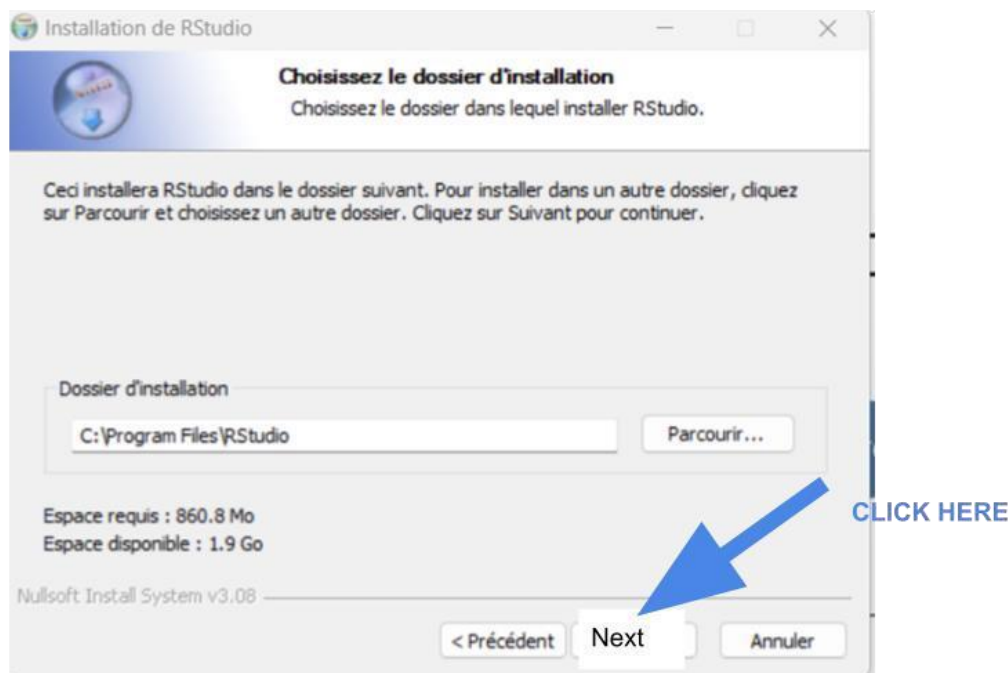


Figure 8: Click "Next" through the installation prompts until the installation is complete.

Step 2: Download REASSURE

Now that you have R and RShiny installed, you are ready to download the REASSURE app.

1. Copy and paste the following link into your web browser:
https://github.com/yamnao/reassure_app

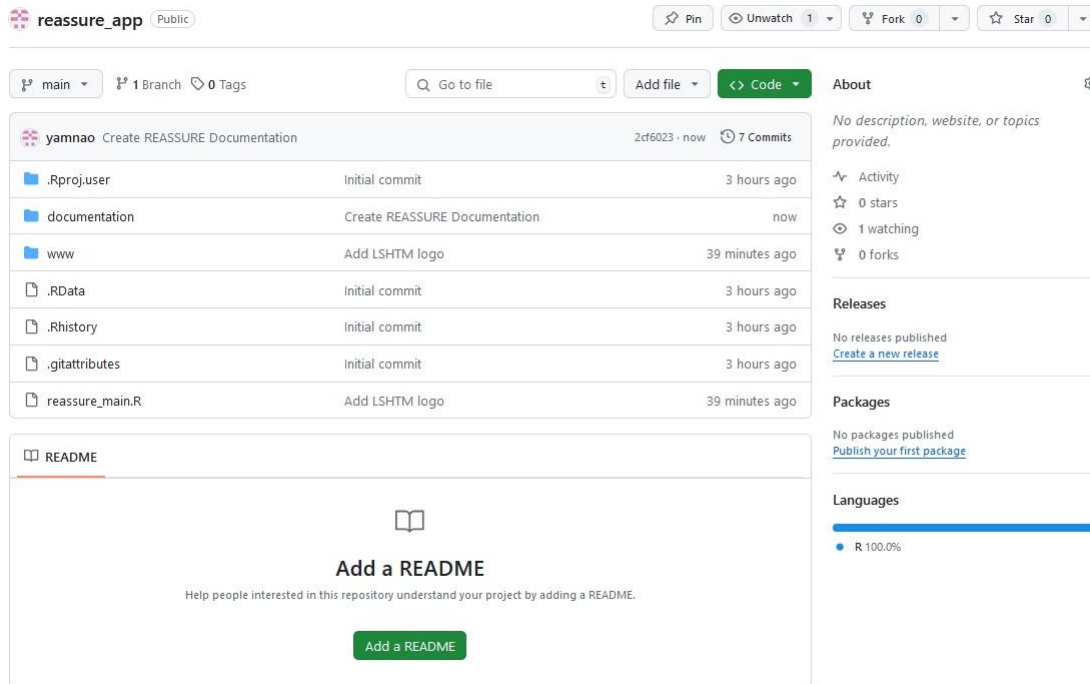
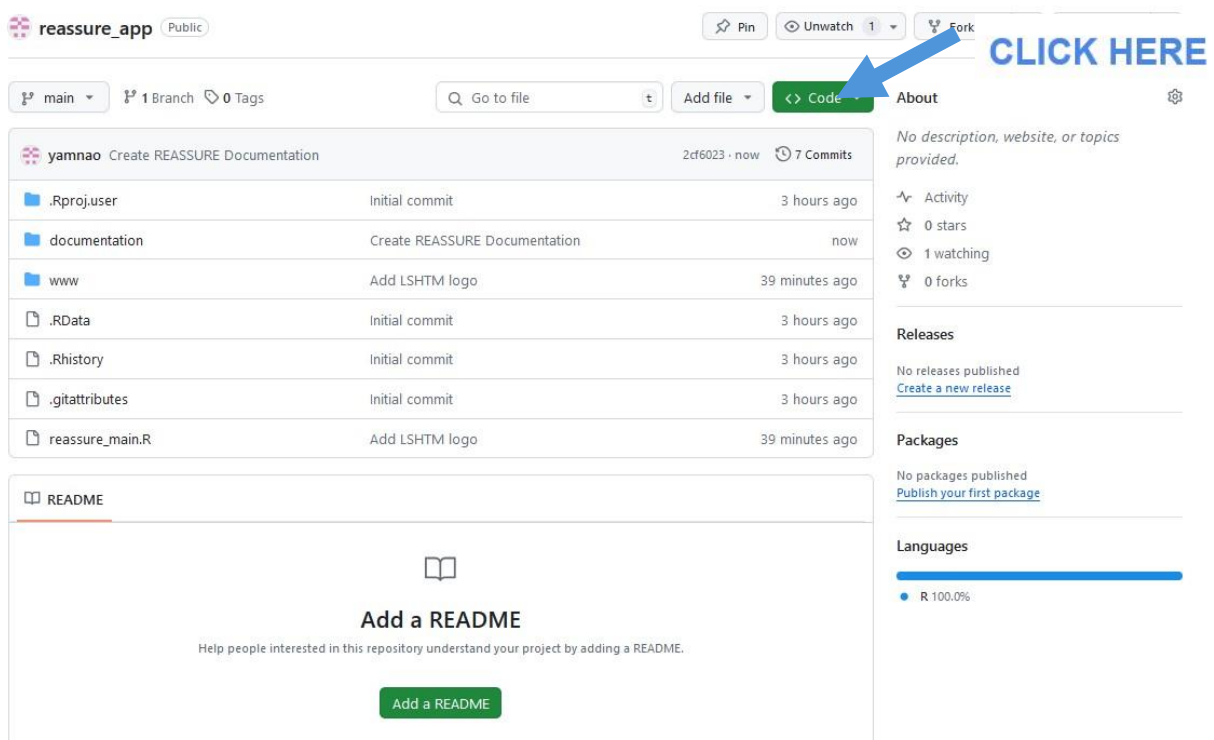


Figure 8: Github webpage containing the REASSURE app.

