

SCAPES - Data Management Plan

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1 Qualitative data

1.1 Participatory Rural Assessment

How will data be collected?

What form will this data take?

How/where will it be stored?

What will the data include?

What are the variables/parameters of the data?

How will data be cleaned/processed?

How will the data be anonymised/participants protected? Will data be shared? If so, how?

2 Quantitative data

2.1 Community questionnaires

Questionnaires have been designed as XLSForms and are implemented using the Kobo platform. Data is collected on local devices and sent to the KoboToolbox server (<https://kf.kobotoolbox.org/>) for the SCAPES project. Access can be provided for data entry, modification and download. An unprocessed data set can be downloaded directly from the KoboToolbox server.

Alternatively, a project has been created to pull the data and format it using R.

2.1.1 R Repository for data processing

The `robotoolbox` R package is used to download the data locally through the Kobo API. This approach uses the `dm` R package to handle the grouped repeats in the questionnaire and the `haven` R package to handle variable structure (e.g., labelled factors).

Within the `dm` structure repeats within the questionnaire form unique rows in a linked dataframe.

```
library(here)
library(dm)
library(dplyr)
library(readr)

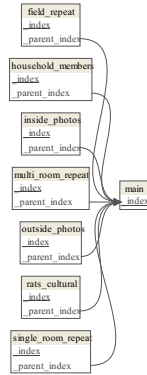
dm <- read_rds(here("data", "h_data", "h_data_dm_2024-02-05.rds"))

knitr::kable(tibble(`Table names` = names(dm),
                    `Number of records` = sapply(dm, function(x) nrow(x)),
                    `Links to households` = sapply(dm, function(x)
                        length(unique(x$`_parent_index`))))))
```

Table names	Number of records	Links to households
main	78	0
household_members	518	78
single_room_repeat	292	76
field_repeat	222	78
rats_cultural	17	16
inside_photos	162	77

Table names	Number of records	Links to households
outside_photos	141	78
multi_room_repeat	39	30

`dm_draw(dm)`



Within questionnaires these repeats may be conditional and so each main questionnaire may be associated with none or many indexed repeats.

2.1.2 Household questionnaire:

2.1.2.1 Metadata and household size. The first section of the household questionnaire records the date, time and location of the completed questionnaire. The number of individuals within the household is recorded here.

Variable Name: start

Description: Formatted datetime when the questionnaire entry was created.

Type of Data: Datetime

Variable Name: end

Description: Formatted datetime when the questionnaire date entry was completed. This may not equate to the length of data collection as data may be added later (e.g., images).

Type of Data: Datetime

Variable Name: date

Description: Likely not needed but was used for internal questionnaire logic. Similar to end in that it records the date of the most recent data entry in the form.

Type of Data: Date

Format: %Y_%m_%d

Variable Name: interviewer_id

Description: Name of the interviewer who conducted the interview.

Type of Data: Factor with labels associated with values.

Options for Responses:

- Option 1: Diana (Code: 1)
- Option 2: Helen (Code: 2)
- Option 3: Nzube (Code: 3)
- Option 4: Sunday (Code: 4)
- Option 5: Other (Code: 5)

Relationships with other variables: interviewer_id_other contains the free-text entry if other is selected.

Variable Name: community

Description: Community questionnaire was conducted in.

Type of Data: Factor with labels associated with values.

Options for Responses:

- Option 1: Dyegh (Akwa Kwasi) (Code: dyegh)
- Option 2: Ikyogbakpev (Akwa Kwasi) (Code: ikyogbakpev)
- Option 3: Zugu (Code: zugu)
- Option 4: Okimbongha (Code: okimbongha)
- Option 5: Ogamanna (Code: ogamanna)
- Option 6: Ofonekom (Code: ofonekom)
- Option 7: Ezeakataka (Code: ezeakataka)
- Option 8: Enyandulogu (Code: enyandulogu)
- Option 9: Offianka (Code: offianka)

Variable Name: consent_household

Description: Whether consent for data collection has been provided.

Type of Data: Binary

Options for Responses:

- Yes (Code: 1)
- No (Code: 0)

Variable Name: household_number

Description: Identification number of the household this questionnaire pertains to.

Type of Data: Integer

Validation Rules: Combined with community to produce a unique identifier for a household. Data validation during processing to ensure each household is uniquely identified.

Variable Name: multiple_family_household

Description: Are members from this household all from the same family? See protocol for definitions used for household and family.

Type of Data: Integer

Variable Name: n_people

Description: The number of individuals currently living within the household. Includes those who come and go on a regular basis or are current students away for school.

Type of Data: Integer

2.1.2.2 Demographics of household members. This repeat group of questions collects demographic data of all members of the sampled household.

Repeat Section: Household members demographic will be repeated for each member of the household

Variable Name: sex_person

Description: The sex of the individual.

Type of Data: Binary

Options for Responses:

- Female (Code: 1)
 - Male (Code: 0)
-

Variable Name: baby

Description: Are they less than 1 year old?

Type of Data: Binary (Yes or No)

Options for Responses:

- Yes (Code: 1)
 - No (Code: 0)
-

Variable Name: age

Description: The age of the individual, in years. Only asked for those >1 year old.

Type of Data: Integer

Variable Name: age_baby

Description: The age of the individual in months. Only asked for those <1 year old.

Type of Data: Integer

Variable Name: permanent_transient

Question: In the last year, was this individual regularly resident within this household?

Type of Data: Binary (Yes or No)

Options for Responses:

- Yes (Code: 1)
- No (Code: 0)

End of household member repeat

2.1.2.3 Household structure and associated buildings. These questions collect information on the structure of the household, whether other households share buildings and the type of buildings used by the sampled.

Variable Name: compound

Question: Is this household within a compound?

Description: A compound can be an enclosed area. A compound can also be a clear but defined area.

Type of Data: Binary (Yes or No)

Options for Responses:

- Yes (Code: 1)
- No (Code: 0)

Variable Name: multiple_households

Question: Do any other households live in the same compound?

Description: Only asked if the answer to the **compound** question is Yes.

Type of Data: Binary (Yes or No)

Options for Responses:

- Yes (Code: 1)
- No (Code: 0)

Variable Name: n_in_other_households

Question: How many people live in this compound?

Description: Not including those that are in the focal household. Only asked if the answer to the **multiple_households** question is Yes.

Type of Data: Integer

Variable Name: other_household_activities

Question: Which of the following activities occur regularly with these other households?

Description: Only asked if the answer to the **multiple_households** question is Yes.

Type of Data: Factor with labels associated with values.

Options for Responses:

- Option 1: Sleeping (Code: sleeping)
- Option 2: Eating (Code: eating)
- Option 3: Cooking (Code: cooking)
- Option 4: Hunting (Code: hunting)
- Option 5: Farming (Code: farming)
- Option 6: None (Code: none)
- Option 7: Other (Code: other)

Variable Name: other_household_activities_specify

Description: Captures other activities which may be conducted with the focal household only if other is selected in **other_household_activities**

Type of Data: Free text

Variable Name: household_ethnicity_same

Question: Do all members of this household identify as the same ethnicity?

Type of Data: Binary (Yes or No)

Options for Responses:

- Yes (Code: 1)
- No (Code: 0)

Variable Name: household_ethnicity

Question: What ethnicity is the household?

Description: Only asked if the answer to the **household_ethnicity_same** question is Yes.

Type of Data: Factor with labels associated with values.

Options for Responses:

- Option 1: Igbo (Izzi) (Code: igbo_izzi)
- Option 2: Igbo (Other) (Code: igbo_other)
- Option 3: Membe (Code: membe)
- Option 4: Tiv (Code: tiv)
- Option 5: Other (Code: other)

Variable Name: other_ethnicity_household

Description: Only asked if the answer to **household_ethnicity** is other

Type of Data: Free-text

Variable Name: household_religion_same

Question: Do all members of this household share the same religion?

Type of Data: Binary (Yes or No)

Options for Responses:

- Yes (Code: 1)
- No (Code: 0)

Variable Name: household_religion

Question: What religion is the household?

Description: Factor with labels associated with values.

Options for Responses:

- Option 1: Christian (Code: christian)
- Option 2: Muslim (Code: muslim)
- Option 3: Traditionalist (Code: traditionalist)
- Option 4: Other (Code: other)

Variable Name: household_religion_other

Description: Only asked if the answer to household_religion is other

Type of Data: Free-text

Variable Name: n_compound

Question: How many buildings or other structures are there in the compound?

Description: This variable represents the count of buildings or other structures within the compound.

Type of Data: Integer

Variable Name: n_individual_buildings

Question: How many individual buildings does the household use regularly?

Description: This variable represents the count of individual buildings regularly used by the household.

Type of Data: Integer

Variable Name: building_owned

Question: Are these buildings owned by your household?

Description: This variable indicates whether the buildings are owned by the household.

Type of Data: Factor with labels associated with values.

Options for Responses:

- Option 1: Own themselves (Code: own_themselves)
- Option 2: Owned by other members of the family (Code: own_family)
- Option 3: Rented from a non-family member (Code: rented)
- Option 4: Other (Code: other)

Variable Name: building_owned_other

Description: This question appears if other is selected in building_owned

Type of Data: Free-text

Variable Name: n_multi_room

Question: How many multi-room buildings does this household regularly use?

Description: This variable represents the count of multi-room buildings regularly used by the household.

Type of Data: Integer

Variable Name: n_single_room

Question: How many single-room buildings does this household regularly use?

Type of Data: Integer

2.1.2.4 Multi-room building repeat. The following section is repeated for each of the multi-room buildings used by the sampled household. To capture information on each of the rooms within a building this is separated from data collection for single room buildings.

Repeat Section: Multi-room buildings will be added, one per repeat

Variable Name: building_purpose

Question: What does the household use this building for?

Description: For each building used by a household this variable captures information on what purpose it is used for.

Type of Data: Character with each option in a string separated by a space

Options for Responses:

- Option 1: Sleeping (Code: sleeping)
- Option 2: Food preparation (Code: food_preparation)
- Option 3: Cooking (Code: cooking)
- Option 4: Eating (Code: eating)
- Option 5: Socialising/Parlour (Code: socialising_parlour)
- Option 6: Cooked food storage (Code: food_storage)
- Option 7: Packaged food storage (Noodle, Indomie etc.) (Code: packaged_food_storage)
- Option 8: Crop storage (Garri, Rice, Yam etc.) (Code: crop_storage)
- Option 9: Seed storage (Code: seed_storage)
- Option 10: Animal storage (Chicken, Goat etc.) (Code: animal_storage)
- Option 11: Other storage (Code: other_storage)
- Option 12: Other (Code: other)

Variable Name: specify_building_purpose

Description: Only asked if other is selected as one of the options in building_purpose

Type of Data: Free-text

Variable Name: building_location

Question: Where is the building located?

Type of Data: Factor with labels associated with values

Options for Responses:

- Option 1: Within the compound (Code: compound)
- Option 2: No compound, within the village (Code: no_compound)
- Option 3: Elsewhere in the village, outside of the compound (Code: village)
- Option 4: In the field, outside of the compound (Code: fields)
- Option 5: In a different village (Code: other_village)
- Option 6: In a different town/city (Code: in_town)
- Option 7: Other (Code: other)

Variable Name: specify_building_location

Description: Only asked if other is selected as the option in building_location

Type of Data: Free-text

Variable Name: roof_material

Question: What is the roof made of?

Type of Data: Character with each option in a string separated by a space

Options for Responses:

- Option 1: Mat/thatch (Code: mat_thatch)
- Option 2: Zinc/metal (Code: zinc_metal)
- Option 3: Deck (Code: deck)
- Option 4: None (Code: none)
- Option 5: Other (Code: other)

Definitions:

- Roof - refers to external material of the roof
- Deck - ...

Variable Name: roof_other

Description: Only asked if other is selected as the option in `roof_material`
Type of Data: Free-text

Variable Name: `wall_material`

Question: What are the walls made of?

Type of Data: Character with each option in a string separated by a space

Options for Responses:

- Option 1: Mud block (Code: `mud_block`)
- Option 2: Brick (Code: `brick`)
- Option 3: Cement blocks (Code: `cement_block`)
- Option 4: Plaster (Code: `plaster`)
- Option 5: Wood (Slats, Lumber etc.) (Code: `wood`)
- Option 6: Trees/Sticks (Code: `wood_other`)
- Option 7: Other (Code: `other`)

Definitions:

- Mud block - an unfired mud block
 - Brick - a fired block
 - Plaster - ...
-

Variable Name: `walls_other`

Description: Only asked if other is selected as the option in `wall_material`

Type of Data: Free-text

Variable Name: `door_material`

Question: What is the door of the main entrance made of?

Type of Data: Select one

Options for Responses:

- Option 1: Wood (Code: `wood`)
 - Option 2: Metal (Code: `metal`)
 - Option 3: None (Code: `none`)
 - Option 4: Other (Code: `other`)
-

Variable Name: `door_other`

Description: Only asked if other is selected as the option in `door_material`

Type of Data: Free-text

Variable Name: `window_material`

Question: What are the windows made of?

Type of Data: Character with each option in a string separated by a space

Options for Responses:

- Option 1: Permanently open (Code: `permanently_open`)
 - Option 2: Permanently closed (Code: `permanently_closed`)
 - Option 3: Wooden shutters (Code: `wooden_shutters`)
 - Option 4: Glass panes (Code: `glass`)
 - Option 5: Mosquito net (Code: `screen`)
 - Option 6: Metal grill/sheet (Code: `metal`)
 - Option 7: No windows (Code: `none`)
 - Option 8: Other (Code: `other`)
-

Variable Name: `specify_window`

Description: Only asked if other is selected as the option in `window_material`

Type of Data: Free-text

Variable Name: `ceiling_material`

Question: What material is used for the ceiling?

Type of Data: Character with each option in a string separated by a space

Options for Responses:

- Option 1: Mat/thatch (Code: `mat_thatch`)
- Option 2: Wood (Code: `wood`)
- Option 3: Cement (Code: `cement`)
- Option 4: Synthetic (Code: `synthetic`)
- Option 5: Sack bag/Carpet/Lino (Code: `lining`)
- Option 6: No ceiling (Code: `no_ceiling`)
- Option 7: Other (Code: `other`)

Definitions:

- Sack bag/Carpet/Lino - ...

Variable Name: `specify_ceiling`

Description: Only asked if other is selected as the option in `ceiling_material`

Type of Data: Free-text

Variable Name: `ceiling_storage`

Question: Is there anything stored between the ceiling and the roof?

Type of Data: Binary (yes/no)

Options for Responses:

- Yes (Code: 1)
 - No (Code: 0)
-

Variable Name: `storage_items_ceiling`

Question: What is stored in this space?

Type of Data: Character with each option in a string separated by a space

Options for Responses:

- Option 1: Cooked food (Code: `cooked_food`)
 - Option 2: Uncooked food (Code: `uncooked_food`)
 - Option 3: Packaged food (Code: `packaged_food`)
 - Option 4: Crops for sale (Code: `crops_for_sale`)
 - Option 5: Crops for household use (Code: `crops_for_household_use`)
 - Option 6: Seeds for sale (Code: `seeds_for_sale`)
 - Option 7: Seeds for household use (Code: `seeds_for_household_use`)
 - Option 8: Clothing (Code: `clothing`)
 - Option 9: Other (Code: `other`)
-

Variable Name: `ceiling_storage_other`

Description: Only asked if other is selected as the option in `storage_items_ceiling`

Type of Data: Free-text

Variable Name: `floor`

Question: What is the floor made of?

Type of Data: Character with each option in a string separated by a space

Options for Responses:

- Option 1: Mud (Code: `mud`)
 - Option 2: Cement (Code: `cement`)
 - Option 3: Tile (Code: `tile`)
 - Option 4: Other (Code: `other`)
-

Variable Name: `internal_door`

Question: Are there doors between the rooms in the building?