2. To download the App, please click on the “Code” button and then on “Download ZIP”.



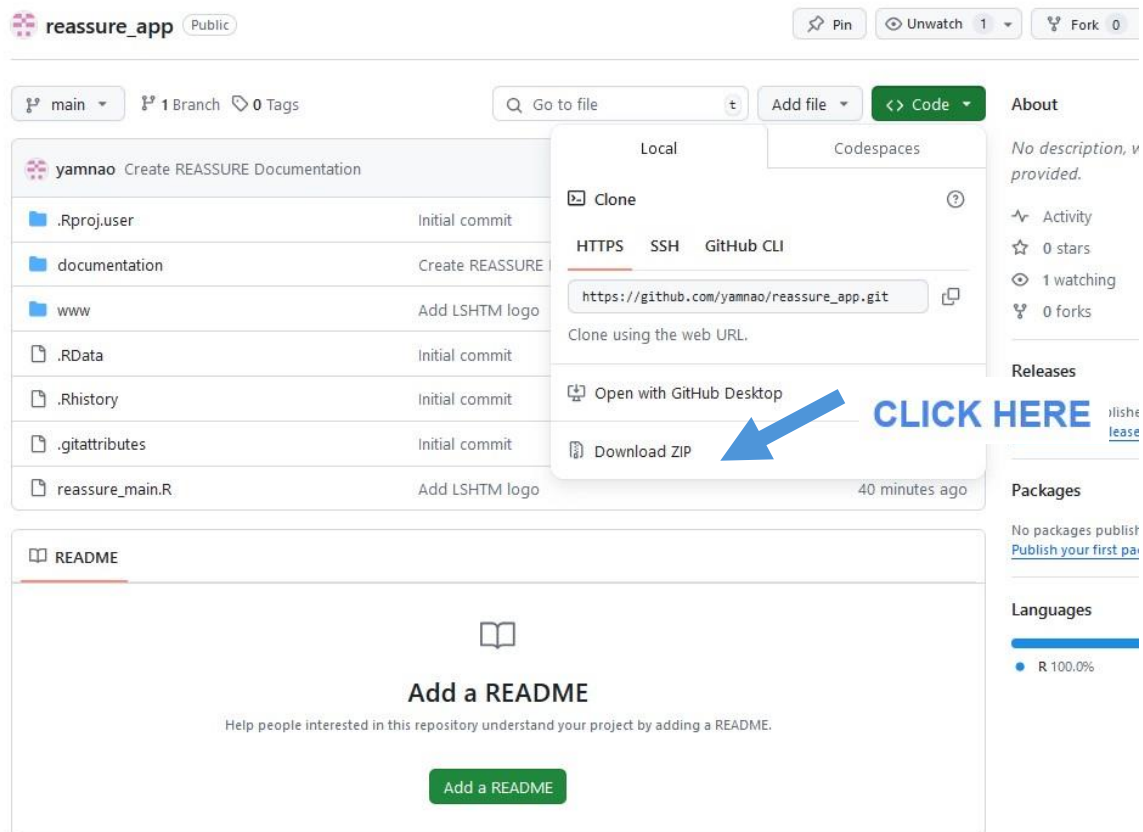


Figure 9: Download the ZIP file containing the REASSURE code.

3. Unzip the folder by extracting it.

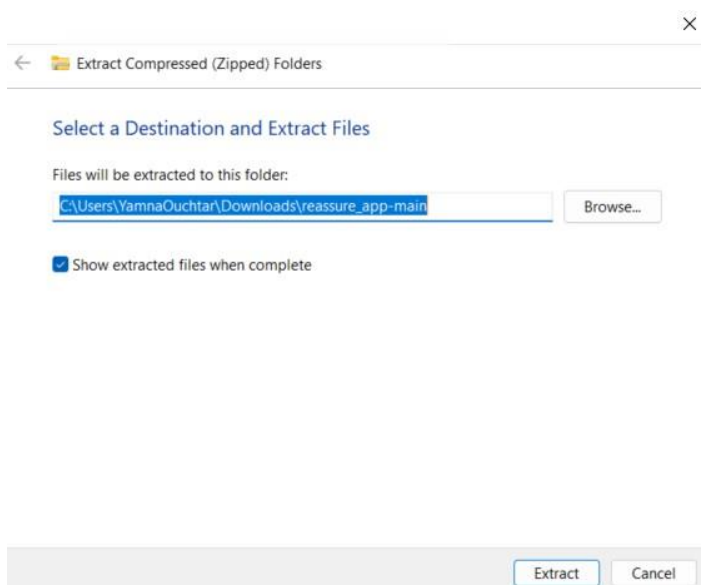


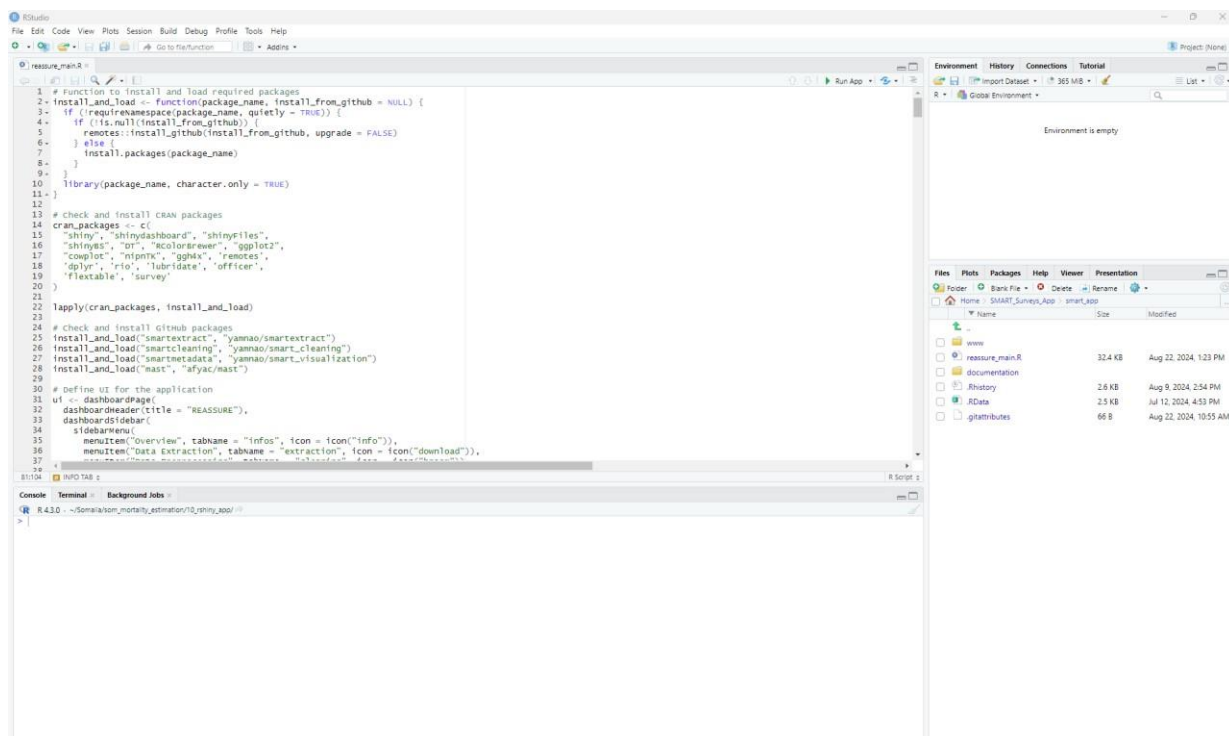
Figure 10: Unzip the file.

4. After unzipping the folder, locate the reassure_main file. Right-click on it, and select "Open with RStudio"

| | | | | |
|----------------|--|------------------|--------------------|-------|
| .Rproj.user | | 20/05/2024 13:39 | File folder | |
| documentation | | 22/08/2024 14:11 | File folder | |
| www | | 22/08/2024 13:22 | File folder | |
| .gitattributes | | 22/08/2024 10:55 | GITATTRIBUTES File | 1 KB |
| .RData | | 12/07/2024 16:53 | R Workspace | 3 KB |
| .Rhistory | | 09/08/2024 14:54 | RHISTORY File | 3 KB |
| reassure_main | | 22/08/2024 13:23 | R File | 33 KB |

Figure 11: Open the reassure_main code using Rstudio.

5. The following window will appear.



```
1 # Function to install and load required packages
2 install_and_load <- function(package_name, install_from_github = NULL) {
3   if (!requireNamespace(package_name, quietly = TRUE)) {
4     if (!is.null(install_from_github)) {
5       remotes::install_github(install_from_github, upgrade = FALSE)
6     } else {
7       install.packages(package_name)
8     }
9   }
10  library(package_name, character.only = TRUE)
11 }
12
13 # Check and install CRAN packages
14 cran_packages <- c(
15   "shiny", "shinydashboard", "shinyfiles",
16   "shinyes", "DT", "rColorBrewer", "ggplot2",
17   "cowplot", "nfsR", "gg4x", "remotes",
18   "dplyr", "r10", "lubridate", "officer",
19   "flextable", "survey"
20 )
21
22 lapply(cran_packages, install_and_load)
23
24 # Check and install github packages
25 install_and_load("smarterextract", "yamao/smarterextract")
26 install_and_load("smartercleaning", "yamao/smartercleaning")
27 install_and_load("smarterdata", "yamao/smartervisualization")
28 install_and_load("mast", "afyac/mast")
29
30 # Define UI for the application
31 ui <- dashboardPage(
32   dashboardHeader(title = "REASSURE"),
33   dashboardSidebar(
34     sidebarMenu(
35       menuItem("Overview", tabname = "infos", icon = icon("info")),
36       menuItem("Data Extraction", tabname = "extraction", icon = icon("download")),
37     )
38   ),
39   dashboardContent(
40     tabItems(
41       tabItem(tabname = "infos",
42         fluidPage(
43           h2("REASSURE")
44         )
45       ),
46       tabItem(tabname = "extraction",
47         fluidPage(
48           h2("Data Extraction")
49         )
50       )
51     )
52   )
53 )
54
55 # Run the application
56 shinyApp(ui, server)
```

Figure 12: Overview of the REASSURE code.