Description: This variable indicates whether there are doors between the rooms in the building.

Type of Data: Single-select with binary responses.

Options for Responses:

- Yes (Code: 1)
 - No (Code: 0)
-

Variable Name: `internal_door_fit`

Question: Do the doors fit well within the building?

Description: This variable indicates whether the doors fit well within the building. i.e., If your finger can fit through any space in the door, or between the door and the frame, it does not fit well.

Type of Data: Single-select with binary responses.

Options for Responses:

- Yes (Code: 1)
 - No (Code: 0)
-

Variable Name: `rooms_in_building`

Question: How many rooms are there in this building?

Description: This variable captures the number of rooms within the same building, including kitchens, bedrooms, storerooms, parlors, etc.

Type of Data: Integer

Variable Name: `n_household_sleep`

Question: How many people from this household sleep in this building?

Description: This variable indicates the number of people from this household who sleep in this building.

Type of Data: Integer

Variable Name: sleep_same_room

Question: Does everyone from this household that sleeps in this building sleep in the same room?

Description: This variable indicates whether everyone from this household who sleeps in this building sleeps in the same room.

Type of Data: Single-select with binary responses.

Options for Responses:

- Yes (Code: 1)
 - No (Code: 0)
-

Variable Name: n_rooms_household_sleep

Question: How many different rooms do people from this household sleep in?

Description: This variable captures the number of different rooms in which people from this household sleep.

Type of Data: Integer

Variable Name: other_household_sleep

Question: Do members of a different household sleep in this building?

Description: This variable indicates whether members of a different household sleep in this building.

Type of Data: Single-select with binary responses.

Options for Responses:

- Yes (Code: 1)
 - No (Code: 0)
-

Variable Name: other_household_sleep_shared

Question: Do members of a different household sleep in the same space/place as members of this household?

Description: This variable indicates whether members of a different household sleep in the same space/place as members of this household.

Type of Data: Single-select with binary responses.

Options for Responses:

- Yes (Code: 1)
 - No (Code: 0)
-

Variable Name: n_other_household_sleep_multi

Question: How many members of a different household sleep in this building?

Description: This variable captures the number of members of a different household who sleep in this building.

Type of Data: Integer

Variable Name: rodents_enter_building

Question: Do any rats enter this building?

Description: This variable indicates whether any rats are known to enter this building.

Type of Data: Single-select with three responses

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
 - Option 3: Unknown (Code: unknown)
-

Variable Name: rodents_in_building

Question: Do any rats live in this building?

Description: This variable indicates whether any rats are known to live in this building.

Type of Data: Single-select with three responses

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
 - Option 3: Unknown (Code: unknown)
-

Variable Name: rodents_in_building_evidence

Question: How do you know rats live here?

Description: This variable captures the evidence of rats living in the building.

Type of Data: Multi-select

Options for Responses:

- Option 1: See live rats (Code: see_live_rats)
- Option 2: See dead rats (Code: see_dead_rats)
- Option 3: See rat urine (Code: see_rat_urine)
- Option 4: See rat faeces (Code: see_rat_faeces)
- Option 5: See rat burrows (Code: see_rat_burrows)

- Option 6: Hear them (Code: hear_them)
- Option 7: Smell them (Code: smell_them)
- Option 8: Direct contact with rats (Code: direct_contact)
- Option 9: Seen the damage they have done to items (Code: item_damage)
- Option 10: Other (Code: other)

Variable Name: rodents_in_building_specify

Question: Please specify.

Description: This variable allows for specifying other evidence of rats living in the building. Only asked if other is selected in rodents_in_building_evidence.

Type of Data: Free text

Variable Name: rodent_faeces_multi_sleep

Question: Do you ever see the excreta/shit of rats in the places where people sleep?

Description: This variable indicates whether rat excreta are observed in sleeping areas.

Type of Data: Single-select with three responses (Yes, No, Unknown)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)
- Option 3: Unknown (Code: unknown)

Variable Name: rodent_sleeping_contact_multi

Question: Has anyone been bitten or scratched by a rat while sleeping in this building?

Description: This variable indicates whether there has been any contact that could potentially result in direct pathogen transmission with rats while sleeping. Sleeping areas may not be the same thing as bedrooms as individuals may sleep in additional rooms of the building.

Type of Data: Single-select with three responses (Yes, No, Unknown)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)
- Option 3: Unknown (Code: unknown)

Variable Name: mastomys_multi

Question: Do you notice a rat called *Mastomys natalensis* (the multimammate rat, or the rat with many offspring) in this building?

Description: This variable captures awareness of the presence of *Mastomys natalensis* in the building.

Type of Data: Single-select with three responses (Yes, No, Unknown)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)
- Option 3: Unknown (Code: unknown)

Variable Name: mastomys_timing_multi

Question: What time of the day do you see this rat?

Description: This variable captures the timing of *Mastomys natalensis* sightings.

Type of Data: Single-select

Options for Responses:

- Option 1: Daytime (Code: daytime)
- Option 2: Nighttime (Code: nighttime)
- Option 3: Anytime (Code: anytime)

Variable Name: mastomys_season_multi

Question: Which season do you see them in?

Description: This variable captures the seasonality of *Mastomys natalensis* sightings.

Type of Data: Single-select

Options for Responses:

- Option 1: Dry (Code: dry)
- Option 2: Rainy (Code: rainy)
- Option 3: All seasons (Code: all_seasons)

Variable Name: designated_kitchen

Question: Is there a room that is designated as the kitchen in this building?

Description: This variable indicates whether there is a room designated as the kitchen in the building. Most kitchen activities occur outside but some preparation may occur within buildings or the kitchen may be attached to the building.

Type of Data: Single-select with three responses (Yes, No, Unknown)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)
- Option 3: Unknown (Code: unknown)

Variable Name: `sleep_in_kitchen`

Question: Do people from this household regularly sleep in the room that is designated as the kitchen?

Description: This variable captures whether individuals from the household regularly sleep in the room designated as the kitchen. Only asked if the answer to `designated_kitchen` is Yes.

Type of Data: Single-select with three responses (Yes, No, Sometimes)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)
- Option 3: Sometimes (Code: sometimes)

Variable Name: `n_sleep_in_kitchen`

Question: How many individuals from this household sleep in the kitchen?

Description: This variable indicates the number of individuals from the household who regularly sleep in the kitchen. Only asked if the answer to `sleep_in_kitchen` is Yes.

Type of Data: Integer

Variable Name: `rodent_damage_kitchen`

Question: Do rats eat or destroy food or ingredients in the kitchen?

Description: This variable captures whether rats cause damage to food or ingredients in the kitchen. It considers the damage they do to household items stored within kitchens.

Type of Data: Single-select with three responses (Yes, No, Unknown)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)
- Option 3: Unknown (Code: unknown)

Variable Name: `rodent_damage_kitchen_items`

Question: What do rats eat or destroy in the kitchen?

Description: This variable captures the items that rats eat or destroy in the kitchen.

Type of Data: Multi-select

Options for Responses:

- Option 1: Prepared but uncooked food (Garri, Pounded Yam etc.) (Code: `uncooked_food`)
- Option 2: Other ingredients for cooking (Spices, Dried Fish etc.) (Code: `ingredients`)
- Option 3: Cooked food (Code: `cooked_food`)
- Option 4: Rice for cooking (Code: `rice`)
- Option 5: Yams for cooking (Code: `yam`)
- Option 6: Groundnut for cooking (Code: `groundnut`)
- Option 7: Other crops for cooking (Code: `other_crops`)

Variable Name: `specify_other_kitchen_items`

Question: Please specify other items that rats eat or destroy in the kitchen.

Description: This variable allows for specifying other items that rats may eat or destroy in the kitchen. This question is only asked if `other_crops` is selected in the `rodent_damage_kitchen_items`.

Type of Data: Free-text

Variable Name: `prepared_food_damage`

Question: How much of the prepared food kept in this kitchen is damaged?

Description: This variable attempts to quantify the extent of damage to prepared but uncooked food kept in the kitchen by rats. This question is only asked if `uncooked_food` is selected in the `rodent_damage_kitchen_items`.

Type of Data: Single-select with three responses.

Options for Responses:

- Option 1: A bit (<25%) (Code: `a_bit_25`)
- Option 2: A lot (25-75%) (Code: `a_lot_25_75`)
- Option 3: Most (>75%) (Code: `most_75`)

Variable Name: `cooked_food_damage`

Question: How much of the cooked food kept in this kitchen is damaged?

Description: This variable attempts to quantify the extent of damage to cooked food kept in the kitchen by rats. This question is only asked if `cooked_food` is selected in the `rodent_damage_kitchen_items`.

Type of Data: Single-select with three responses.

Options for Responses:

- Option 1: A bit (<25%) (Code: `a_bit_25`)

- Option 2: A lot (25-75%) (Code: a_lot_25_75)
- Option 3: Most (>75%) (Code: most_75)

Variable Name: rice_damage

Question: How much of the rice kept in this kitchen is damaged?

Description: This variable attempts to quantify the extent of damage to rice stored in the kitchen by rats. This question is only asked if rice is selected in the `rodent_damage_kitchen_items`.

Type of Data: Single-select with three responses.

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
- Option 2: A lot (25-75%) (Code: a_lot_25_75)
- Option 3: Most (>75%) (Code: most_75)

Variable Name: yam_damage

Question: How much of the yam kept in this kitchen is damaged?

Description: This variable attempts to quantify the extent of damage to yams stored in the kitchen by rats. This question is only asked if yam is selected in the `rodent_damage_kitchen_items`.

Type of Data: Single-select with three responses.

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
- Option 2: A lot (25-75%) (Code: a_lot_25_75)
- Option 3: Most (>75%) (Code: most_75)

Variable Name: groundnut_damage

Question: How much of the groundnut kept in this kitchen is damaged?

Description: This variable attempts to quantify the extent of damage to groundnut stored in the kitchen by rats. This question is only asked if groundnut is selected in the `rodent_damage_kitchen_items`.

Type of Data: Single-select with three responses.

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
- Option 2: A lot (25-75%) (Code: a_lot_25_75)
- Option 3: Most (>75%) (Code: most_75)

Variable Name: ingredients_damage

Question: How much of the other ingredients kept in this kitchen is damaged?

Description: This variable attempts to quantify the extent of damage to other crops stored in the kitchen by rats. This question is only asked if other_crops is selected in the `rodent_damage_kitchen_items`.

Type of Data: Single-select with three responses.

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
- Option 2: A lot (25-75%) (Code: a_lot_25_75)
- Option 3: Most (>75%) (Code: most_75)

We do not collect information on the quantity of other ingredients that may be stored being damaged by rodents.

Variable Name: designated_store

Question: Is there a room that is designated to store food, crops, or seed in this building?

Description: This variable indicates whether there is a room designated to store food, crops, or seed in the building.

Type of Data: Single-select with three responses (Yes, No, Sometimes)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)
- Option 3: Sometimes (Code: sometimes)

Variable Name: cooked_food_in_store

Question: Do you ever store cooked food in this same store room?

Description: This variable captures whether cooked food is stored in the same store room designated for food, crops, or seeds. Only asked if 'Yes' is selected in `designated_store`.

Type of Data: Single-select with three responses (Yes, No, Sometimes)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)
- Option 3: Sometimes (Code: sometimes)

Variable Name: sleep_in_store

Question: Do people sleep in the room that is designated as storage for food, crops, or seeds?

Description: This variable indicates whether people sleep in the room designated as storage for food, crops, or seeds. Only asked if 'Yes' is selected in **designated_store**.

Type of Data: Single-select with three responses (Yes, No, Sometimes)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
 - Option 3: Sometimes (Code: sometimes)
-

Variable Name: **n_sleep_in_store**

Question: How many individuals from this household sleep in the storeroom(s)?

Description: This variable indicates the number of individuals from this household who sleep in the storeroom(s). Only asked if 'Yes' is selected in **designated_store** and 'Yes' is selected in **sleep_in_store**.

Type of Data: Integer

Variable Name: **rodent_damage_store**

Question: Do rats eat or destroy food or harvested crops in the storeroom?

Description: This variable captures whether rats eat or destroy food or harvested crops in the storeroom. Harvested crops include everything that you grow yourself.

Type of Data: Single-select with three responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: **rodent_damage_store_items**

Question: What do rats eat or destroy in this storeroom?

Description: This variable captures what rats eat or destroy in the storeroom. Only asked if 'Yes' is selected in **rodent_damage_store**.

Type of Data: Multi-select

Options for Responses:

- Option 1: Cooked food (Code: cooked_food)
 - Option 2: Ingredients for cooking (Code: ingredients)
 - Option 3: Packaged food (Code: packaged_food)
 - Option 4: Harvested crops for household use (Code: harvested_crops_use)
 - Option 5: Harvested crops for sale (Code: harvested_crops_sale)
 - Option 6: Seed stock for household use (Code: seed_use)
 - Option 7: Seed stock for sale (Code: seed_sale)
 - Option 8: Other items (Code: other)
-

Variable Name: **specify_other_store**

Question: Specify other items

Description: This variable allows specifying other items that rats eat or destroy in the storeroom. Only asked if 'Other items' is selected in **rodent_damage_store_items**.

Type of Data: Free text

Variable Name: **cooked_food_damage_store**

Question: How much of the cooked food kept in this storeroom is damaged?

Description: This variable indicates the extent of damage to the cooked food kept in the storeroom. Only asked if 'Cooked food' is selected in **rodent_damage_store_items**.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
 - Option 2: A lot (25-75%) (Code: a_lot_25_75)
 - Option 3: Most (>75%) (Code: most_75)
-

Variable Name: **ingredients_damage_store**

Question: How much of the ingredients for cooking are damaged?

Description: This variable indicates the extent of damage to the ingredients for cooking kept in the storeroom. Only asked if 'Ingredients for cooking' is selected in **rodent_damage_store_items**.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
 - Option 2: A lot (25-75%) (Code: a_lot_25_75)
 - Option 3: Most (>75%) (Code: most_75)
-

Variable Name: **uncooked_food_damage_store**

Question: How much of the uncooked food kept in this storeroom is damaged?

Description: This variable indicates the extent of damage to the uncooked food kept in the storeroom. Only asked if 'Prepared but uncooked food' is selected in **rodent_damage_store_items**.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
 - Option 2: A lot (25-75%) (Code: a_lot_25_75)
 - Option 3: Most (>75%) (Code: most_75)
-

Variable Name: packaged_food_damage_store

Question: How much of the packaged food kept in this storeroom is damaged?

Description: This variable indicates the extent of damage to the packaged food kept in the storeroom. Only asked if 'Packaged food' is selected in **rodent_damage_store_items**.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
 - Option 2: A lot (25-75%) (Code: a_lot_25_75)
 - Option 3: Most (>75%) (Code: most_75)
-

Variable Name: crops_use_damage_store

Question: How much of the crops for household use is damaged?

Description: This variable indicates the extent of damage to the crops for household use kept in the storeroom. Only asked if 'Harvested crops for household use' is selected in **rodent_damage_store_items**.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
 - Option 2: A lot (25-75%) (Code: a_lot_25_75)
 - Option 3: Most (>75%) (Code: most_75)
-

Variable Name: crops_sale_damage_store

Question: How much of the crops for sale is damaged?

Description: This variable indicates the extent of damage to the crops for sale kept in the storeroom. Only asked if 'Harvested crops for sale' is selected in **rodent_damage_store_items**.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
 - Option 2: A lot (25-75%) (Code: a_lot_25_75)
 - Option 3: Most (>75%) (Code: most_75)
-

Variable Name: seed_use_damage_store

Question: How much of the seed for household use is damaged?