Step 3: Run the App Locally

1. In RStudio, click on the “Run App” button.

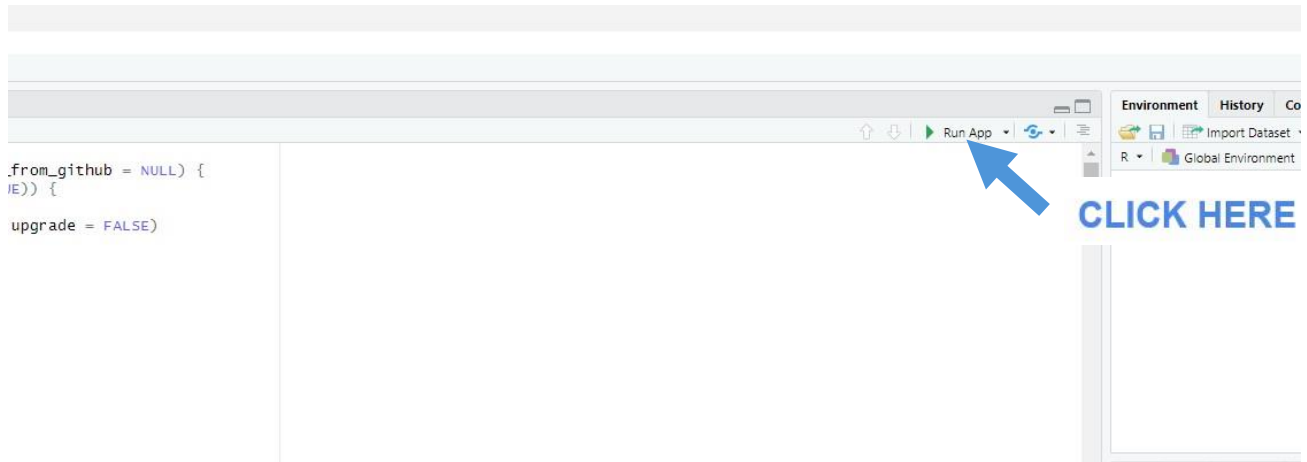


Figure 13: Click on the Run App button to run the REASSURE app from the Rstudio code.

NOTE: You may have a window pop up saying you need to install RSHINY. If this happens just click on **YES** and it will be installed. This may take a little time, but only happens the first time you run the app.

2. REASSURE App will appear.

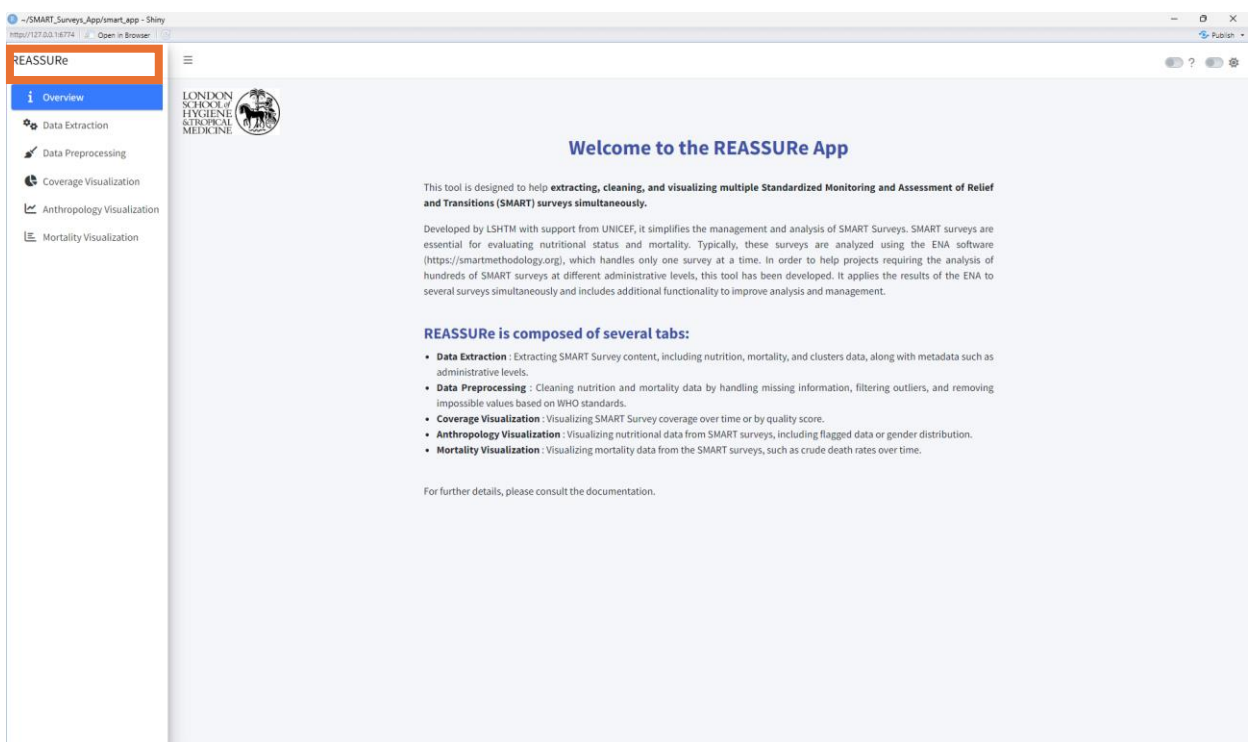


Figure 14: Overview of the REASSURE App.

Step 4: Understanding the different tabs

Tab 1: Extract SMART Survey Content

This section extracts the data from the .AS format so that it is ready for use by the rest of the application. It also allows users to correct the names of administrative regions, and to flag up reports whose dates are not possible.

1. Click on the **Data Extraction** tab

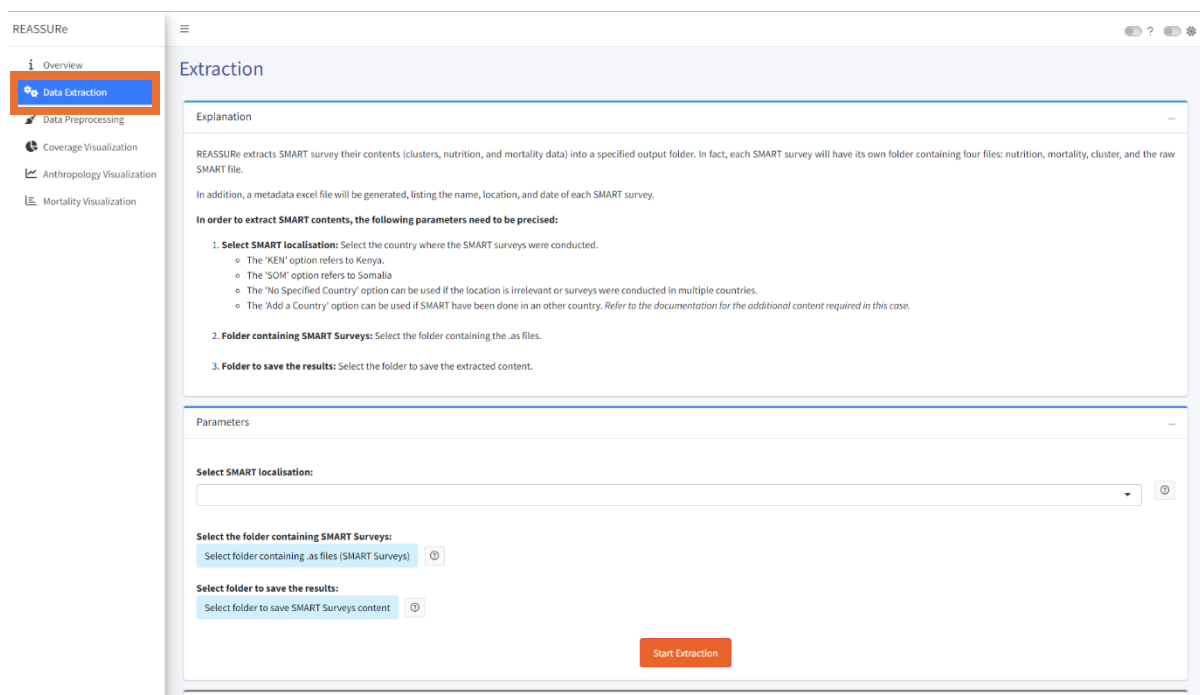


Figure 15: Overview of the Data Extraction tab.