Description: This variable indicates the extent of damage to the seed for household use kept in the storeroom. Only asked if 'Seed stock for household use' is selected in **rodent_damage_store_items**.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
 - Option 2: A lot (25-75%) (Code: a_lot_25_75)
 - Option 3: Most (>75%) (Code: most_75)
-

Variable Name: seed_sale_damage_store

Question: How much of the seed for sale is damaged?

Description: This variable indicates the extent of damage to the seed for sale kept in the storeroom. Only asked if 'Seed stock for sale' is selected in **rodent_damage_store_items**.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
 - Option 2: A lot (25-75%) (Code: a_lot_25_75)
 - Option 3: Most (>75%) (Code: most_75)
-

Variable Name: other_items_damage_store

Question: How much of the other items is damaged?

Description: This variable indicates the extent of damage to other items kept in the storeroom. Only asked if 'Other items' is selected in **rodent_damage_store_items**.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
- Option 2: A lot (25-75%) (Code: a_lot_25_75)

- Option 3: Most (>75%) (Code: most_75)

End of multiple room building repeat

2.1.2.5 Single room building information. The following section collects information on the number and type of single room buildings this household uses.

Variable Name: building_name

Question: What buildings does this household have?

Description: This variable captures the single room buildings present in the household.

Type of Data: Multi-select

Options for Responses:

- Option 1: Room or bedroom (Code: bedroom)
- Option 2: Parlour (Code: parlour)
- Option 3: Kitchen (Code: kitchen)
- Option 4: Store (Code: store)
- Option 5: Farm shed (Code: farm_shed)
- Option 6: Hunting shed (Code: hunting_shed)
- Option 7: Animal shed (Code: animal_shed)
- Option 8: Other (Code: other)

Variable Name: building_name_other

Question: Specify other building name

Description: This variable allows specifying other building names if 'Other' is selected in building_name.

Type of Data: Free text

Variable Name: n_room

Question: How many buildings are used as rooms/bedrooms?

Description: This variable indicates the number of buildings used as rooms or bedrooms. Only asked if 'Room or bedroom' is selected in building_name.

Type of Data: Integer

Variable Name: same_construction_room

Question: Is the construction the same for each of these?

Description: This variable captures whether the construction is the same for each building used as a room or bedroom. Only asked if there are multiple buildings used as rooms or bedrooms.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: n_parlour

Question: How many buildings are used as a parlour?

Description: This variable indicates the number of buildings used as a parlour. Only asked if 'Parlour' is selected in building_name.

Type of Data: Integer

Variable Name: same_construction_parlour

Question: Is the construction the same for each of these?

Description: This variable captures whether the construction is the same for each building used as a parlour. Only asked if there are multiple buildings used as parlours.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: n_kitchen

Question: How many buildings are used as kitchens?

Description: This variable indicates the number of buildings used as kitchens. Only asked if 'Kitchen' is selected in building_name.

Type of Data: Integer

Variable Name: same_construction_kitchen

Question: Is the construction the same for each of these?

Description: This variable captures whether the construction is the same for each building used as a kitchen. Only asked if there are multiple buildings used as kitchens.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: n_store

Question: How many buildings are used only as store rooms?

Description: This variable indicates the number of buildings used only as store rooms. Only asked if 'Store' is selected in building_name.

Type of Data: Integer

Variable Name: same_construction_store

Question: Is the construction the same for each of these?

Description: This variable captures whether the construction is the same for each building used only as a store room. Only asked if there are multiple buildings used only as store rooms.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: building_ownership

Question: Ownership status of the building

Description: This variable indicates the ownership status of the building.

Type of Data: Single-select with four responses

Options for Responses:

- Option 1: Own themselves (Code: own_themselves)
 - Option 2: Another family member owns it (Code: own_family)
 - Option 3: Rented from a different household and different family (Code: rented)
 - Option 4: Other (Code: other)
-

Variable Name: n_farm_shed

Question: How many farm sheds are there?

Description: This variable indicates the number of farm sheds. Only asked if 'Farm shed' is selected in building_name.

Type of Data: Integer

Variable Name: same_construction_farm

Question: Is the construction the same for each of these?

Description: This variable captures whether the construction is the same for each farm shed. Only asked if there are multiple farm sheds.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: n_hunting_shed

Question: How many hunting sheds are there?

Description: This variable indicates the number of hunting sheds. Only asked if 'Hunting shed' is selected in building_name.

Type of Data: Integer

Variable Name: same_construction_hunting

Question: Is the construction the same for each of these?

Description: This variable captures whether the construction is the same for each hunting shed. Only asked if there are multiple hunting sheds.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: n_animal_shed

Question: How many animal sheds are there?

Description: This variable indicates the number of animal sheds. Only asked if 'Animal shed' is selected in building_name.

Type of Data: Integer

Variable Name: same_construction_animal

Question: Is the construction the same for each of these?

Description: This variable captures whether the construction is the same for each animal shed. Only asked if there are multiple animal sheds.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

2.1.2.6 Single room building repeat. This repeating group collects information on the structure and use of single room buildings.

Repeat Section: Single room buildings will be added, one per repeat

Variable Name: `building_purpose_single`

Question: Building purpose

Description: This variable captures the purpose of the single room building. Select all appropriate activities.

Type of Data: Multi-select

Options for Responses:

- Option 1: Sleeping (Code: `sleeping`)
- Option 2: Food preparation (Code: `food_preparation`)
- Option 3: Cooking (Code: `cooking`)
- Option 4: Eating (Code: `eating`)
- Option 5: Socialising/Parlour (Code: `socialising_parlour`)
- Option 6: Cooked food storage (Code: `cooked_food_storage`)
- Option 7: Packaged food storage (Noodle, Indomie etc.) (Code: `packaged_food_storage`)
- Option 8: Crop storage (Garri, Rice, Yam etc.) (Code: `crop_storage`)
- Option 9: Seed storage (Code: `seed_storage`)
- Option 10: Animal storage (Chicken, Goat etc.) (Code: `animal_storage`)
- Option 11: Other storage (Code: `other_storage`)
- Option 12: Other (Code: `other`)

Variable Name: `specify_building_purpose_single`

Question: Specify other

Description: This variable allows for specifying other purposes of the single room building. Only asked if Other is selected in `building_purpose_single`.

Type of Data: Free text

Variable Name: `building_location_single`

Question: Where is this building located?

Description: This variable indicates the location of the single room building.

Type of Data: Single-select

Options for Responses:

- Option 1: Within the compound (Code: `compound`)
- Option 2: No compound, within the village (Code: `no_compound`)
- Option 3: Elsewhere in the village, outside of the compound (Code: `village`)
- Option 4: In the fields, outside of the compound (Code: `fields`)
- Option 5: In a different village (Code: `other_village`)
- Option 6: In a different town/city (Code: `in_town`)
- Option 7: Other (Code: `other`)

Variable Name: `specify_building_location_single`

Question: Specify other

Description: This variable allows for specifying other locations of the single room building. Only asked if Other is selected in `building_location_single`.

Type of Data: Free text

Variable Name: `building_type_single`

Question: What type of building is this?

Description: This variable indicates the type of the single room building.

Type of Data: Single-select

Options for Responses:

- Option 1: Multi room building (Code: `multi_room_building`)
- Option 2: Single room building (square) (Code: `single_room_building_square`)
- Option 3: Single room building (circular) (Code: `single_room_building_circular`)
- Option 4: Single room building (rounded corners) (Code: `single_room_building_rounded`)
- Option 5: Other (Code: `other`)

Variable Name: `specify_other_building`

Question: Specify other type of building

Description: This variable allows for specifying other types of the single room building. Only asked if Other is selected in **building_type_single**.

Type of Data: Free text

Variable Name: animal_structure

Question: Is there a structure to house animals attached to this building?

Description: This variable indicates whether there is a structure to house animals attached to the single room building.

Type of Data: Single-select with three responses (Yes, No, Unknown)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
 - Option 3: Unknown (Code: unknown)
-

Variable Name: animals_in_structure

Question: What animals are kept in this structure?

Description: This variable captures the animals kept in the structure attached to the single room building. Only asked if 'Yes' is selected in **animal_structure**.

Type of Data: Multi-select

Options for Responses:

- Option 1: Chicken (Code: chicken)
 - Option 2: Goat/Sheep (Code: goat)
 - Option 3: Cow (Code: cow)
 - Option 4: Pig (Code: pig)
 - Option 5: Duck/Fowl (Code: duck)
 - Option 6: Other (Code: other)
-

Variable Name: roof_material

Question: What is the roof made of?

Description: This variable indicates the material used for the roof of the single room building.

Type of Data: Single-select

Options for Responses:

- Option 1: Mat/thatch (Code: mat_thatch)
 - Option 2: Zinc/metal (Code: zinc_metal)
 - Option 3: Deck (Code: deck)
 - Option 4: None (Code: none)
 - Option 5: Other (Code: other)
-

Variable Name: roof_other_single

Question: Specify roof type

Description: This variable allows for specifying other roof types if 'Other' is selected in **roof_material**.

Type of Data: Free text

Variable Name: wall_material

Question: What are the walls made of?

Description: This variable captures the materials used for the walls of the single room building.

Type of Data: Multi-select

Options for Responses:

- Option 1: Mud block (Code: mud_block)
 - Option 2: Brick (Code: brick)
 - Option 3: Cement blocks (Code: cement_block)
 - Option 4: Plaster (Code: plaster)
 - Option 5: Wood (Slats, Lumber etc.) (Code: wood)
 - Option 6: Trees/Sticks (Code: wood_other)
 - Option 7: Other (Code: other)
-

Variable Name: walls_other_single

Question: Specify walls type

Description: This variable allows for specifying other wall types if 'Other' is selected in **wall_material**.

Type of Data: Free text

Variable Name: door_material

Question: What is the door of the main entrance made of?

Description: This variable indicates the material used for the door of the main entrance of the single room building.

Type of Data: Single-select

Options for Responses:

- Option 1: Wood (Code: wood)
- Option 2: Metal (Code: metal)
- Option 3: None (Code: none)
- Option 4: Other (Code: other)

Variable Name: door_other_single

Question: Specify door material

Description: This variable allows for specifying other door materials if ‘Other’ is selected in door_material.

Type of Data: Free text

Variable Name: window_material

Question: What are the windows made of?

Description: This variable captures the materials used for the windows of the single room building.

Type of Data: Multi-select

Options for Responses:

- Option 1: Permanently open (Code: permanently_open)
 - Option 2: Permanently closed (Code: permanently_closed)
 - Option 3: Wooden shutters (Code: wooden_shutters)
 - Option 4: Glass panes (Code: glass)
 - Option 5: Mosquito net (Code: screen)
 - Option 6: Metal grill/sheet (Code: metal)
 - Option 7: No windows (Code: none)
 - Option 8: Other (Code: other)
-

Variable Name: specify_window_single

Question: Specify other

Description: This variable allows for specifying other window materials if ‘Other’ is selected in window_material.

Type of Data: Free text

Variable Name: ceiling_material

Question: What material is used for the ceiling?

Description: This variable indicates the material used for the ceiling of the single room building.

Type of Data: Single-select

Options for Responses:

- Option 1: Mat/thatch (Code: mat_thatch)
 - Option 2: Wood (Code: wood)
 - Option 3: Cement (Code: cement)
 - Option 4: Synthetic (Code: synthetic)
 - Option 5: Sack bag/Carpet/Lino (Code: lining)
 - Option 6: No ceiling (Code: no_ceiling)
 - Option 7: Other (Code: other)
-

Variable Name: specify_ceiling_single

Question: Specify other

Description: This variable allows for specifying other ceiling materials if ‘Other’ is selected in ceiling_material.

Type of Data: Free text

Variable Name: ceiling_storage_single

Question: Is there anything stored between the ceiling and the roof?

Description: This variable indicates whether there is anything stored between the ceiling and the roof of the single room building.

Type of Data: Single-select with three responses (Yes, No, Unknown)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
 - Option 3: Unknown (Code: unknown)
-

Variable Name: storage_items_ceiling_single

Question: What is stored in this space?

Description: This variable captures the items stored between the ceiling and the roof of the single room building. Multiple options can be selected, and it is only asked if ‘Yes’ is selected in ceiling_storage_single.

Type of Data: Multi-select

Options for Responses:

- Option 1: Cooked food (Code: cooked_food)
- Option 2: Uncooked food (Code: uncooked_food)
- Option 3: Packaged food (Code: packaged_food)

- Option 4: Crops for sale (Code: crops_for_sale)
- Option 5: Crops for household use (Code: crops_for_household_use)
- Option 6: Seeds for sale (Code: seeds_for_sale)
- Option 7: Seeds for household use (Code: seeds_for_household_use)
- Option 8: Clothing (Code: clothing)
- Option 9: Other (Code: other)

Variable Name: ceiling_storage_other_single

Question: What other items are stored in the roof storage space?

Description: Enter items, using a comma (,) to separate items. This question is asked only if 'Other' is selected in ceiling_storage_single.

Type of Data: Free-text

Variable Name: floor_material

Question: What is the floor made of?

Description: This variable captures the material of the floor. It is asked as a multiple-choice question.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Mud (Code: mud)
- Option 2: Cement (Code: cement)
- Option 3: Tile (Code: tile)
- Option 4: Other (Code: other)

Variable Name: specify_floor_other_single

Question: Specify the floor material

Description: This variable captures additional details about the floor material. It is asked only if 'Other' is selected in floor_material.

Type of Data: Free-text

Variable Name: n_household_sleep_single

Question: How many people from this household sleep in this building?

Description: This variable captures the number of people from this household who sleep in this building.

Type of Data: Integer

Variable Name: other_household_sleep_single

Question: Do members of a different household sleep in this building?

Description: This variable captures whether members of a different household sleep in this building. It is asked only if 'Sleeping' is selected in building_purpose_single.

Type of Data: Single-select with three responses (Yes, No, Sometimes)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)
- Option 3: Sometimes (Code: sometimes)

Variable Name: other_household_sleep_shared_single

Question: Do members of a different household sleep in the same space/place as members of this household?

Description: This variable captures whether members of a different household sleep in the same space/place as members of this household. It is asked only if 'Yes' is selected in other_household_sleep_single.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: n_other_household_sleep_single

Question: How many members of a different household sleep in this building?

Description: This variable captures the number of members of a different household who sleep in this building. It is asked only if 'Yes' is selected in other_household_sleep_single.

Type of Data: Integer

Variable Name: rodents_enter_building_single

Question: Do any rats enter this building?

Description: This variable captures whether rats are known to enter the building.

Type of Data: Single-select with three responses (Yes, No, Unknown)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

- Option 3: Don't know (Code: unknown)

Variable Name: rodents_in_building_single

Question: Do any rats live in this building?

Description: This variable captures whether rats are known to live in the building.

Type of Data: Single-select with three responses (Yes, No, Unknown)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)
- Option 3: Don't know (Code: unknown)

Variable Name: rodents_in_building_evidence_single

Question: How do you know rats live here?

Description: This variable captures the evidence of rats living in the building. It is asked only if 'Yes' is selected in rodents_in_building_single.

Type of Data: Multiple-select

Options for Responses:

- Option 1: See live rats (Code: see_live_rats)
- Option 2: See dead rats (Code: see_dead_rats)
- Option 3: See rat urine (Code: see_rat_urine)
- Option 4: See rat faeces (Code: see_rat_faeces)
- Option 5: See rat burrows (Code: see_rat_burrows)
- Option 6: Hear them (Code: hear_them)
- Option 7: Smell them (Code: smell_them)
- Option 8: Direct contact with rats (Code: direct_contact)
- Option 9: Seen the damage they have done to items (Code: item_damage)
- Option 10: Other (Code: other)

Variable Name: mastomys_single

Question: Do you notice a rat called Mastomys natalensis (the multimammate rat, or the rat with many offspring) in this building?