2. Select the Country of the SMART surveys you want to extract:
 - **KEN** option: If the SMART survey was conducted in Kenya, select this option to filter and manage the data specific to Kenya.
 - **SOM** option: If the SMART survey was conducted in Somalia, select this option to focus on Somalia-specific data.
 - **No Specified Country** option: If you prefer not to specify a country, select this option. This can be useful for managing data that spans multiple regions or when countryspecific analysis is not necessary.
 - **Add a Country** option: If the survey was conducted in a country other than Kenya or Somalia and you need to verify and refine the administrative levels information, please select this option. You will be required to provide administrative level data in the specified format. The country data should be organized in an Excel file with three distinct columns: eventual_name, right_name, and level. The level column may include designations such as admin1, admin2, or lhz. The "eventual_name" column accommodates various spellings of the administrative level, while the "right_name" column reflects the standardized spelling of the administrative level. In the initial file, you may simply duplicate the name of the administrative area to establish a starting point.

REASSURE extracts SMART survey their contents (clusters, nutrition, and mortality data) into a specified output folder. In fact, each SMART survey will have its own folder containing four files: nutrition, mortality, cluster, and the raw SMART file.

In addition, a metadata excel file will be generated, listing the name, location, and date of each SMART survey.

In order to extract SMART contents, the following parameters need to be precised:

- Select SMART localisation:** Select the country where the SMART surveys were conducted.
 - The 'KEN' option refers to Kenya.
 - The 'SOM' option refers to Somalia
 - The 'No Specified Country' option can be used if the location is irrelevant or surveys were conducted in multiple countries.
 - The 'Add a Country' option can be used if SMART have been done in an other country. Refer to the documentation for the additional content required in this case.
- Folder containing SMART Surveys:** Select the folder containing the .as files.
- Folder to save the results:** Select the folder to save the extracted content.

Parameters

Select SMART localisation:

No Specified Country
KEN
SOM
Add a country

Select folder to save the results:

Select folder to save SMART Surveys content

Start Extraction

Visualization

Figure 16: Select the localisation of the SMART surveys.

If you selected to option 'Add a country' to add a new country, the following window will appear.

Parameters

Select SMART localisation:

Add a country

Enter the three first letters of the new country:

Upload a file with country data:

Browse... No file selected

Below is an overview of the expected file format:

| | eventual_name | right_name | level |
|---|---------------|------------|--------|
| 1 | coastal | coastal | lhz |
| 2 | BOSSASO | Bossaso | admin2 |
| 3 | BRAVA | Baraawe | admin2 |
| 4 | BUAALE | Bu'aale | admin2 |
| 5 | BUHODLE | Buuhoodle | admin2 |

Select the folder containing SMART Surveys:

Select folder containing .as files (SMART Surveys)

Select folder to save the results:

Select folder to save SMART Surveys content

Start Extraction

Figure 17. Add an excel file containing the list of administrative areas for the country where the SMART surveys have been conducted if you have selected the **Add Country** option.

3. Select the folder containing the SMART Surveys i.e. the .as files.

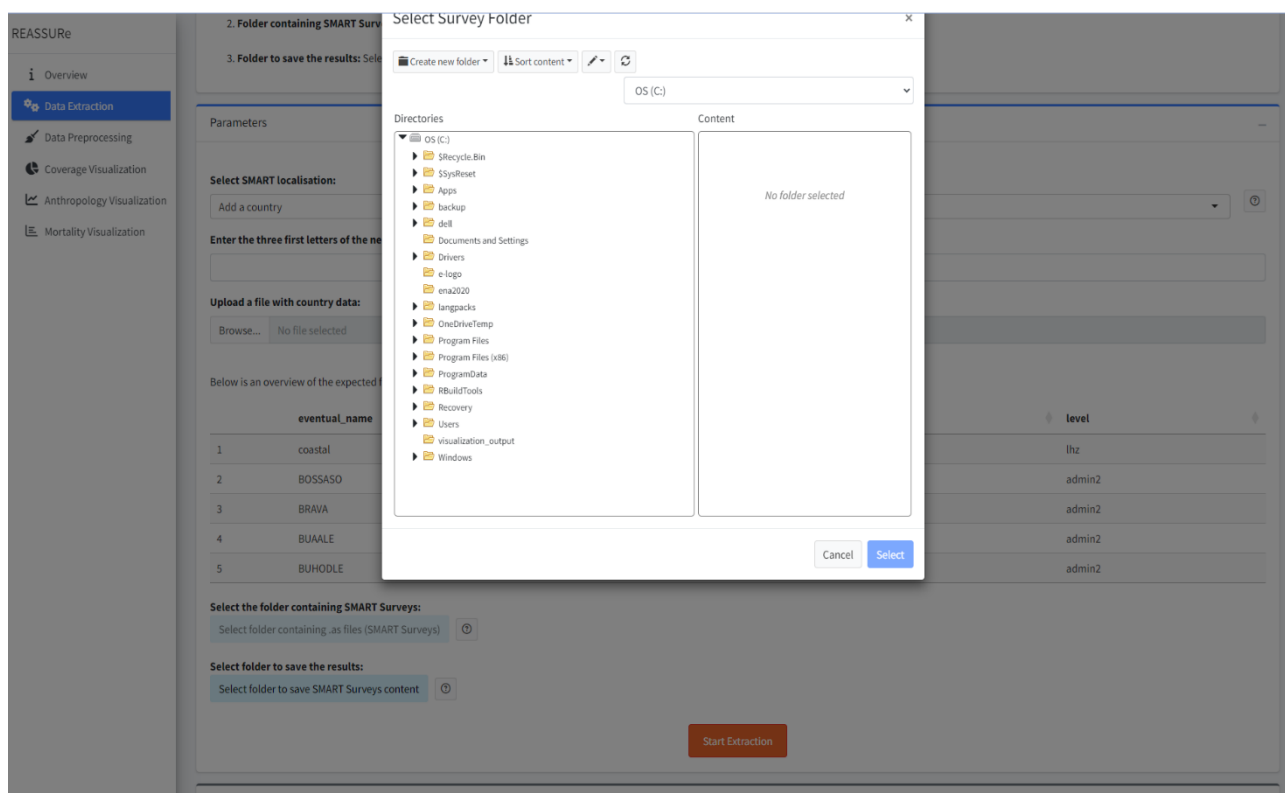
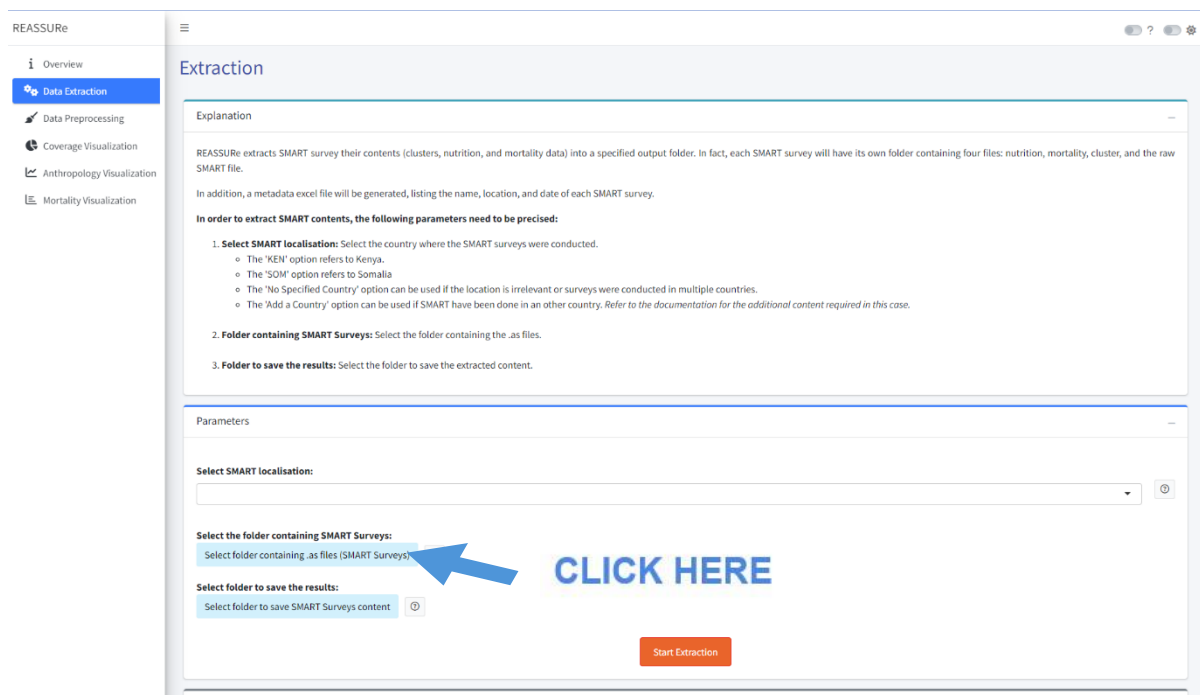


Figure 18. Select the path where the SMART survey have been saved.