Description: This variable captures whether you notice a specific type of rat in the building. It is asked if rats enter or live in the building.

Type of Data: Single-select with three responses (Yes, No, Unknown)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)
- Option 3: Don't know (Code: unknown)

Variable Name: mastomys_timing_single

Question: What time of the day do you see this rat?

Description: This variable captures the time of the day when you see the specific type of rat. It is asked only if 'Yes' is selected in mastomys_single.

Type of Data: Single-select with three responses (Daytime, Nighttime, Anytime)

Options for Responses:

- Option 1: Daytime (Code: daytime)
- Option 2: Nighttime (Code: nighttime)
- Option 3: Anytime (Code: anytime)

Variable Name: mastomys_season_single

Question: Which season do you see them in?

Description: This variable captures the season when you see the specific type of rat. It is asked only if 'Yes' is selected in mastomys_single.

Type of Data: Single-select with three responses (Dry, Rainy, All seasons)

Options for Responses:

- Option 1: Dry (Code: dry)
- Option 2: Rainy (Code: rainy)
- Option 3: All seasons (Code: all_seasons)

Variable Name: sleep_in_kitchen_single

Question: How many members of this household sleep in the kitchen?

Description: This variable captures the number of household members sleeping in the kitchen.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: food_inside_single

Question: Are ingredients or crops stored in this kitchen?

Description: This variable indicates whether ingredients or crops are stored in the kitchen.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: cooked_inside_single

Question: Is cooked food stored in this building?

Description: This variable indicates whether cooked food is stored in the building.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: rodent_damage_kitchen_single

Question: Do rats eat or destroy food or crops in the kitchen?

Description: This variable indicates whether rats eat or destroy food or crops in the kitchen.

Type of Data: Single-select with three responses (Yes, No, Unknown)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)
- Option 3: Unknown (Code: unknown)

Variable Name: rodent_damage_kitchen_items_single

Question: What do rats eat or destroy in the kitchen?

Description: This variable captures what rats eat or destroy in the kitchen. It is asked only if 'Yes' is selected in rodent_damage_kitchen_single.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Prepared but uncooked food (Garri, Pounded Yam etc.) (Code: uncooked_food)
- Option 2: Other ingredients for cooking (Spices, Dried Fish etc.) (Code: ingredients)
- Option 3: Cooked food (Code: cooked_food)
- Option 4: Rice for cooking (Code: rice)
- Option 5: Yams for cooking (Code: yam)
- Option 6: Groundnut for cooking (Code: groundnut)
- Option 7: Other crops for cooking (Code: other_crops)

Variable Name: specify_other_kitchen_items_single

Question: Specify other

Description: This variable allows specifying other items if selected in rodent_damage_kitchen_items_single.

Type of Data: Free-text

Variable Name: ingredients_food_damage_single

Question: How much of the ingredients for food is damaged?

Description: This variable captures the extent of damage to the ingredients for food, if any.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
- Option 2: A lot (25-75%) (Code: a_lot_25_75)
- Option 3: Most (>75%) (Code: most_75)

Variable Name: cooked_food_damage_single

Question: How much of the cooked food is damaged?

Description: This variable captures the extent of damage to the cooked food, if any.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
- Option 2: A lot (25-75%) (Code: a_lot_25_75)
- Option 3: Most (>75%) (Code: most_75)

Variable Name: rice_damage_single

Question: How much of the rice is damaged?

Description: This variable captures the extent of damage to the rice, if any.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
 - Option 2: A lot (25-75%) (Code: a_lot_25_75)
 - Option 3: Most (>75%) (Code: most_75)
-

Variable Name: yam_damage_single

Question: How much of the yam is damaged?

Description: This variable captures the extent of damage to the yam, if any.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
 - Option 2: A lot (25-75%) (Code: a_lot_25_75)
 - Option 3: Most (>75%) (Code: most_75)
-

Variable Name: sleep_in_store_single

Question: Do any members of this household sleep in the storeroom?

Description: This variable indicates whether any members of the household sleep in the storeroom.

Type of Data: Single-select with three responses (Yes, No, Sometimes)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
 - Option 3: Sometimes (Code: sometimes)
-

Variable Name: n_sleep_in_store_single

Question: How many individuals from this household sleep in the storeroom(s)?

Description: This variable captures the number of individuals from the household who sleep in the storeroom(s). It is asked only if 'Yes' is selected in **sleep_in_store_single**.

Type of Data: Integer

Variable Name: cooked_food_in_store_single

Question: Do you ever store cooked food in this same store room?

Description: This variable indicates whether cooked food is stored in the same storeroom.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: stored_inside_single

Question: Are any of the following stored in this building?

Description: This variable captures items stored in the building.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Cooked food (Code: cooked_food)
 - Option 2: Ingredients for cooking (Code: ingredients)
 - Option 3: Packaged food (Code: packaged_food)
 - Option 4: Harvested crops for household use (Code: harvested_crops_use)
 - Option 5: Harvested crops for sale (Code: harvested_crops_sale)
 - Option 6: Seed stock for household use (Code: seed_use)
 - Option 7: Seed stock for sale (Code: seed_sale)
 - Option 8: Other items (Code: other)
-

Variable Name: other_stored_single

Question: Specify other items

Description: This variable allows respondents to specify other items stored in the building. Only asked if Other items is selected in **stored_inside_single**.

Type of Data: Free-text

Variable Name: crops_stored_single

Question: What types of crops?

Description: This variable captures the types of crops stored in the building.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Rice (Code: rice)
- Option 2: Maize/Corn (Code: maize_corn)
- Option 3: Cassava (Code: cassava)
- Option 4: Yams (Code: yam)

- Option 5: Fruit (Code: fruit)
- Option 6: Other (Code: other)

Variable Name: crops_stored_single_other

Question: Specify other crops

Description: This variable allows respondents to specify other types of crops stored in the building. Only asked if Other is selected in crops_stored_single.

Type of Data: Free-text

Variable Name: seed_stored_inside_single

Question: What types of seeds?

Description: This variable captures the types of seeds stored in the building.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Rice (Code: rice)
- Option 2: Maize/Corn (Code: maize_corn)
- Option 3: Cassava (Code: cassava)
- Option 4: Other (Code: other)

Variable Name: seed_stored_inside_other

Question: Specify other seeds

Description: This variable allows respondents to specify other types of seeds stored in the building. Only asked if Other is selected in seed_stored_inside_single.

Type of Data: Free-text

Variable Name: rodent_damage_store_single

Question: Do rats eat or destroy food or crops in the store?

Description: This variable indicates whether rats cause damage to food or crops stored in the building.

Type of Data: Single-select with three responses (Yes, No, Unknown)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)
- Option 3: Unknown (Code: unknown)

Variable Name: rodent_damage_store_items_single

Question: What do rats eat or destroy in this storeroom?

Description: This variable captures the items that rats eat or destroy in the storeroom.

Options for Responses:

- Option 1: Cooked food (Code: cooked_food)
- Option 2: Ingredients for cooking (Code: ingredients)
- Option 3: Packaged food (Code: packaged_food)
- Option 4: Harvested crops for household use (Code: harvested_crops_use)
- Option 5: Harvested crops for sale (Code: harvested_crops_sale)
- Option 6: Seed stock for household use (Code: seed_use)
- Option 7: Seed stock for sale (Code: seed_sale)
- Option 8: Other items (Code: other)

Variable Name: cooked_food_damage_store_single

Question: How much of the cooked food is damaged?

Description: This variable captures the extent of damage to cooked food caused by rats in the storeroom. This question is only asked if 'Cooked food' is selected in the response to rodent_damage_store_items_single.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
- Option 2: A lot (25-75%) (Code: a_lot_25_75)
- Option 3: Most (>75%) (Code: most_75)

Variable Name: ingredients_damage_store_single

Question: How much of the ingredients for cooking are damaged?

Description: This variable captures the extent of damage to ingredients for cooking caused by rats in the storeroom. This question is only asked if 'Ingredients for cooking' is selected in the response to rodent_damage_store_items_single.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
- Option 2: A lot (25-75%) (Code: a_lot_25_75)

- Option 3: Most (>75%) (Code: most_75)

Variable Name: packaged_food_damage_store_single

Question: How much of the packaged food is damaged?

Description: This variable captures the extent of damage to packaged food caused by rats in the storeroom. This question is only asked if 'Packaged food' is selected in the response to **rodent_damage_store_items_single**.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
- Option 2: A lot (25-75%) (Code: a_lot_25_75)
- Option 3: Most (>75%) (Code: most_75)

Variable Name: crops_use_damage_store_single

Question: How much of the crops for household use is damaged?

Description: This variable captures the extent of damage to crops for household use caused by rats in the storeroom. This question is only asked if 'Harvested crops for household use' is selected in the response to **rodent_damage_store_items_single**.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
- Option 2: A lot (25-75%) (Code: a_lot_25_75)
- Option 3: Most (>75%) (Code: most_75)

Variable Name: crops_sale_damage_store_single

Question: How much of the crops for sale is damaged?

Description: This variable captures the extent of damage to crops for sale caused by rats in the storeroom. This question is only asked if 'Harvested crops for sale' is selected in the response to **rodent_damage_store_items_single**.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
- Option 2: A lot (25-75%) (Code: a_lot_25_75)
- Option 3: Most (>75%) (Code: most_75)

Variable Name: seed_use_damage_store_single

Question: How much of the seed for household use is damaged?

Description: This variable captures the extent of damage to seed for household use caused by rats in the storeroom. This question is only asked if 'Seed stock for household use' is selected in the response to **rodent_damage_store_items_single**.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
- Option 2: A lot (25-75%) (Code: a_lot_25_75)
- Option 3: Most (>75%) (Code: most_75)

Variable Name: seed_sale_damage_store_single

Question: How much of the seed for sale is damaged?

Description: This variable captures the extent of damage to seed for sale caused by rats in the storeroom. This question is only asked if 'Seed stock for sale' is selected in the response to **rodent_damage_store_items_single**.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
- Option 2: A lot (25-75%) (Code: a_lot_25_75)
- Option 3: Most (>75%) (Code: most_75)

Variable Name: other_items_damage_store_single

Question: How much of the other items is damaged?

Description: This variable captures the extent of damage to other items caused by rats in the storeroom. This question is only asked if 'Other items' is selected in the response to **rodent_damage_store_items_single**.

Type of Data: Single-select with three responses (A bit (<25%), A lot (25-75%), Most (>75%))

Options for Responses:

- Option 1: A bit (<25%) (Code: a_bit_25)
- Option 2: A lot (25-75%) (Code: a_lot_25_75)
- Option 3: Most (>75%) (Code: most_75)

End of single room building repeat

--

2.1.2.7 Rodent control. This section captures household level rodent control and prevention.

Variable Name: `rodent_removal_questions`

Question: Did the participant mention any awareness of rodents in their building in the above questions?

Description: This variable captures whether the participant mentioned any awareness of rodents in their building in the preceding questions.

Type of Data: Single-select with three responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: `rodent_removal_home`

Question: Is there anything you do to remove rats that live in your home?

Description: This variable captures whether the participant takes any action to remove rats that live in their home. This question is only asked if the participant mentioned awareness of rodents in their building in the preceding questions.

Type of Data: Single-select with three responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: `rodent_removal_home_method`

Question: How do you do this removal?

Description: This variable captures the methods used by the participant to remove rats from their home. This question is only asked if the participant takes action to remove rats that live in their home.

Type of Data: Multi-select

Options for Responses:

- Option 1: Traps (Code: traps)
 - Option 2: Poison (Code: poison)
 - Option 3: Gumtrap (Rat bible) (Code: gumtrap)
 - Option 4: Sticks (Code: sticks)
 - Option 5: Cats (Code: cat)
 - Option 6: Dogs (Code: dog)
 - Option 7: Other (Code: other)
-

Variable Name: `rodent_removal_method_other`

Question: Specify other

Description: This variable captures other methods used by the participant to remove rats from their home. This question is only asked if 'Other' is selected in the response to `rodent_removal_home_method`.

Type of Data: Free-text

Variable Name: `rodent_remove_use`

Question: What do you do with the rats you remove from your home?

Description: This variable captures what the participant does with the rats they remove from their home. This question is only asked if the participant takes action to remove rats that live in their home.

Type of Data: Multi-select

Options for Responses:

- Option 1: Eat them (Code: eat_them)
 - Option 2: Sell them (Code: sell_them)
 - Option 3: Dispose of them (Code: dispose_them)
 - Option 4: Feed them to animals (Code: feed_them_to_animals)
 - Option 5: I do not contact the bodies of the rat (Code: no_contact)
-

Variable Name: `rodent_remove_other`

Question: Specify other

Description: This variable captures other methods used by the participant to remove rats from their home. This question is only asked if 'Other' is selected in the response to `rodent_remove_use`.

Type of Data: Free-text

Variable Name: `rodent_mitigation`

Question: Is there anything you do to stop rats damaging your items, food, crops, or seeds in this building? Is there anything you do to prevent rats accessing your home?

Description: This variable captures whether the participant takes any action to prevent rats from damaging items, food, crops, or seeds in their building, or from accessing their home. This question is only asked if the participant mentioned any awareness of rodents in their building in the preceding questions.

Type of Data: Single-select with three responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: rodent_mitigation_method

Question: How do you do this?

Description: This variable captures the methods used by the participant to mitigate the risk of rats damaging items, food, crops, or seeds in their building, or from accessing their home. This question is only asked if the participant takes action to prevent rats from damaging items, food, crops, or seeds in their building, or from accessing their home.

Type of Data: Multi-select

Options for Responses:

- Option 1: Store items that rats eat in containers (Code: containers)
 - Option 2: Seal holes/burrows (Code: seal_burrows)
 - Option 3: Replace wooden doors with metal doors (Code: convert_door)
 - Option 4: Make a concrete home (Code: upgrade_structure)
 - Option 5: Use cats (Code: cats)
 - Option 6: Use dogs (Code: dogs)
 - Option 7: None (Code: none)
 - Option 8: Other (Code: other)
-

Variable Name: rodent_mitigation_other

Question: Specify other

Description: This variable captures other methods used by the participant to mitigate the risk of rats damaging items, food, crops, or seeds in their building, or from accessing their home. This question is only asked if 'Other' is selected in the response to rodent_mitigation_method.

Type of Data: Free-text

Variable Name: rodent_control_buildings

Question: Do you use these approaches in all of the buildings you access?

Description: This variable captures whether the participant uses the approaches mentioned above in all of the buildings they access. This question is only asked if the participant takes action to remove rats that live in their home or takes measures to prevent rats from accessing their home.

Type of Data: Single-select with three responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: rodent_control_specific

Question: Which buildings do you use these approaches in?

Description: This variable captures the specific buildings in which the participant uses the approaches mentioned above. This question is only asked if the participant does not use these approaches in all of the buildings they access.

Type of Data: Multi-select

Options for Responses:

- Option 1: Sleeping (Code: sleeping)
 - Option 2: Food preparation (Code: food_preparation)
 - Option 3: Cooking (Code: cooking)
 - Option 4: Eating (Code: eating)
 - Option 5: Socialising/Parlour (Code: socialising_parlour)
 - Option 6: Cooked food storage (Code: food_storage)
 - Option 7: Packaged food storage (Noodle, Indomie etc.) (Code: packaged_food_storage)
 - Option 8: Crop storage (Garri, Rice, Yam etc.) (Code: crop_storage)
 - Option 9: Seed storage (Code: seed_storage)
 - Option 10: Animal storage (Chicken, Goat etc.) (Code: animal_storage)
 - Option 11: Other storage (Code: other_storage)
 - Option 12: Other (Code: other)
-

Variable Name: cats

Question: Do you keep cats in this household?

Description: This variable captures whether the participant keeps cats in their household.

Type of Data: Single-select with three responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: cats_inside

Question: Do cats ever go into your buildings?

Description: This variable captures whether cats ever go into the participant's buildings.

Type of Data: Single-select with three responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

2.1.2.8 Other buildings. This question group captures information on other buildings, such as toilets and hygiene practices within the household.

Variable Name: non_buildings

Question: Do you have any other spaces in your compound which you use to store food and/or crops which are not enclosed buildings? For example yam barns or any other buildings without roofs that have not been described above.

Description: This variable captures whether the participant has any other spaces in their compound used for storing food and/or crops that are not enclosed buildings, such as yam barns or other structures without roofs that have not been described above.

Type of Data: Single-select with three responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: toilet

Question: What type of toilet do members of this household normally use?

Description: This variable captures the type of toilet used by members of the household.

Type of Data: Multi-select

Options for Responses:

- Option 1: Go to the toilet in the bush/Open defecation (Code: field_defecation)
 - Option 2: In a trench or other open system (Code: open_system)
 - Option 3: In a pit latrine (Code: pit_latrine)
 - Option 4: In a toilet with plumbing (Code: toilet_plumbing)
 - Option 5: Other (Code: other)
-

Variable Name: specify_other_toilet

Question: Specify other

Description: This variable captures other types of toilets used by members of the household. This question is only asked if 'Other' is selected in the response to toilet.

Type of Data: Free-text

Variable Name: toilet_structure

Question: Is the toilet or bathroom a separate structure?

Description: This variable captures whether the toilet or bathroom is a separate structure. This question is only asked if the toilet type includes an enclosed system, a pit latrine, or a toilet with plumbing.

Type of Data: Single-select with three responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

2.1.2.9 Fields used repeat. The following question and subsequent repeating group captures information on the ownership of fields and current use by the sampled household.

Variable Name: household_fields

Question: Does this household own or manage any fields? Include garden areas as a single field if they are near to each other.

Description: This variable captures whether the household owns or manages any fields. This includes garden areas considered as a single field if they are near to each other.

Type of Data: Single-select with three responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Repeat Section: Data on fields owned or managed by this household

Variable Name: field_ownership

Question: Is this a rented field?

Description: This variable captures whether the field is rented by the household.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: field_years

Question: How long, in years, have you rented this field for?

Description: This variable captures the duration, in years, for which the field has been rented by the household. This question is only asked if the field is rented.

Type of Data: Integer

Variable Name: field_shared

Question: At any point in the last 12 months did you hire other people from outside of the household to work in this field?

Description: This variable captures whether the household hired people from outside of the household to work in the field during the last 12 months.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: field_type

Question: What type of field is this?

Description: This variable captures the type of field.

Type of Data: Single-select

Options for Responses:

- Option 1: Flat field (Code: flat)
- Option 2: Mounded/Heaped/Ridges field (Code: mounded)
- Option 3: Garden (Code: garden)
- Option 4: Wet/Paddy field (swamp field) (Code: wet)
- Option 5: Plantation (Code: plantation)
- Option 6: Orchard (Code: orchard)
- Option 7: Other (Code: other)

Variable Name: field_type_specify

Question: Please specify.

Description: This variable captures additional details about the type of field. This question is only asked if 'Other' is selected in the response to field_type.

Type of Data: Free-text

Variable Name: field_crop

Question: What do you grow in this field? If multiple crops are grown in the same field select all of the appropriate options.

Description: This variable captures the crops grown in the field.

Type of Data: Multi-select

Options for Responses:

- Option 1: Maize/Corn (Code: maize_corn)
- Option 2: Rice (Code: rice)
- Option 3: Cassava (Code: cassava)
- Option 4: Yam (Code: yam)
- Option 5: Fruit (Code: fruit)
- Option 6: Vegetables (Code: vegetables)
- Option 7: Cacao (Code: cacao)
- Option 8: Peppers (Code: peppers)
- Option 9: Groundnut (Code: groundnut)
- Option 10: Okra (Code: okra)
- Option 11: Bene seeds (Code: bene_seeds)
- Option 12: Beans (Code: beans)
- Option 13: Leafy greens (Code: leafy_greens)
- Option 14: Sweet potato (Code: sweet_potato)
- Option 15: Other (Code: other)

Variable Name: field_crop_other

Question: Specify other.

Description: This variable captures other crops grown in the field. This question is only asked if 'Other' is selected in the response to field_crop.

Type of Data: Free-text

Variable Name: rat_field

Question: Do you notice rats in this field?

Description: This variable captures whether the respondent notices rats in the field.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: rat_field_evidence

Question: How do you know rats live here?

Description: This variable captures the evidence of rats living in the field. Only asked if rat_field is answered Yes

Type of Data: Multi-select

Options for Responses:

- Option 1: See live rats (Code: see_live_rats)
- Option 2: See dead rats (Code: see_dead_rats)
- Option 3: See rat urine (Code: see_rat_urine)
- Option 4: See rat faeces (Code: see_rat_faeces)
- Option 5: See rat burrows (Code: see_rat_burrows)
- Option 6: See the damage they do (Code: see_damage)
- Option 7: Other (Code: other)

Variable Name: rat_field_evidence_other

Question: Specify other.

Description: This variable captures other evidence of rats living in the field. This question is only asked if 'Other' is selected in the response to rat_field_evidence.

Type of Data: Free-text

Variable Name: mastomys_field

Question: Do you notice a rat called Mastomys natalensis (the multimammate rat, or the rat with many young) in this field?

Description: This variable captures whether the respondent notices Mastomys natalensis in the field.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: mastomys_timing_field

Question: What time of the day do you see this rat?

Description: This variable captures the time of day when the respondent sees Mastomys natalensis in the field. This question is only asked if 'Yes' is selected in the response to mastomys_field.

Type of Data: Single-select

Options for Responses:

- Option 1: Daytime (Code: daytime)
 - Option 2: Nighttime (Code: nighttime)
 - Option 3: Anytime (Code: anytime)
-

Variable Name: mastomys_season_field

Question: Which season do you see them in?

Description: This variable captures the season in which the respondent sees Mastomys natalensis in the field. This question is only asked if 'Yes' is selected in the response to mastomys_field.

Type of Data: Single-select

Options for Responses:

- Option 1: Dry (Code: dry)
 - Option 2: Rainy (Code: rainy)
 - Option 3: All seasons (Code: all_seasons)
-

Variable Name: predators

Question: What predators do you notice in this field?

Description: This variable captures the predators noticed in the field.

Type of Data: Multi-select

Options for Responses:

- Option 1: Bird of prey/Hawk/Raptor (Code: bop)
 - Option 2: Monkeys (Code: monkey)
 - Option 3: Feral dog/Wild dog (Code: feral_dog)
 - Option 4: Other (Code: other)
-

Variable Name: predation_other

Question: Specify other.

Description: This variable captures other predators noticed in the field. This question is only asked if 'Other' is selected in the response to predators.

Type of Data: Free-text

Variable Name: maize_field_damage

Question: How much of the Maize/Corn crop in the field is damaged by rats?

Description: This variable captures the extent of damage to the Maize/Corn crop caused by rats. This question is asked if the respondent selects 'Maize/Corn' in the field_crop variable.

Type of Data: Range (Integer)

Options for Responses:

- Range: 1 to 5
 - 1: No damage by rodents
 - 5: There is nothing left after the rodents have damaged it
-

Variable Name: rice_field_damage

Question: How much of the rice harvest is damaged by rats?

Description: This variable captures the extent of damage to the rice harvest caused by rats. This question is asked if the respondent selects 'Rice' in the field_crop variable.

Type of Data: Range (Integer)

Options for Responses:

- Range: 1 to 5
 - 1: No damage by rodents
 - 5: There is nothing left after the rodents have damaged it
-

Variable Name: cassava_field_damage

Question: How much of the cassava harvest is damaged by rats?

Description: This variable captures the extent of damage to the cassava harvest caused by rats. This question is asked if the respondent selects 'Cassava' in the field_crop variable.

Type of Data: Range (Integer)

Options for Responses:

- Range: 1 to 5
 - 1: No damage by rodents
 - 5: There is nothing left after the rodents have damaged it
-

Variable Name: yam_field_damage

Question: How much of the yam harvest is damaged by rats?

Description: This variable captures the extent of damage to the yam harvest caused by rats. This question is asked if the respondent selects 'Yam' in the field_crop variable.

Type of Data: Range (Integer)

Options for Responses:

- Range: 1 to 5
 - 1: No damage by rodents
 - 5: There is nothing left after the rodents have damaged it
-

Variable Name: fruit_field_damage

Question: How much of the fruit harvest is damaged by rats?

Description: This variable captures the extent of damage to the fruit harvest caused by rats. This question is asked if the respondent selects 'Fruit' in the **field_crop** variable.

Type of Data: Range (Integer)

Options for Responses:

- Range: 1 to 5
 - 1: No damage by rodents
 - 5: There is nothing left after the rodents have damaged it
-

Variable Name: vegetable_field_damage

Question: How much of the vegetable harvest is damaged by rats?

Description: This variable captures the extent of damage to the vegetable harvest caused by rats. This question is asked if the respondent selects 'Vegetables' in the **field_crop** variable.

Type of Data: Range (Integer)

Options for Responses:

- Range: 1 to 5
 - 1: No damage by rodents
 - 5: There is nothing left after the rodents have damaged it
-

Variable Name: cacao_field_damage

Question: How much of the cacao harvest is damaged by rats?

Description: This variable captures the extent of damage to the cacao harvest caused by rats. This question is asked if the respondent selects 'Cacao' in the **field_crop** variable.

Type of Data: Range (Integer)

Options for Responses:

- Range: 1 to 5
 - 1: No damage by rodents
 - 5: There is nothing left after the rodents have damaged it
-

Variable Name: peppers_field_damage

Question: How much of the pepper harvest is damaged by rats?

Description: This variable captures the extent of damage to the pepper harvest caused by rats. This question is asked if the respondent selects 'Peppers' in the **field_crop** variable.

Type of Data: Range (Integer)

Options for Responses:

- Range: 1 to 5
 - 1: No damage by rodents
 - 5: There is nothing left after the rodents have damaged it
-

Variable Name: groundnut_field_damage

Question: How much of the groundnut harvest is damaged by rats?

Description: This variable captures the extent of damage to the groundnut harvest caused by rats. This question is asked if the respondent selects 'Groundnut' in the **field_crop** variable.

Type of Data: Range (Integer)

Options for Responses:

- Range: 1 to 5
 - 1: No damage by rodents
 - 5: There is nothing left after the rodents have damaged it
-

Variable Name: okra_field_damage

Question: How much of the okra harvest is damaged by rats?

Description: This variable captures the extent of damage to the okra harvest caused by rats. This question is asked if the respondent selects 'Okra' in the **field_crop** variable.

Type of Data: Range (Integer)

Options for Responses:

- Range: 1 to 5
 - 1: No damage by rodents
 - 5: There is nothing left after the rodents have damaged it
-

Variable Name: bene_field_damage

Question: How much of the bene seed harvest is damaged by rats?

Description: This variable captures the extent of damage to the bene seed harvest caused by rats. This question is asked if the respondent selects 'Bene Seeds' in the `field_crop` variable.

Type of Data: Range (Integer)

Options for Responses:

- Range: 1 to 5
- 1: No damage by rodents
- 5: There is nothing left after the rodents have damaged it

Variable Name: `beans_field_damage`

Question: How much of the bean harvest is damaged by rats?

Description: This variable captures the extent of damage to the bean harvest caused by rats. This question is asked if the respondent selects 'Beans' in the `field_crop` variable.

Type of Data: Range (Integer)

Options for Responses:

- Range: 1 to 5
- 1: No damage by rodents
- 5: There is nothing left after the rodents have damaged it

Variable Name: `greens_field_damage`

Question: How much of the leafy greens harvest is damaged by rats?

Description: This variable captures the extent of damage to the leafy greens harvest caused by rats. This question is asked if the respondent selects 'Leafy Greens' in the `field_crop` variable.

Type of Data: Range (Integer)

Options for Responses:

- Range: 1 to 5
- 1: No damage by rodents
- 5: There is nothing left after the rodents have damaged it

Variable Name: `potato_field_damage`

Question: How much of the sweet potato harvest is damaged by rats?

Description: This variable captures the extent of damage to the sweet potato harvest caused by rats. This question is asked if the respondent selects 'Sweet Potato' in the `field_crop` variable.

Type of Data: Range (Integer)

Options for Responses:

- Range: 1 to 5
- 1: No damage by rodents
- 5: There is nothing left after the rodents have damaged it

Variable Name: `pesticide_use`

Question: Do you use any of the following on this field?

Description: This variable captures whether the respondent uses any pesticides on the field.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Rodenticide (Code: rodenticide)
- Option 2: Pesticide (Code: pesticide)
- Option 3: Herbicide (Code: herbicide)
- Option 4: Insecticide (Code: insecticide)
- Option 5: Other (Code: other)

Variable Name: `pesticide_other`

Question: Specify other.

Description: This variable captures other pesticides used on the field. This question is only asked if 'Other' is selected in the response to `pesticide_use`.

Type of Data: Free-text

Variable Name: `rodent_removal_field`

Question: Is there anything you do to remove rats that live in this field?

Description: This variable captures whether the respondent takes any actions to remove rats from the field.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Condition: This question is asked if the respondent notices rats in the field (`rat_field` equals 'yes').

Variable Name: `rodent_removal_field_method`

Question: How do you do this?

Description: This variable captures the method used to remove rats from the field. This question is only asked if the respondent selects 'Yes' in the response to `rodent_removal_field`.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Traps (Code: traps)
- Option 2: Poison (Code: poison)
- Option 3: Gumtrap (Rat bible) (Code: gumtrap)
- Option 4: Sticks (Code: sticks)
- Option 5: Cats (Code: cat)
- Option 6: Dogs (Code: dog)
- Option 7: Other (Code: other)

Variable Name: `rodent_removal_field_other`

Question: Specify other.

Description: This variable captures other methods used to remove rats from the field. This question is only asked if 'Other' is selected in the response to `rodent_removal_field_method`.

Type of Data: Free-text

Variable Name: `rodent_remove_use_field`

Question: What do you do with the rats you remove from your field?

Description: This variable captures what the respondent does with the rats removed from the field. This question is asked if the respondent selects 'Yes' in the response to `rodent_removal_field`.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Eat them (Code: eat_them)
- Option 2: Sell them (Code: sell_them)
- Option 3: Dispose of them (Code: dispose_them)
- Option 4: Feed them to animals (Code: feed_them_to_animals)
- Option 5: I do not contact the bodies of the rat (Code: no_contact)
- Option 6: Other (Code: other)

Variable Name: `rodent_mitigation_field`

Question: Is there anything you do to stop rats damaging your crops in this field?

Description: This variable captures whether the respondent takes any actions to prevent rats from damaging crops in the field.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Condition: This question is asked if the respondent notices rats in the field (`rat_field` equals 'yes').

Variable Name: `rodent_mitigation_method_field`

Question: How do you do this?

Description: This variable captures the method used to prevent rats from damaging crops in the field. This question is only asked if the respondent selects 'Yes' in the response to `rodent_mitigation_field`.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Store items that rats eat in containers (Code: containers)
- Option 2: Seal holes/burrows (Code: seal_burrows)
- Option 3: Replace wooden doors with metal doors (Code: convert_door)
- Option 4: Make a concrete home (Code: upgrade_structure)
- Option 5: Use cats (Code: cats)
- Option 6: Use dogs (Code: dogs)
- Option 7: None (Code: none)
- Option 8: Other (Code: other)

Variable Name: `rodent_mitigation_field_other`

Question: Specify other.