4. Select the folder to save the different results.

The screenshot shows the REASSURE application interface. On the left is a sidebar with navigation links: Overview, Data Extraction (selected), Data Preprocessing, Coverage Visualization, Anthropology Visualization, and Mortality Visualization. The main panel is titled 'Extraction' and contains an 'Explanation' section and a 'Parameters' section. The 'Explanation' section describes the extraction process and lists three parameters to be specified. The 'Parameters' section has three fields: 'Select SMART localisation:' (a dropdown menu), 'Select the folder containing SMART Surveys:' (a text input field), and 'Select folder to save the results:' (a text input field). The third field is highlighted with a blue arrow and the text 'CLICK HERE'. Below the fields is a 'Start Extraction' button.

Figure 19. Select the path where the results will be saved

EXAMPLE of SMART Survey Extraction

1. Enter the different parameters .

The screenshot shows the REASSURE application interface with the 'Parameters' section filled with example values. The 'Select SMART localisation:' dropdown is set to 'KEN'. The 'Select the folder containing SMART Surveys:' text input field contains the path 'C:/Users/YannaOuchtar/OneDrive - London School of Hygiene and Tropical Medicine/Documents'. The 'Select folder to save the results:' text input field contains the path 'C:/Users/YannaOuchtar/OneDrive - London School of Hygiene and Tropical Medicine/Documents/Kenya'. Blue arrows point to the 'Localisation' dropdown, the 'path' input field, and the 'path' input field. The 'Start Extraction' button is visible at the bottom.

Figure 20. Example of the different parameters filled in the Data Extraction tab.

If the app cannot automatically find the correct administrative name, you will be prompted to manually select the appropriate location. If you know where the survey took place, select from the list of

administrative areas. Else, select the ‘*Not Found*’ option. This ensures that the data is correctly categorized and analysed according to its geographical context.

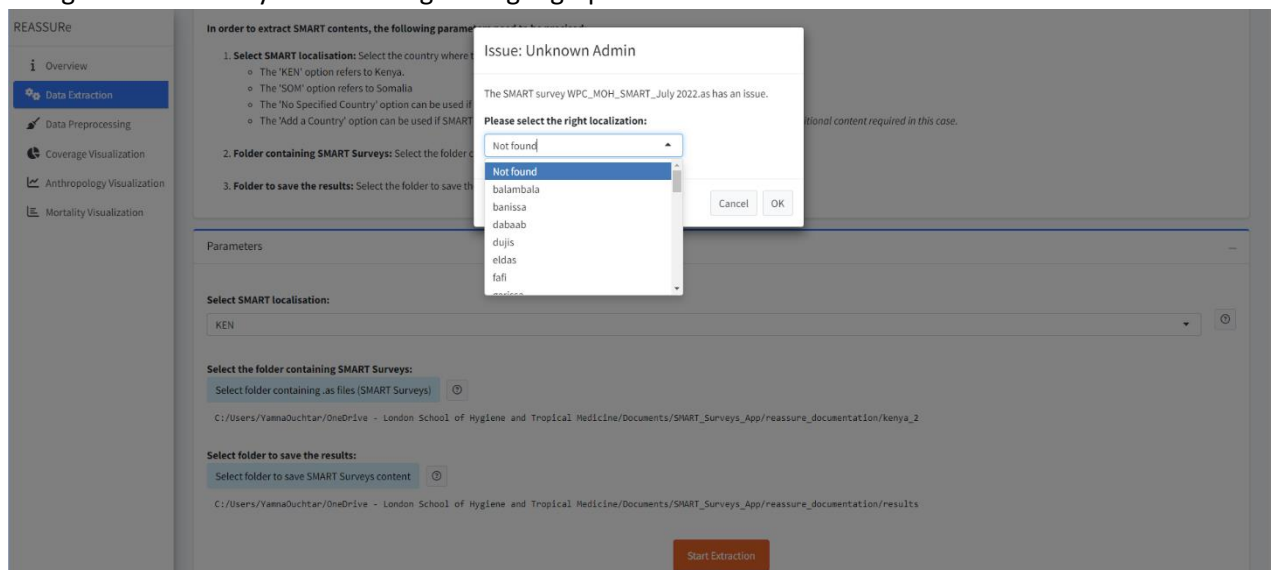


Figure 21. Example of the pop-up window that appears if one of the SMART surveys has not been located correctly.

2. Once all the SMART Survey have been extracted, you will see the following figures.

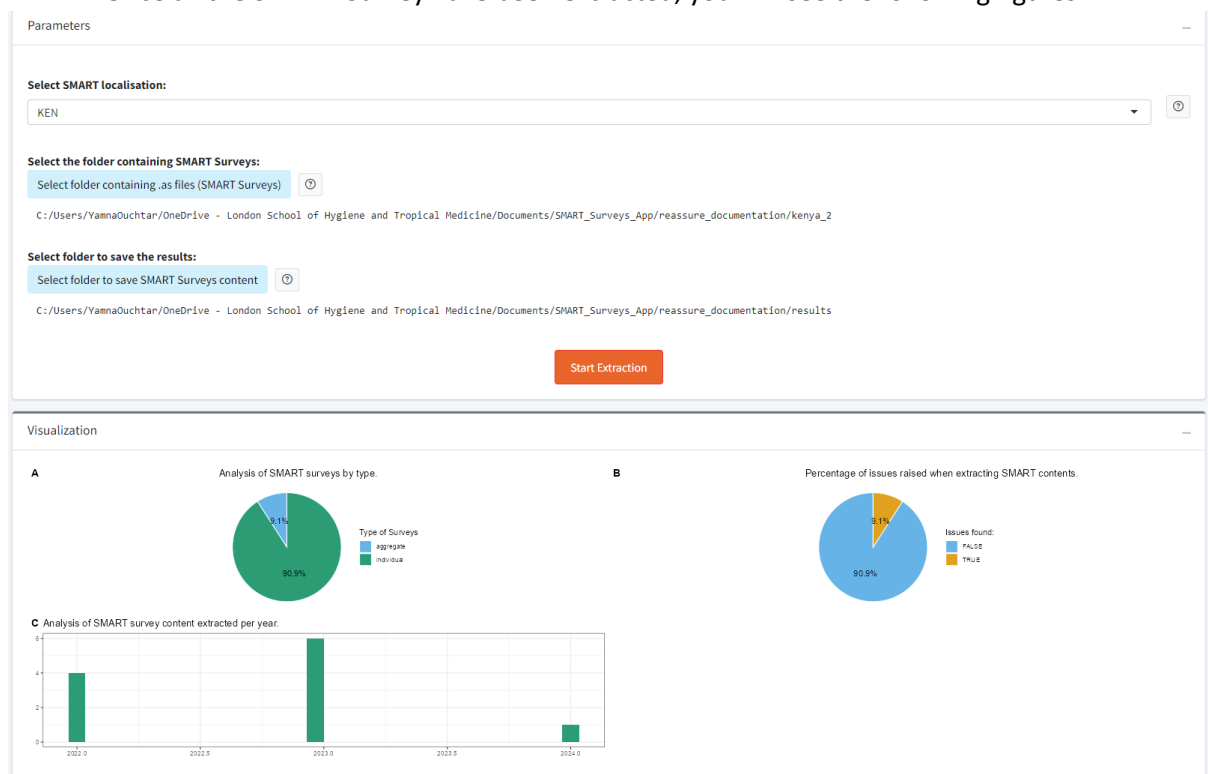


Figure 22. Example of the figures that will appear once extraction is complete.