Description: This variable captures other methods used to prevent rats from damaging crops in the field. This question is only asked if 'Other' is selected in the response to `rodent_mitigation_method_field`.

Type of Data: Free-text

Variable Name: `field_location`

Question: How long does it take you to walk to the field?

Description: This variable captures the time taken by the respondent to walk to the field, reported in minutes.

Alternatively, it can be phrased as “If you were to leave for the field at 7 am, what time would you arrive there?” and the number of minutes then calculated.

Type of Data: Integer

Variable Name: `field_position`

Question: Do you need to do any of the following to get to the field?

Description: This variable captures the actions the respondent needs to take to reach the field.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Cross a river or stream (Code: river)
- Option 2: Cross a tarred road (Code: road)
- Option 3: Walk through a forest (Code: forest)
- Option 4: Walk through other households’ fields (Code: other_fields)

Condition: This question is asked if the respondent’s location to the field is not a compound (`field_location` is not ‘compound’).

End of field repeat

2.1.2.10 Livestock, storage methods and food security. The following group of questions includes questions on livestock ownership, how food is eaten and stored and food security within the household.

Variable Name: livestock

Question: Do you own any livestock animals?

Description: This variable captures whether the respondent owns any livestock animals.

Type of Data: Single-select with two responses

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: livestock_animals

Question: Which animals do you own?

Description: This variable captures the types of animals owned by the respondent. This question is asked if the respondent answers 'Yes' to owning livestock (livestock equals 'yes').

Type of Data: Multiple-select

Options for Responses:

- Option 1: Chicken (Code: chicken)
 - Option 2: Goat/Sheep (Code: goat)
 - Option 3: Cow (Code: cow)
 - Option 4: Pig (Code: pig)
 - Option 5: Duck/Fowl (Code: duck)
 - Option 6: Other (Code: other)
-

Variable Name: livestock_other

Question: Specify other.

Description: This variable captures other types of livestock owned by the respondent. This question is only asked if 'Other' is selected in the response to livestock_animals.

Type of Data: Free-text

Variable Name: livestock_sleep

Question: Where do your livestock normally sleep at night?

Description: This variable captures the sleeping locations of the respondent's livestock. This question is asked if the respondent answers 'Yes' to owning livestock (livestock equals 'yes').

Type of Data: Multiple-select

Options for Responses:

- Option 1: In a room where people sleep (Code: house)
 - Option 2: In a shed for chickens (Code: chicken_shed)
 - Option 3: In a shed for goats/sheep (Code: goat_shed)
 - Option 4: In a structure for pigs (Code: pig_sty)
 - Option 5: Outside (Code: outside)
 - Option 6: Other (Code: other)
-

Variable Name: livestock_sleep_other

Question: Specify other.

Description: This variable captures other sleeping locations of the respondent's livestock. This question is only asked if 'Other' is selected in the response to livestock_sleep.

Type of Data: Free-text

Variable Name: livestock_sleep_species

Question: Do animals of different species ever sleep in the same building/structure?

Description: This variable captures whether animals of different species ever sleep in the same building/structure. This question is asked if the respondent answers 'Yes' to owning livestock (livestock equals 'yes') and the livestock do not sleep outside (livestock_sleep does not equal 'outside').

Type of Data: Single-select with three responses

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
 - Option 3: Sometimes (Code: sometimes)
-

Variable Name: meal_location

Question: Does this household eat their meals inside or outside?

Description: This variable captures whether the household eats their meals inside, outside, or both.

Type of Data: Single-select

Options for Responses:

- Option 1: Inside (Code: inside)

- Option 2: Outside (Code: outside)
- Option 3: Both inside and outside (Code: inside_outside)

Variable Name: storage_cooked_containers

Question: What containers is cooked food stored in?

Description: This variable captures the containers used to store cooked food.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Pot (Code: pot)
- Option 2: Pot with lid (Code: pot_lid)
- Option 3: Jerry can (Code: fuel_can)
- Option 4: Jerry can with lid (Code: fuel_can_lid)
- Option 5: Flask (Code: flask)
- Option 6: Flask with lid (Code: flask_lid)
- Option 7: Cooler (Code: cooler)
- Option 8: None (Code: none)
- Option 9: Not applicable (Code: not_applicable)
- Option 10: Other (Code: other)

Variable Name: storage_cooked_other

Question: Specify other.

Description: This variable captures other types of containers used to store cooked food. This question is only asked if 'Other' is selected in the response to storage_cooked_containers.

Type of Data: Free-text

Variable Name: storage_packaged_containers

Question: What containers are packaged food stored in?

Description: This variable captures the containers used to store packaged food.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Packaging or wrapper it came in (Code: wrapper)
- Option 2: Nylon/Plastic bag (Code: nylon)
- Option 3: Container (Code: container)
- Option 4: Container with lid (Code: container_lid)
- Option 5: Plastic container without lid (Code: plastic_container)
- Option 6: Plastic container with lid (Code: plastic_container_lid)
- Option 7: Cupboard (Code: cupboard)
- Option 8: None (Code: none)
- Option 9: Not applicable (Code: not_applicable)
- Option 10: Other (Code: other)

Variable Name: storage_packaged_other

Question: Specify other.

Description: This variable captures other types of containers used to store packaged food. This question is only asked if 'Other' is selected in the response to storage_packaged_containers.

Type of Data: Free-text

Variable Name: storage_seed_crop_containers_c

Question: What containers are crops or seeds that are used for cooking stored in?

Description: This variable captures the containers used to store crops or seeds that are used for cooking.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Sack bag (Code: sack)
- Option 2: Bucket (Code: bucket)
- Option 3: Bucket with a lid (Code: bucket_lid)
- Option 4: Clay pot (Code: clay_pot)
- Option 5: Clay pot with a lid (Code: clay_pot_lid)
- Option 6: None (Code: none)
- Option 7: Not applicable (Code: not_applicable)
- Option 8: Other (Code: other)

Variable Name: storage_c_other

Question: Specify other.

Description: This variable captures other types of containers used to store crops or seeds that are used for cooking. This question is only asked if 'Other' is selected in the response to storage_seed_crop_containers_c.

Type of Data: Free-text

Variable Name: `storage_seed_crop_containers_g`

Question: What containers are crops or seeds that are used for growing stored in?

Description: This variable captures the containers used to store crops or seeds that are used for growing.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Sack bag (Code: sack)
 - Option 2: Bucket (Code: bucket)
 - Option 3: Bucket with a lid (Code: bucket_lid)
 - Option 4: Clay pot (Code: clay_pot)
 - Option 5: Clay pot with a lid (Code: clay_pot_lid)
 - Option 6: None (Code: none)
 - Option 7: Not applicable (Code: not_applicable)
 - Option 8: Other (Code: other)
-

Variable Name: `storage_g_other`

Question: Specify other.

Description: This variable captures other types of containers used to store crops or seeds that are used for growing. This question is only asked if 'Other' is selected in the response to `storage_seed_crop_containers_g`.

Type of Data: Free-text

Variable Name: `food_resources`

Question: In the past 30 days, was there ever no food to eat of any kind in your house because of lack of resources to get food?

Description: This variable captures whether there was ever a situation in the past 30 days where there was no food to eat in the household due to lack of resources.

Type of Data: Single-select with two responses

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: `food_resources_frequency`

Question: How often did this happen in the past 30 days?

Description: This variable captures the frequency of situations where there was no food to eat in the household due to lack of resources. This question is asked if the respondent answers 'Yes' to `food_resources`.

Type of Data: Single-select with three responses

Options for Responses:

- Option 1: Rarely (1-2 times) (Code: rarely)
 - Option 2: Sometimes (3-10 times) (Code: sometimes)
 - Option 3: Often (more than 10 times) (Code: often)
-

Variable Name: `food_sleep`

Question: In the past 30 days, did you or any household member go to sleep at night hungry because there was not enough food?

Description: This variable captures whether any household member went to sleep at night hungry due to insufficient food in the past 30 days.

Type of Data: Single-select with two responses

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: `food_sleep_frequency`

Question: How often did this happen in the past 30 days?

Description: This variable captures the frequency of situations where any household member went to sleep at night hungry due to insufficient food in the past 30 days. This question is asked if the respondent answers 'Yes' to `food_sleep`.

Type of Data: Single-select with three responses

Options for Responses:

- Option 1: Rarely (1-2 times) (Code: rarely)
 - Option 2: Sometimes (3-10 times) (Code: sometimes)
 - Option 3: Often (more than 10 times) (Code: often)
-

Variable Name: `food_day`

Question: In the past 30 days, did you or any household member go a whole day and night without eating anything at all because there was not enough food?

Description: This variable captures whether any household member went a whole day and night without eating anything at all due to insufficient food in the past 30 days.

Type of Data: Single-select with two responses

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: food_day_frequency

Question: How often did this happen in the past 30 days?

Description: This variable captures the frequency of situations where any household member went a whole day and night without eating anything at all due to insufficient food in the past 30 days. This question is asked if the respondent answers 'Yes' to food_day.

Type of Data: Single-select with three responses

Options for Responses:

- Option 1: Rarely (1-2 times) (Code: rarely)
 - Option 2: Sometimes (3-10 times) (Code: sometimes)
 - Option 3: Often (more than 10 times) (Code: often)
-

Variable Name: household_items

Question: Select each of the following items that your household owns.

Description: This variable captures the household items owned by the respondent's household.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Radio (Code: radio)
- Option 2: Casette player/recorder (Code: casette_player)
- Option 3: TV (Code: tv)
- Option 4: Wooden chairs (Code: wooden_chairs)
- Option 5: Upholstered chairs (Code: upholstered_chairs)
- Option 6: Cane chairs (Code: cane_chairs)
- Option 7: Wooden cupboard (Code: wooden_cupboard)
- Option 8: Cane cupboard (Code: cane_cupboard)
- Option 9: Wooden bed (Code: wooden_bed)
- Option 10: Metal bed (Code: metal_bed)

2.1.2.11 Cultural and health practices involving rodents. The following repeating group collects information on the involvement of the household with any cultural or health practices involving rodents. These may be practices the household has been directly involved in, or those it is aware of.

Repeat Section: Cultural and Health practices involving rodents

Variable Name: `rodent_culture_health`

Question: Do you people have any cultural practices (festivals, charms, sacrifices) or health practices that use rats or animals that resemble rats?

Description: This variable captures whether there are cultural or health practices in the community that involve the use of rats or animals resembling rats.

Type of Data: Single-select with two responses

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: `rodent_culture_health_name`

Question: What is the name of this practice?

Description: This variable captures the name of the cultural or health practice involving rats or animals resembling rats. This question is asked if the respondent answers 'Yes' to `rodent_culture_health`.

Type of Data: Free-text

Variable Name: `rodent_name_detail`

Question: What rat species is this information about?

Description: This variable captures the rat species relevant to the cultural or health practice. This question is asked if the respondent answers 'Yes' to `rodent_culture_health`.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Ntaali (Code: ntaali)
- Option 2: Ektupo (Code: ektupo)
- Option 3: Nkapfu (Code: nkapfu)
- Option 4: Oginyi (Code: oginyi)
- Option 5: Ikpo (Code: ikpo)
- Option 6: Okoror (Code: okoror)
- Option 7: Oriku (Code: oriku)
- Option 8: Odupfu (Code: odupfu)
- Option 9: Ekwata (Code: ekwata)
- Option 10: Kpev (Code: kpev)
- Option 11: Agundu (Code: agundu)
- Option 12: Julie (Code: julie)
- Option 13: Akpezinga/Abrazinga (Code: akpezinga)
- Option 14: Mbam/Ngbam (Code: mbam)
- Option 15: Nyongu (Code: nyongu)
- Option 16: Sam (Code: sam)
- Option 17: Agbacha (Code: agbacha)
- Option 18: Torhe (Code: torhe)
- Option 19: Fashion (Code: fashion)
- Option 20: Ubina (Code: ubina)
- Option 21: Irom (Code: irom)
- Option 22: Imanava (Code: imanava)

Variable Name: `part_of_rodent`

Question: What parts of the rat are used for this practice?

Description: This variable captures the parts of the rat used in the cultural or health practice. This question is asked if the respondent answers 'Yes' to `rodent_culture_health`.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Meat of rat (Code: meat)
- Option 2: Skin of rat (Code: skin)
- Option 3: Bones/teeth/claws of rat (Code: hard_part)

- Option 4: Whole rat (Code: whole_animal)
- Option 5: Organs of the rat (Code: internal_organ)
- Option 6: Faeces of the rat (Code: faeces)
- Option 7: Fat of the rat (Code: fat)
- Option 8: Fur of the rat (Code: fur)
- Option 9: Don't know (Code: unknown)
- Option 10: Rat blood (Code: blood)
- Option 11: Other (Code: other)

Variable Name: part_of_rodent_other

Question: Specify other.

Description: This variable captures other parts of the rat used in the cultural or health practice. This question is asked if 'Other' is selected in the response to part_of_rodent.

Type of Data: Free-text

Variable Name: purpose_of_rodent

Question: What is the purpose of using this part?

Description: This variable captures the purpose of using the specified part of the rat in the cultural or health practice.

Type of Data: Free-text

Variable Name: prepare_rodent

Question: How is the rat prepared?

Description: This variable captures the method of preparation for the rat used in the cultural or health practice.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Live (Code: live)
- Option 2: Raw (Code: raw)
- Option 3: Passive heat (under sun) (Code: passive_heat)
- Option 4: Direct heat (above fire) (Code: direct_heat)
- Option 5: Liquor (Code: liquor)
- Option 6: Other (Code: other)
- Option 7: Don't know (Code: unknown)

Variable Name: prepare_rodent_other

Question: Specify other.

Description: This variable captures other methods of preparing the rat used in the cultural or health practice. This question is asked if 'Other' is selected in the response to prepare_rodent.

Type of Data: Free-text

Variable Name: administering_rodent

Question: How is the rat prescribed/administered?

Description: This variable captures the method of administration for the rat used in the cultural or health practice.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Oral (Code: oral)
- Option 2: Topical (skin) (Code: topical_skin)
- Option 3: Topical (eye) (Code: topical_eye)
- Option 4: Topical (inhaled) (Code: topical_inhaled)
- Option 5: Enema (Code: enema)
- Option 6: Subcutaneous (Code: subcutaneous)
- Option 7: Intravenous (Code: intravenous)
- Option 8: Other (Code: other)
- Option 9: Don't know (Code: unknown)

Variable Name: administering_rodent_other

Question: Specify other.

Description: This variable captures other methods of administering the rat used in the cultural or health practice. This question is asked if 'Other' is selected in the response to administering_rodent.

Type of Data: Free-text

End of Health and Cultural practices repeat

2.1.2.12 GPS coordinates. These questions capture the location of the sampled household.

Variable Name: latitude

Question: Latitude (first row on the GPS next to N)

Description: This variable captures the latitude coordinate of the household, taken while standing in front of the main doorway into the household. The latitude value typically begins with '06'.

Type of Data: Decimal

Variable Name: longitude

Question: Longitude (second row on the GPS next to E)

Description: This variable captures the longitude coordinate of the household, taken while standing in front of the main doorway into the household. The longitude value typically begins with '08'.

Type of Data: Decimal

2.1.2.13 Household photographs. Annotated photographs of the external and internal components of household structures can be added within this repeating group.

Repeat Section: Household photographs

Variable Name: photos_acceptable

Question: Are you able to take photos of the area surrounding the household and inside the house?

Description: This variable captures whether the respondent is able to take photos of the area surrounding the household and inside the house. If 'Yes' is selected, the respondent is prompted to take photos. If 'No' is selected, no further action is required.

Type of Data: Single-select with two responses (Yes, No)

Options for Responses:

- Option 1: Yes
- Option 2: No

Notes: Make sure that when taking photos, faces of any individuals are not included. For inside photos, particularly focus on the kitchen, sleeping area, and area where food, crops, or seeds are stored. Also, take photos of any known rat burrows.

Variable Name: photo_inside

Question: Photo (inside)

Description: This variable captures a photo taken inside the household. (Associated Logic: This variable is associated with the group `inside_photos`, initiated when the respondent indicates they are able to take photos (`photos_acceptable = 'yes'`).)

Type of Data: Image

Variable Name: photo_inside_name

Question: What is this a photo of?

Description: This variable captures the description of the photo taken inside the household. (Associated Logic: This variable is associated with the group `inside_photos`, initiated when the respondent indicates they are able to take photos (`photos_acceptable = 'yes'`).)

Type of Data: Text

Variable Name: photo_outside

Question: Photo (outside)

Description: This variable captures a photo taken outside the household. (Associated Logic: This variable is associated with the group `outside_photos`, initiated when the respondent indicates they are able to take photos (`photos_acceptable = 'yes'`).)

Type of Data: Image

Variable Name: photo_outside_name

Question: What is this a photo of?

Description: This variable captures the description of the photo taken outside the household. (Associated Logic: This variable is associated with the group `outside_photos`, initiated when the respondent indicates they are able to take photos (`photos_acceptable = 'yes'`).)

Type of Data: Text

Notes: For outside photos, pictures of the different buildings that are part of the household, nearby gardens, farmland, or bush are desired.

End of Household photographs

2.1.2.14 Household surroundings. Descriptions of the immediate surroundings of the household are captured here.

Variable Name: surroundings_household

Question: What is in the nearby surrounding of this household?

Description: This variable captures the elements present in the nearby surroundings of the household. Respondents can select multiple options.

Type of Data: Multi-select

Options for Responses:

- Option 1: Another compound (Code: another_compound)
- Option 2: Other buildings not part of this household (Code: other_buildings)
- Option 3: Gardens (Code: gardens)
- Option 4: Farms (Code: farms)
- Option 5: Bush (Code: bush)
- Option 6: Forest (Code: forest)
- Option 7: Yam barn (Code: yam_barn)
- Option 8: Other (Code: other)

Notes: This completes the survey for this household. Offer to answer any questions they may have. Thank the participants and move on to the next household.

Variable Name: surroundings_outside_other

Question: Specify other

Description: This variable captures other elements present in the nearby surroundings of the household, if 'Other' is selected in the response to `surroundings_household`.

Type of Data: Free-text

Variable Name: notes

Question: Feel free to add any notes you want the team to know about this household.

Description: This variable allows the respondent to add any additional notes about the household.

Type of Data: Free-text

Variable names and response codes are available from the XLSForm of the questionnaire. The variable name is stored in the `name` column of the `survey` sheet. For the responses (`choices` sheet), the `list_name` is associated with the `type` column in the `survey` sheet. The response values and labels are in the `choices` sheet columns named `name` and `label` respectively.

2.1.3 Household questionnaire data checks:

As data checks are added the functions and their purposes will be recorded here.

Data checks are performed on the `hh_df_list` object which is read in `.rds` format after being produced in `main\01_rename_variables_hh.R`. All data checks and associated cleaning steps are performed in `main\02_clean_data_hh.R`

2.1.3.1 Check 1: Unique numbering of households **Description:** This check ensures that each household in the dataset has a unique identifier.

Arguments:

- `df`: The dataframe containing household data. Default is `hh_df_list$household_main`.

Returns:

- NULL if all household IDs are unique.
- Dataframe containing duplicate records if duplicates are found.

Code:

```
check_unique_id <- function(df = hh_df_list$household_main) {
  duplicate_indices <- duplicated(df$household_id) | duplicated(df$household_id,
    fromLast = TRUE)
  if (any(duplicate_indices)) {
    duplicate_records <- df[`_index`, duplicate_indices, ]
    message(crayon::red("FAIL: Duplicate household IDs found. Check duplicate_records for details."))
    return(duplicate_records)
  } else {
    message(crayon::green("PASS: All household IDs are unique"))
    return(NULL)
  }
}

# Execute the function to check for unique household IDs
duplicate_records <- check_unique_id(df = hh_df_list$household_main)
```

Outcomes:

- If the message “All household IDs are unique” is returned, this indicates that each household has a unique identifier in the data pulled down from the server.
- The returned object is NULL if the check is passed.
- If the message “Duplicate household IDs found. Check duplicate_records for details” is returned, the study team should be contacted to correct the underlying data. If it is not possible for them to do this directly in the form the necessary correction can be made on the data stored in the server. Finally, if that is not possible the correction can be made directly in these scripts directly into the `hh_df_list$household_main` object.
- The returned object (`duplicate_records`) is a vector of values from the `hh_df_list$household_main$_index` column of the data. This can be used for further investigation of the duplication.

2.1.3.2 Check 2: Household coordinates **Description:** The `clean_coordinates` function is designed to clean and validate geographic coordinates extracted from the questionnaire records. It checks for coordinates

falling within specified boundaries (Nigeria and relevant Local Government Authorities), corrects errors such as misplaced decimal points, and logs any potential issues encountered during the process.

Arguments:

- `df`: The dataframe containing coordinates to be cleaned. The default is `hh_df_list$household_main`.

Returns:

- An updated dataframe with corrected coordinates.

Source code:

```
clean_coordinates <- function(df = hh_df_list$household_main) {  
  # Extract coordinates from the dataframe  
  coords <- extract_coordinates(df)  
  # Define administrative boundaries  
  Nigeria <- gadm(country = "NGA", level = 0, path = here("data", "spatial"))  
  lga <- gadm(country = "NGA", level = 2, path = here("data", "spatial"))  
  # Check coordinates against country boundary and administrative boundaries  
  checked_coords <- check_coordinates(coords, Nigeria, lga)  
  # Correct errors in the coordinates Factors to correct  
  factors <- 10^(0:12)  
  corrected_coords <- correct_errors(checked_coords, factors, Nigeria)  
  # Log messages about the coordinates  
  log_messages(coords, checked_coords, corrected_coords)  
  # Update the original dataframe with the corrected coordinates  
  updated_df <- update_coordinates(corrected_coords$coords_spat, df)  
  # Return the updated dataframe  
  return(updated_df)  
}
```

2.1.3.2.1 Extract coordinates sub-function **Description:** The `extract_coordinates` sub-function extracts latitude and longitude coordinates from a dataframe.

Arguments:

- `df`: A dataframe containing coordinates to be extracted.

Returns:

- A `SpatVector` object containing extracted coordinates.

Source code:

```
# Sub-function 1: Extract Coordinates  
extract_coordinates <- function(df) {  
  # Extract coordinates from the dataframe  
  coords <- df %>%  
    dplyr::select(`_index`, id = household_id, latitude, longitude) %>%  
    # Remove rows with missing latitude or longitude values  
    dplyr::filter(!is.na(latitude) & !is.na(longitude)) %>%  
    # Create a SpatVector  
    vect(geom = c("longitude", "latitude"), crs = project_CRS)  
  return(coords)  
}
```

2.1.3.2.2 Check coordinates sub-function **Description:** The `check_coordinates` sub-function checks whether coordinates fall within specified boundaries.

Arguments:

- `coords`: A `SpatVector` object containing coordinates to be checked
- `Nigeria`: A spatial object representing the boundaries of Nigeria. Obtained using the `gadm` function of the `geodata` R package.

- `lga`: A spatial object representing the boundaries of Local Government Authorities within Nigeria (Level-2). Obtained using the `gadm` function of the `geodata` R package.

Returns:

- A list containing checked coordinates.

Source code:

```
# Sub-function 2: Check Coordinates
check_coordinates <- function(coords, Nigeria, lga) {
  coords_spat <- coords
  in_nigeria <- coords_spat[Nigeria]
  out_nigeria <- coords_spat[!is.related(coords_spat, Nigeria, "intersects"), ]

  # Add LGA information to the coordinates
  coords_spat$lga <- coords_spat %>%
    mutate(abbreviation = str_split(coords_spat$id, "-", simplify = TRUE)[, 1]) %>%
    left_join(village_state %>%
      select(abbreviation, lga)) %>%
    pull(lga)
  # Check if coordinates fall within the correct LGA
  in_lga <- coords_spat[coords_spat$lga == terra::extract(lga, coords_spat)$NAME_2]
  out_lga <- coords_spat[coords_spat$lga != terra::extract(lga, coords_spat)$NAME_2 |
    is.na(terra::extract(lga, coords_spat)$NAME_2)]

  list(coords_spat = coords_spat, in_nigeria = in_nigeria, out_nigeria = out_nigeria,
    in_lga = in_lga, out_lga = out_lga)
}
```

2.1.3.2.3 Correct errors sub-function Description: The `correct_errors` sub-function corrects errors in coordinates, such as misplaced decimal points.

Arguments:

- `coords`: A list containing checked coordinates.
- `factors`: A vector of factors used for correcting coordinates.
- `Nigeria`: A spatial object representing the boundary of Nigeria.

Returns:

- A list containing corrected coordinates.

Source code:

```
# Sub-function 3: Correct Errors
correct_errors <- function(coords, factors, Nigeria) {
  potential_errors <- data.frame()
  updated_coords <- coords$coords_spat # Store the updated coordinates in a new object
  for (index in coords$out_nigeria$`_index`) {
    record <- coords$coords[coords$coords$`_index` == index]
    # Initialize a flag to track if any correction is made for this record
    correction_made <- FALSE
    # Check latitude value range and correct if high or low
    if (crds(record)[, 2] >= 14 || crds(record)[, 2] <= 4) {
      for (factor in factors) {
        corrected_latitude <- crds(record)[, 2]/factor
        # Check if corrected latitude falls within the desired range
        if (corrected_latitude >= 4 && corrected_latitude <= 14) {
          # Create a new SpatVector with the updated latitude
          updated_coords <- crds(coords$coords_spat)
          updated_coords[coords$coords_spat$`_index` == index] <- c(crds(record)[,
            1], corrected_latitude)
          updated_spatvector <- vect(updated_coords, crs = project_CRS) %>%
            bind_spat_cols(coords$coords_spat)
          # Replace the SpatVector in coords with the updated one
        }
      }
    }
  }
}
```

```

        coords$coords_spat <- updated_spatvector
        potential_errors <- bind_rows(potential_errors, tibble(`_index` = index,
            reason = if (crds(record)[, 2] >= 14)
                "corrected decimal point mistake (latitude high)" else "corrected decimal point mistake (latitude low)"))
        correction_made <- TRUE
        break
    }
}

# Check longitude value range and correct if high or low
if (crds(record)[, 1] >= 15 || crds(record)[, 1] <= 2) {
    for (factor in factors) {
        corrected_longitude <- crds(record)[, 1]/factor
        # Check if corrected longitude falls within the desired range
        if (corrected_longitude >= 2 && corrected_longitude <= 15) {
            # Create a new SpatVector with the updated longitude
            updated_coords <- crds(coords$coords_spat)
            updated_coords[coords$coords_spat`_index` == index] <- c(corrected_longitude,
                crds(record)[, 2])
            updated_spatvector <- vect(updated_coords, crs = project_CRS) %>%
                bind_spat_cols(coords$coords_spat)
            # Replace the SpatVector in coords with the updated one
            coords$coords_spat <- updated_spatvector
            potential_errors <- bind_rows(potential_errors, tibble(`_index` = index,
                reason = if (crds(record)[, 1] >= 15)
                    "corrected decimal point mistake (longitude high)" else "corrected decimal point mistake (longitude low)"))
            correction_made <- TRUE
            break
        }
    }
}

# Check for swapped lat and long
if (!is.na(crds(record)[, 2]) && !is.na(crds(record)[, 1]) && crds(record)[,
    2] >= 4 && crds(record)[, 2] <= 14 && crds(record)[, 1] >= 2 && crds(record)[,
    1] <= 15) {
    # Create a new SpatVector with swapped latitude and longitude
    updated_coords <- tibble(x = crds(record)[, c("y")], y = crds(record)[,
        c("x")])
    updated_spatvector <- vect(updated_coords, geom = c("x", "y"), crs = project_CRS) %>%
        bind_spat_cols(record)
    # Check if the swapped coordinates are within country bounds
    if (is.related(updated_spatvector, Nigeria, "intersects")) {
        coords$coords_spat <- bind_spat_rows(coords$coords[coords$coords`_index` !=
            index], updated_spatvector)
        potential_errors <- bind_rows(potential_errors, tibble(`_index` = index,
            reason = "corrected latitude and longitude swap"))
        correction_made <- TRUE
    } else {
        coords$coords_spat <- coords$coords_spat # If not within bounds, revert to original coordinates
    }
}

# If no correction is made for this record, consider it as an 'other
# error'
if (!correction_made) {
    potential_errors <- bind_rows(potential_errors, tibble(`_index` = index,
        reason = "other potential error"))
}

# Extract the corrected coordinates and potential errors
corrected_coords <- list(coords_spat = coords$coords_spat, in_nigeria = coords$in_nigeria,
    out_nigeria = coords$out_nigeria, potential_errors = potential_errors)
return(corrected_coords)
}

```

2.1.3.2.4 Update coordinates sub-function **Description:** The `update_coordinates` sub-function updates the original dataframe with corrected coordinates.

Arguments:

- coords: A SpatVector object containing corrected coordinates.
- df: A dataframe containing original coordinates.

Returns:

- An updated dataframe with corrected coordinates.

Source code:

```
# Sub-function 4: Update Coordinates
update_coordinates <- function(coords = coords_spat, df) {
  # Match the row indices between the original dataframe and the corrected
  # coordinates
  rows_to_update <- match(coords$`_index`, df$`_index`)
  # Extract the corrected latitude and longitude from the coords object
  updated_latitude <- crds(coords)[, 2] # Column number 2 corresponds to latitude
  updated_longitude <- crds(coords)[, 1] # Column number 1 corresponds to longitude
  # Update the relevant rows in the original dataframe with the corrected
  # coordinates
  df[rows_to_update, c("latitude", "longitude")] <- list(updated_latitude, updated_longitude)
  # Return the updated dataframe
  return(df)
}
```

2.1.3.2.5 Log messages sub-function Description: The log_messages sub-function logs messages about the coordinate cleaning processes.

Arguments:

- coords: A SpatVector object containing coordinates.
- checked_coords: A list containing checked coordinates.
- corrected_coords: A list containing corrected coordinates.

Source code:

```
# Sub-function 5: Log Messages
log_messages <- function(coords, checked_coords, corrected_coords) {
  # Coordinate Check 1
  cat("Coordinate Check 1:\n")
  cat(crayon::green(paste(bold(nrow(checked_coords$in_nigeria)), "records have coordinates within Nigeria.\n"))))
  cat(crayon::yellow(paste(bold(nrow(coords) - nrow(checked_coords$in_nigeria)),
    "records have coordinates falling outside of Nigeria.\n"))))
  cat(crayon::red(paste(bold(nrow(df) - nrow(coords)), "records have missing coordinates.\n"))))
  # Summary
  unique_errors <- nrow(corrected_coords$potential_errors)
  cat(paste(unique_errors, "unique record(s) had incorrect coordinates.\n"))
  # Coordinate Check 2
  cat("\nCoordinate Check 2:\n")
  cat(crayon::red(paste(bold(nrow(checked_coords$out_lga)), "records have coordinates outside of the correct LGAs.\n"))))
  # Coordinate Check 3
  cat("\nCoordinate Check 3:\n")
  if (unique_errors == 0) {
    cat(crayon::green("No latitude and longitude swapping detected.\n"))
  } else {
    cat(crayon::yellow("No latitude and longitude swapping detected after correction.\n"))
  }
  # Coordinate Check 4
  cat("\nCoordinate Check 4:\n")
  cat(crayon::yellow(paste(bold(nrow(corrected_coords$potential_errors)), "misplaced decimal points were detected and corrected.\n")))
}
```

2.1.4 Individual questionnaire:

2.1.4.1 Metadata and associated household. The first section of the household questionnaire records the date, time and location of the completed questionnaire. The linkage to the household questionnaire is through this section.