3. In the folder where you saved the input, you will find a separate directory for each SMART Survey. Additionally, a folder named `smart_with_issue` will contain surveys with location or date issues. A metadata Excel file will also be created, summarizing the analyzed SMART surveys.

| | | | | |
|--------------------------------|---|------------------|--------------------------|------|
| ken_admin2_saku_2022_7_0 | ✓ | 22/08/2024 14:31 | File folder | |
| ken_admin2_saku_2023_7_0 | ✓ | 22/08/2024 14:31 | File folder | |
| ken_admin2_turkanacentral_2017 | ✓ | 22/08/2024 14:31 | File folder | |
| ken_admin2_turkanacentral_2023 | ✓ | 22/08/2024 14:31 | File folder | |
| ken_admin2_turkanacentral_2024 | ✓ | 22/08/2024 14:31 | File folder | |
| ken_admin2_turkananorth_2017_6 | ✓ | 22/08/2024 14:31 | File folder | |
| ken_admin2_turkananorth_2023_6 | ✓ | 22/08/2024 14:31 | File folder | |
| ken_admin2_turkananorth_2024_3 | ✓ | 22/08/2024 14:31 | File folder | |
| ken_admin2_turkanasouth_2017_6 | ✓ | 22/08/2024 14:31 | File folder | |
| ken_admin2_turkanasouth_2023_6 | ✓ | 22/08/2024 14:31 | File folder | |
| ken_admin2_turkanasouth_2024_3 | ✓ | 22/08/2024 14:31 | File folder | |
| ken_admin2_turkanawest_2017_6 | ✓ | 22/08/2024 14:31 | File folder | |
| ken_admin2_turkanawest_2023_6 | ✓ | 22/08/2024 14:31 | File folder | |
| ken_admin2_turkanawest_2024_3 | ✓ | 22/08/2024 14:31 | File folder | |
| smart_with_issue | ✓ | 22/08/2024 14:31 | File folder | |
| metadata | ✓ | 22/08/2024 14:31 | Microsoft Excel Comma... | 7 KB |

Figure 23. Example of different folders obtained after the extraction.

| OneDrive > ... Documents > Test_SMART_Survey_App > results > ken_admin2_moyale_2022_7_0 | | | | | |
|---|--------|------------------|--------------------------|--------|--|
| Sort View ... | | | | | |
| Name | Status | Date modified | Type | Size | |
| ken_admin2_moyale_2022_7_0_clusters_data | ✓ | 22/08/2024 14:31 | Microsoft Excel Comma... | 1 KB | |
| ken_admin2_moyale_2022_7_0_mortality_data | ✓ | 22/08/2024 14:31 | Microsoft Excel Comma... | 237 KB | |
| ken_admin2_moyale_2022_7_0_nutrition_data | ✓ | 22/08/2024 14:34 | Microsoft Excel Comma... | 65 KB | |
| Marsabit_202207_MoH_Partners_Mbt_Moyale Sub-co... | ✓ | 22/08/2024 14:31 | AS File | 102 KB | |

Figure 24. Example of information extracted from the SMART Survey and available in one repository: cluster data, mortality data, nutrition data, and the raw SMART survey file.

Tab 2: Cleaning SMART Survey Content

1. Click on the Data Preprocessing tab

REASSURE

Overview

Data Extraction

Data Preprocessing

Coverage Visualization

Anthropology Visualization

Mortality Visualization

Preprocessing & Cleaning Nutrition Information

Explanation

REASSURE will clean the SMART Surveys by addressing missing values, filtering outliers, and ensuring dataset consistency (based on this paper: [PubMed Article](#)). The output folder will contain cleaned nutrition, mortality, and cluster Excel files, along with a cleaned metadata file containing quality scores and other mortality metrics.

In order to clean the SMART contents, the following parameters need to be specified:

- Folder containing SMART Surveys extracted:** Select the folder with the extracted SMART Survey data (from the first tab).
- Type of cleaning:** Select the type of cleaning process you want to execute.

Once you have provided the required data, click on the "Start cleaning" button to initiate the data cleaning process.

Parameters

Select folder containing SMART information:

C:/Users/YaminaOuchtar/OneDrive

Please change the folder if needed

Select the type of cleaning:

Norm WHO 2006

Start Cleaning

Figure 25: Overview of the Data Preprocessing tab.

2. Specify the location where the SMART surveys were extracted. If you have previously completed the extraction step, this path will be automatically filled out.

REASSURE

Overview

Data Extraction

Data Preprocessing

Coverage Visualization

Anthropology Visualization

Mortality Visualization

Preprocessing & Cleaning Nutrition Information

Explanation

REASSURE will clean the SMART Surveys by addressing missing values, filtering outliers, and ensuring dataset consistency (based on this paper: [PubMed Article](#)). The output folder will contain cleaned nutrition, mortality, and cluster Excel files, along with a cleaned metadata file containing quality scores and other mortality metrics.

In order to clean the SMART contents, the following parameters need to be specified:

- Folder containing SMART Surveys extracted:** Select the folder with the extracted SMART Survey data (from the first tab).
- Type of cleaning:** Select the type of cleaning process you want to execute.

Once you have provided the required data, click on the "Start cleaning" button to initiate the data cleaning process.

Parameters

Select folder containing SMART information:

C:/Users/YaminaOuchtar/OneDrive

Please change the folder if needed

Select the type of cleaning:

Norm WHO 2006

Start Cleaning

path

Figure 25: Overview of parameter to fill.

3. Choose the cleaning process you want to execute.

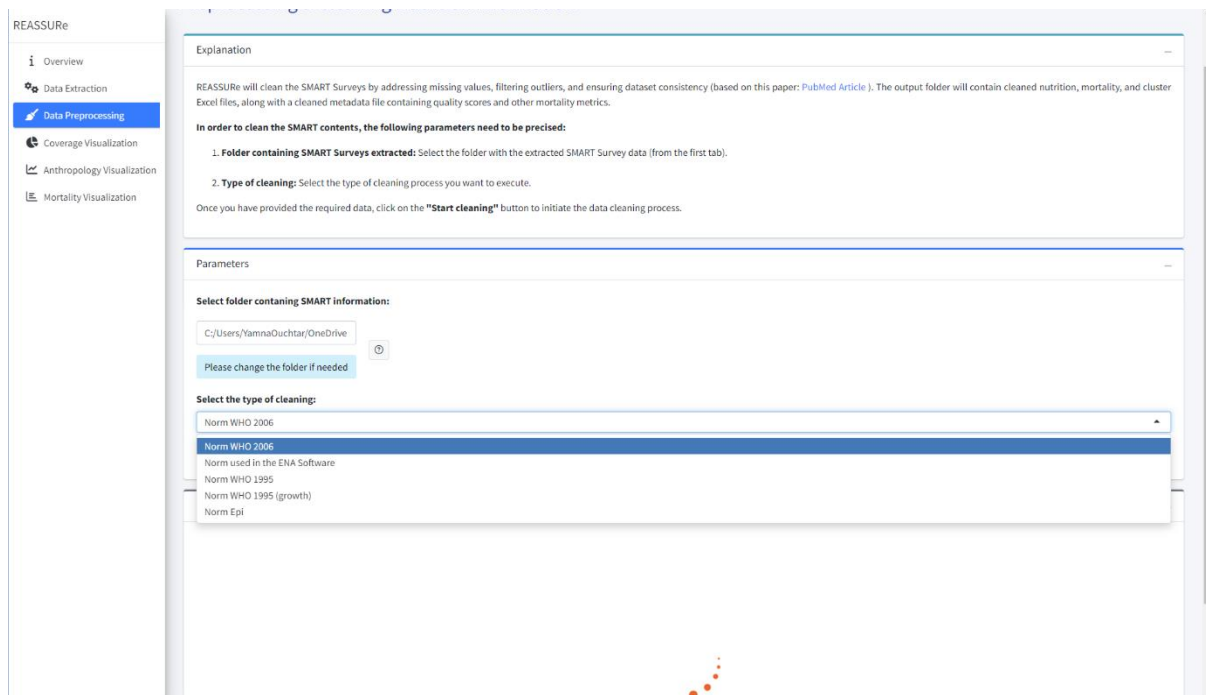


Figure 26: Overview of type of cleaning choices.

- Once you have selected the parameters of your choice, click on 'Start Cleaning'. Once the process is completed, some figures will appear.

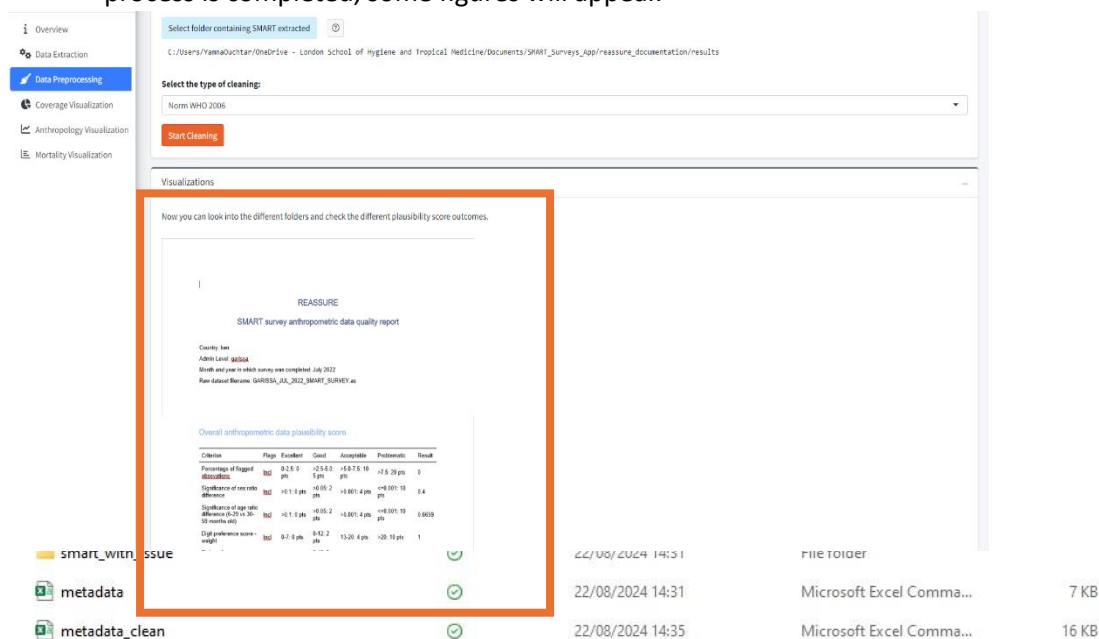


Figure 28. Example of different folders obtained after the cleaning.

- In each folder, you will find the following Excel file.

| Name | Status | Date modified | Type | Size |
|--|--------|------------------|--------------------------|----------|
| ken_admin1_wajir_2023_6_0_clusters_data | ✓ | 22/08/2024 14:31 | Microsoft Excel Comma... | 1 KB |
| ken_admin1_wajir_2023_6_0_clusters_data_clean | ✓ | 22/08/2024 14:34 | Microsoft Excel Comma... | 1 KB |
| ken_admin1_wajir_2023_6_0_mortality_data | ✓ | 22/08/2024 14:31 | Microsoft Excel Comma... | 313 KB |
| ken_admin1_wajir_2023_6_0_mortality_data_clean | ✓ | 22/08/2024 14:34 | Microsoft Excel Comma... | 58 KB |
| ken_admin1_wajir_2023_6_0_nutrition_data | ✓ | 22/08/2024 14:34 | Microsoft Excel Comma... | 95 KB |
| ken_admin1_wajir_2023_6_0_nutrition_data_clean | ✓ | 22/08/2024 14:34 | Microsoft Excel Comma... | 92 KB |
| Ken_Wajir_MOH_06_2023.as | ✓ | 22/08/2024 14:31 | AS File | 134 KB |
| plausibility_check_Ken_Wajir_MOH_06_2023 | ✓ | 22/08/2024 14:34 | Microsoft Word Docum... | 1,217 KB |

Figure 29. Example of different files obtained after the cleaning.

3. The folder will also contain a Word file with the data quality report.

REASSURE

SMART survey anthropometric data quality report

Country: ken
Admin Level: [REDACTED]
Month and year in which survey was completed: July 2022
Raw dataset filename: [REDACTED]

Overall anthropometric data plausibility score

| Criterion | Flags | Excellent | Good | Acceptable | Problematic | Result |
|---|-------|--------------------|----------------------|-----------------------|-------------------------|--------|
| Percentage of flagged observations | Incl | 0-2.5: 0 pts | >2.5-5: 0 pts | >5-7.5: 10 pts | >7.5: 20 pts | 0.96 |
| Significance of sex ratio difference | Incl | >0.1: 0 pts | >0.05: 2 pts | >0.001: 4 pts | <=0.001: 10 pts | 0.31 |
| Significance of age ratio difference (5-29 vs 30-59 months old) | Incl | >0.1: 0 pts | >0.05: 2 pts | >0.001: 4 pts | <=0.001: 10 pts | 0.923 |
| Digit preference score - weight | Incl | 0-7: 0 pts | 8-12: 2 pts | 13-20: 4 pts | >20: 10 pts | 3 |
| Digit preference score - height | Incl | 0-7: 0 pts | 8-12: 2 pts | 13-20: 4 pts | >20: 10 pts | 7 |
| Digit preference score - MUAC | Incl | 0-7: 0 pts | 8-12: 2 pts | 13-20: 4 pts | >20: 10 pts | 4 |
| Standard Deviation of WHZ | Excl | <1.1 & >0.9: 0 pts | <1.15 & >0.85: 5 pts | <1.20 & >0.80: 10 pts | >=1.20 & <=0.80: 20 pts | 1.02 |
| Skewness of WHZ | Excl | <+0.2: 0 pts | <+0.4: 1 pts | <+0.6: 3 pts | >+0.6: 5 pts | 0.041 |
| Kurtosis of WHZ | Excl | <+0.2: 0 pts | <+0.4: 1 pts | <+0.6: 3 pts | >+0.6: 5 pts | 0.018 |
| Poisson distributed prevalence of WHZ < -2 | Excl | >0.05: 0 pts | >0.01: 1 pts | >0.001: 3 pts | <=0.001: 5 pts | 0.02 |
| Total penalty points: | | 0-9 | 10-14 | 15-24 | >=25 | 1 |

The overall score of this survey is 99% (100 - 1penalty_points). This is excellent

Note: the above table reproduces the plausibility score calculations performed by the ENA software. For each criterion, a certain number of penalty percentage points are deducted from the best-possible score of 100%. The best-quality surveys are those with the smallest number of penalty points.

Figure 30. Example of word file obtained after the cleaning.

Tab 3: Visualization of SMART Surveys coverage

This section allows you to view simply histograms of the SMART surveys by:

- Quality score
- Sample size
- Recall days
- Date of survey

1. Click on the **Coverage Visualization** tab.

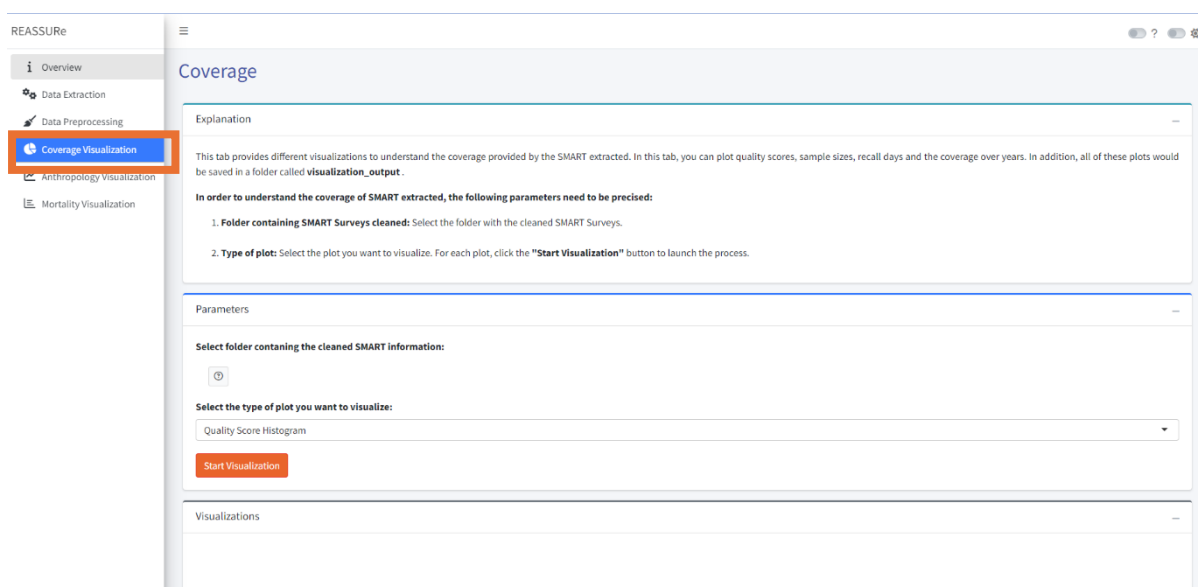


Figure 31: Overview of the Coverage Visualization tab.

2. Select the path where the SMART Surveys have been extracted and cleaned (the folder containing the metadata_clean Excel file). *If you have already cleaned the SMART surveys using the Data Preprocessing tab, the path will be automatically filled.*
3. Choose the type of plot you want to generate from the available options.
4. Click on the Start visualization button.

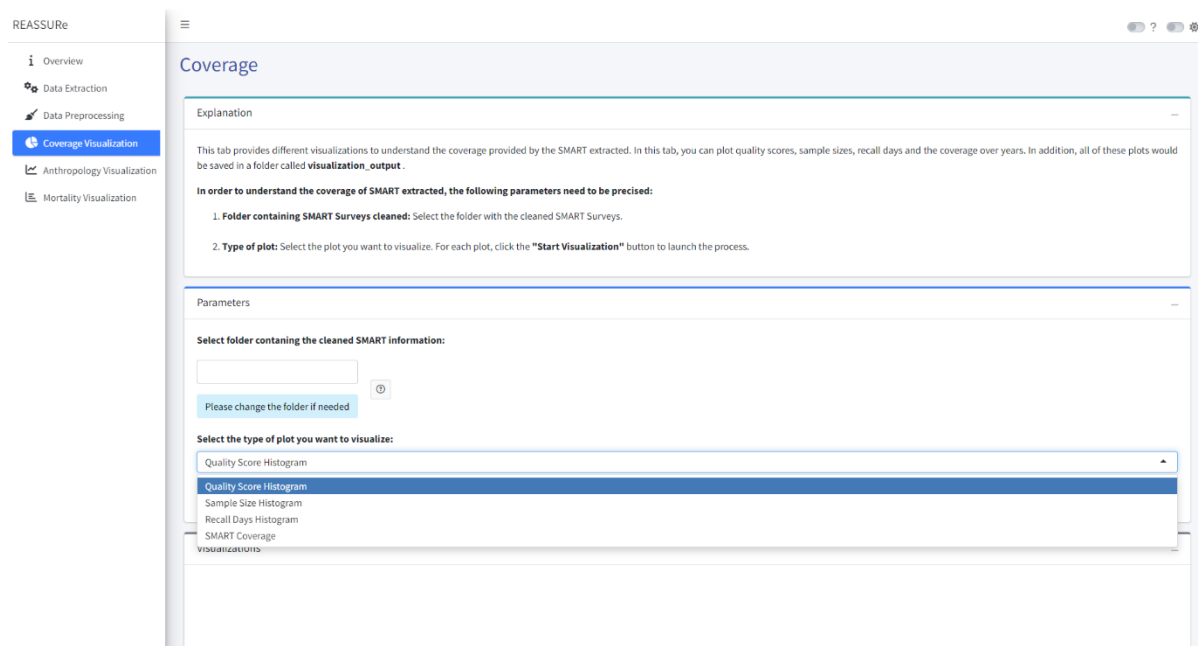


Figure 33: Overview of type of plot.

5. Click on the **Start Visualization** button, and the plot will appear.

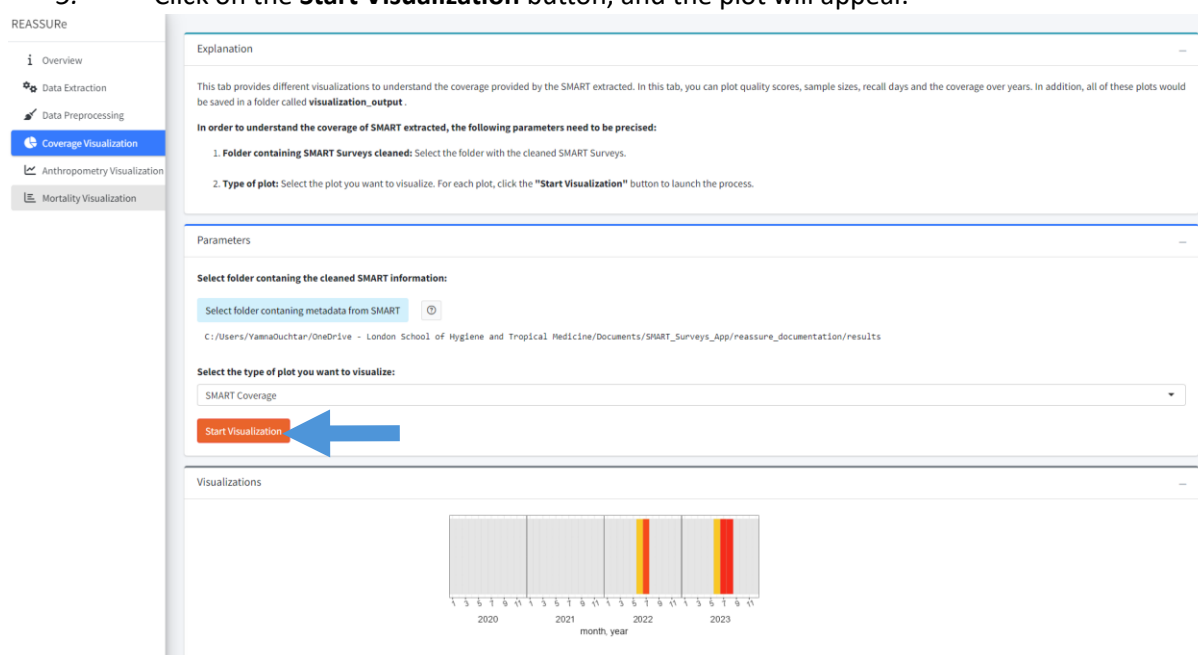
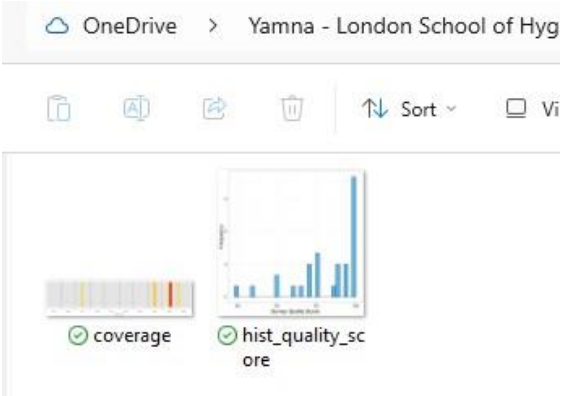


Figure 34: Overview of the plot visualization.

6. A folder called **visualization_output** will be created, and the plot will be saved in this folder.

Figure 35: Overview of the folder generated.

| | | |
|--------------------------------|---|----------|
| ken_admin2_turkanawest_2024_3_ | ✓ | 22/08/21 |
| smart_with_issue | ✓ | 22/08/21 |
| visualization_output | ✓ | 22/08/21 |
| metadata | ✓ | 22/08/21 |
| metadata_clean | ✓ | 22/08/21 |



Tab 4: Visualization of SMART Surveys anthropometry

This section of the App allows you to produce different histograms about the anthropometry of the SMART surveys. Including:

- Histogram of flagged WHZ
 - Histogram of flagged HAZ
 - Histogram of flagged WAZ
 - Histogram of flagged BIO
 - For each survey the flagged WHZ by year
 - For each survey the flagged HAZ by year
 - For each survey the flagged WAZ by year
 - For each survey the flagged Boys / Girls by year
-
1. Click on the **Anthropometry Visualization** tab.
 2. Select the path where the SMART Surveys have been extracted and cleaned (the folder containing the metadata_clean Excel file). *If you have already cleaned the SMART surveys using the Data Preprocessing tab, the path will be automatically filled.*
 3. Choose the type of plot you want to generate from the available options.
 4. Click on the Start visualization button.

Tab 5: Visualization of SMART Surveys mortality

This section of the APP produces simple graphs of different mortality scores:

- Crude death rate (CDR) over time, •
- Under 5-years death rate (DR) over time.

1. Click on the **Mortality Visualization** tab.

The screenshot shows the REASSURE application interface. On the left is a sidebar with navigation options: Overview, Data Extraction, Data Preprocessing, Coverage Visualization, Anthropometry Visualization, and Mortality Visualization (which is highlighted with an orange border). The main area is titled 'Mortality' and contains three sections: 'Explanation', 'Parameters', and 'Visualizations'. The 'Explanation' section provides context on the tab's purpose and lists two required parameters: 'Folder containing SMART Surveys cleaned' and 'Type of plot'. The 'Parameters' section has a text input field for the folder path and a dropdown menu for selecting the plot type, with 'CDR Over Time' and 'Under 5-yearsDR Over Time' as options. The 'Visualizations' section is currently empty.

Figure 37: Overview of the Mortality Visualization tab

2. Select the path where the SMART Surveys have been extracted and cleaned (the folder containing the metadata_clean Excel file). *If you have already cleaned the SMART surveys using the Data Preprocessing tab, the path will be automatically filled.*
3. Choose the type of plot you want to generate from the available options.
4. Click on the Start visualization button.