Variable Name: start

Question: Start

Description: This variable records the data and time the questionnaire was initialised.

Type of Data: Datetime

Variable Name: calculate_date

Question: Date

Description: This variable captures the date when the questionnaire is initiated.

Type of Data: Date %Y_%m_%d

Variable Name: deviceid

Question: Device ID

Description: This variable captures the unique identifier of the device used to complete the questionnaire.

Variable Name: interviewer_id

Question: Enter your interviewer ID

Description: This variable captures the ID of the interviewer conducting the survey.

Type of Data: Single-select

Options for Responses:

- Option 1: Diana (Code: 1)
- Option 2: Helen (Code: 2)
- Option 3: Nzube (Code: 3)
- Option 4: Sunday (Code: 4)
- Option 5: Other (Code: other)

Variable Name: interviewer_id_other

Question: Specify other

Description: This variable captures additional details if 'Other' is selected in interviewer_id.

Type of Data: Free-text

Variable Name: community

Question: Which community is the household located in?

Description: This variable captures the community where the surveyed household is located.

Type of Data: Single-select

Options for Responses:

- Option 1: Dyegh (Akwa Kwasi) (Code: dyegh)
- Option 2: Ikyogbakpev (Akwa kwasi) (Code: ikyogbakpev)
- Option 3: Zugu (Code: zugu)
- Option 4: Okimbongha (Code: okimbongha)
- Option 5: Ogamanna (Code: ogamanna)
- Option 6: Ofonekom (Code: ofonekom)
- Option 7: Ezeakataka (Code: ezeakataka)
- Option 8: Enyandulogu (Code: enyandulogu)
- Option 9: Offianka (Code: offianka)

Variable Name: household_number

Question: What household number is this?

Description: This variable captures the household number. This is allocated by the team using the household enumeration from the village.

Type of Data: Integer

Variable Name: household_id

Question: Household ID

Description: This variable concatenates the first three letters of the community name with the household number to generate a unique household ID. This is then presented to the interviewer for confirmation.

Type of Data: Calculated

2.1.4.2 Consent process Consent is captured after initialising the questionnaire. We do this to aid understanding of sampling (i.e., how many selected households consented to enrollment).

Variable Name: over_18

Question: Is this participant over 18 years old?

Description: This variable captures whether the participant is over 18 years old.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: informed_consent_adult

Question: The participant has had the study processes explained to them and has provided written informed consent to take part in the study. They are made aware that they can remove themselves from the study at any point by contacting the study team.

Description: This variable captures whether the adult participant has provided informed consent to participate in the study after understanding the study processes.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Note: Thank the participant for their time, complete and save this form and move on to the next participant if the response is No. This question is asked if the participant is over 18 years old (**over_18** equals 'yes').

Variable Name: blood_sample_consent_adult

Question: The participant has had the processes for obtaining a Dried Blood Spot explained to them and has provided written informed consent for this.

Description: This variable captures whether the adult participant has provided informed consent for obtaining a Dried Blood Spot (DBS) sample.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Note: Thank them for enrolling in the study and providing a blood sample, we will move onto the questions after recording the consent form. This question is asked if the participant is over 18 years old (**over_18** equals 'yes') and has provided informed consent to participate in the study (**informed_consent_adult** equals 'yes').

Variable Name: under_12

Question: Is the child under 12?

Description: This variable captures whether the participant is under 12 years old.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Note: This question is asked if the participant is not over 18 years old (**over_18** equals 'no').

Variable Name: assent_under_18

Question: The participant has had the study processes explained to them and have provided assent for enrollment in the study. Signed consent has been provided by their parent or guardian.

Description: This variable captures whether the participant, who is under 18 years old, has provided assent for enrollment in the study, with signed consent provided by their parent or guardian.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: blood_sample_assent_child

Question: The participant has had the processes for obtaining a Dried Blood Spot explained to them and has provided written informed consent for this.

Description: This variable captures whether the participant, who is under 18 years old, has provided written informed consent for obtaining a Dried Blood Spot (DBS) sample.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

2.1.4.3 Individual demographics.

Variable Name: first_name

Question: First name

Description: This variable captures the first name that the individual uses. This information is important for contact purposes if needed.

Type of Data: Free-text

Variable Name: surname

Question: Surname

Description: This variable captures the surname of the individual.

Type of Data: Free-text

Variable Name: age_individual

Question: Age in years

Description: This variable captures the age of the individual in years.

Type of Data: Integer

Variable Name: yob_individual

Question: Year of birth

Description: This variable calculates the year of birth based on the current year and the individual's age.

Type of Data: Calculated

Variable Name: sex_individual

Question: Sex

Description: This variable captures the sex of the individual.

Type of Data: Single-select

Options for Responses:

- Option 1: Female (Code: female)
 - Option 2: Male (Code: male)
-

Variable Name: ethnicity_individual

Question: Ethnicity

Description: This variable captures the ethnicity of the individual.

Type of Data: Single-select

Options for Responses:

- Option 1: Igbo (Izzi) (Code: igbo_izzi)
 - Option 2: Igbo (Other) (Code: igbo_other)
 - Option 3: Membe (Code: membe)
 - Option 4: Tiv (Code: tiv)
 - Option 5: Other (Code: other)
-

Variable Name: ethnicity_individual_other

Question: Specify ethnicity

Description: This variable captures the ethnicity of the individual if 'Other' is selected in the response to ethnicity_individual.

Type of Data: Free-text

Variable Name: religion_individual

Question: Religion

Description: This variable captures the religion of the individual.

Type of Data: Single-select

Options for Responses:

- Option 1: Christian (Code: christian)
 - Option 2: Muslim (Code: muslim)
 - Option 3: Traditionalist (Code: traditionalist)
 - Option 4: Other (Code: other)
-

Variable Name: religion_individual_other

Question: Specify religion

Description: This variable captures the religion of the individual if 'Other' is selected in the response to religion_individual.

Type of Data: Free-text

Variable Name: education

Question: Level of education

Description: This variable captures the level of education of the individual.

Type of Data: Single-select

Options for Responses:

- Option 1: None/No formal schooling (Code: none)
 - Option 2: Primary education (up until age 12) (Code: primary)
 - Option 3: Junior secondary education (up until age 16) (Code: junior_secondary)
 - Option 4: Senior secondary education (up until age 19) (Code: senior_secondary)
 - Option 5: University level education (Code: undergraduate)
 - Option 6: Master's, Doctoral level degree (Code: postgraduate)
 - Option 7: Other (Code: other)
-

Variable Name: education_other

Question: Specify other

Description: This variable captures other levels of education if 'Other' is selected in the response to **education**.

Type of Data: Free-text

Variable Name: education_subject

Question: What subject was studied in higher education?

Description: This variable captures the subject studied in higher education if the individual selected 'University level education' or 'Master's, Doctoral level degree' in the response to **education**.

Type of Data: Free-text

2.1.4.4 Place of birth and length of residence.

Variable Name: community_pob

Question: Is the community we are currently in your place of birth?

Description: This variable captures whether the community where the survey is being conducted is the participant's place of birth.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: country_of_birth

Question: What country were you born in?

Description: This variable captures the country where the participant was born. This question is asked if the participant's current community is not their place of birth.

Type of Data: Free-text

Variable Name: state_of_birth

Question: What state were you born in?

Description: This variable captures the state where the participant was born. This question is asked if the participant's current community is not their place of birth.

Type of Data: Free-text

Variable Name: region_of_birth

Question: What LGA were you born in?

Description: This variable captures the Local Government Area (LGA) where the participant was born. This question is asked if the participant's current community is not their place of birth.

Type of Data: Free-text

Variable Name: village_of_birth

Question: What is the name of the village you were born in?

Description: This variable captures the name of the village where the participant was born. This question is asked if the participant's current community is not their place of birth.

Type of Data: Free-text

Variable Name: year_arrived

Question: What year did you move to this community?

Description: This variable captures the year when the participant moved to the current community. This question is asked if the participant's current community is not their place of birth.

Type of Data: Integer

Variable Name: resident_months

Question: How much of the year are you resident in this community (in months)?

Description: This variable captures the number of months the participant resides in the current community.

Type of Data: Integer

Range: 1 - 12 (Step of 1)

Variable Name: resident_elsewhere

Question: In the last 12 months what are the names of the places where you have spent more than two weeks sleeping?

Description: This variable captures the names of the places where the participant has spent more than two weeks sleeping in the last 12 months.

Type of Data: Free-text

Variable Name: non_resident_reason

Question: Why are they resident in these places?

Description: This variable captures the reasons why the participant resides in the places mentioned in resident_elsewhere.

Type of Data: Free-text

Variable Name: return_reason

Question: Why do they return to this community?

Description: This variable captures the reasons why the participant returns to the current community.

Type of Data: Free-text

Variable Name: sleep_elsewhere

Question: Do you regularly sleep in a different location?

Description: This variable captures whether the participant regularly sleeps in a different location.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: sleep_elsewhere_location

Question: Where are these locations you regularly sleep?

Description: This variable captures the locations where the participant regularly sleeps if they answered 'Yes' to sleep_elsewhere.

Type of Data: Free-text

2.1.4.5 Marital status and children.

Variable Name: relationship

Question: What is your marital status?

Description: This variable captures the marital status of the participant.

Type of Data: Single-select

Options for Responses:

- Option 1: Single (Code: single)
 - Option 2: Married (Code: married)
 - Option 3: Divorced (Code: divorced)
 - Option 4: Widowed (Code: widowed)
 - Option 5: Cohabiting (Code: cohabiting)
 - Option 6: Separated (Code: separated)
-

Variable Name: children_ever

Question: Do you have or have you ever had children?

Description: This variable captures whether the participant has or has ever had children.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: n_children

Question: How many children have you had?

Description: This variable captures the total number of children the participant has had.

Type of Data: Integer

Note: This question is asked if the participant has or has ever had children.

Variable Name: children_alive

Question: How many children are alive?

Description: This variable captures the number of children who are currently alive.

Type of Data: Integer

Note: This question is asked if the participant has or has ever had children.

Variable Name: children_in_household

Question: How many children live at home currently? (more than 6 months a year)

Description: This variable captures the number of children who live at home currently, residing for more than 6 months a year.

Type of Data: Integer

Note: This question is asked if there is at least one child alive (`children_alive >= 1`).

2.1.4.6 Occupation and individual income.

Variable Name: work

Question: What kind of work do you do to make money and to get food?

Description: This variable captures the type of work the participant engages in to earn money and obtain food.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Farming (Code: farming)
- Option 2: Assist with agricultural work (in household fields) (Code: ag_worker)
- Option 3: Assist with agricultural work (in other households' fields) (Code: ag_worker_elsewhere)
- Option 4: Hunter/Trapper (Code: hunter_trapper)
- Option 5: Fishing (Code: fishing)
- Option 6: Timber (Code: timber)
- Option 7: Collect forest goods (NTFPs) (Code: ntfps)
- Option 8: Animal husbandry (Code: animal)
- Option 9: Trader (Code: trader)
- Option 10: Artisan/Handiwork/Carpenter (Code: artisan)
- Option 11: Driver (Code: driver)
- Option 12: Teacher (Code: teacher)
- Option 13: Clergy (minister, pastor) (Code: clergy)
- Option 14: Student (Code: student)
- Option 15: Government worker (Code: government_worker)
- Option 16: Pensioner (Code: pensioner)
- Option 17: Other (Code: other)

Variable Name: income_other

Question: Specify other

Description: This variable captures additional types of work if 'Other' is selected in work.

Type of Data: Free-text

Variable Name: income_individual

Question: In a normal month, how much money do you personally bring into the household?

Description: This variable captures the estimated monthly income brought into the household by the participant.

Type of Data: Integer

Variable Name: field_entry

Question: Do you ever go into the agricultural fields or farms?

Description: This variable captures whether the participant ever goes into agricultural fields or farms.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: field_work_freq

Question: In the last 12 months, how many months did you spend working in fields/farm?

Description: This variable captures the frequency of the participant's work in fields or farms over the past 12 months.

Type of Data: Integer

Range: 1 - 12 (Step of 1)

Note: This question is asked if the participant answers 'Yes' to field_entry.

Variable Name: field_work_seasonality

Question: Which seasons do you work in the fields/farm?

Description: This variable captures the seasons in which the participant works in fields or farms.

Type of Data: Single-select

Options for Responses:

- Option 1: Dry (Code: dry)
- Option 2: Rainy (Code: rainy)
- Option 3: All seasons (Code: all_seasons)

Note: This question is asked if the participant does not work in fields or farms for all 12 months (field_work_freq != '12').

Variable Name: forest_entry

Question: Do you ever go into forested areas?

Description: This variable captures whether the participant ever goes into forested areas.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)

- Option 2: No (Code: no)

Variable Name: forest_entry_purpose

Question: Why do you go into the forest?

Description: This variable captures the purposes for which the participant goes into the forest.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Hunting/Trapping (Code: hunting_trapping)
- Option 2: Collecting food (Code: collecting_food)
- Option 3: NTFPs (Code: ntfps)
- Option 4: Gathering firewood (Code: firewood)
- Option 5: Transiting through on my way elsewhere (Code: transit)
- Option 6: For cultural or religious activity (Code: cultural)
- Option 7: For leisure purposes (Code: leisure)
- Option 8: Other (Code: other)

Note: This question is asked if the participant answers 'Yes' to forest_entry.

Variable Name: forest_entry_purpose_other

Question: Specify other

Description: This variable captures additional purposes for going into the forest if 'Other' is selected in forest_entry_purpose.

Type of Data: Free-text

Note: This question is asked if 'Other' is selected in forest_entry_purpose.

Variable Name: forest_entry_freq

Question: In the last 12 months, how many months did you spend accessing the forest?

Description: This variable captures the frequency of the participant's access to the forest over the past 12 months.

Type of Data: Integer

Range: 1 - 12 (Step of 1)

Note: This question is asked if the participant answers 'Yes' to forest_entry.

Variable Name: forest_work_seasonality

Question: Which seasons do you access the forest?

Description: This variable captures the seasons in which the participant accesses the forest.

Type of Data: Single-select

Options for Responses:

- Option 1: Dry (Code: dry)
- Option 2: Rainy (Code: rainy)
- Option 3: All seasons (Code: all_seasons)

Note: This question is asked if the participant does not access the forest for all 12 months (forest_entry_freq != '12') and answers 'Yes' to forest_entry.

2.1.4.7 Meat consumption, type and frequency

Variable Name: meat_consumption

Question: Do you eat meat from domestic animals?

Description: This variable captures whether the participant consumes meat from domestic animals.

Type of Data: Single-select (Yes/No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: meat_consumption_type

Question: What types of domestic meat do you eat?

Description: This variable captures the types of domestic meat consumed by the participant. This question is asked if the participant responds 'Yes' to meat_consumption.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Chicken (Code: chicken)
 - Option 2: Goat/Sheep (Code: goat)
 - Option 3: Cow (Code: cow)
 - Option 4: Pig (Code: pig)
 - Option 5: Turkey (Code: turkey)
 - Option 6: Other (Code: other)
-

Variable Name: meat_consumption_freq

Question: How often do you eat domestic meat?

Description: This variable captures the frequency of consuming domestic meat. This question is asked if the participant responds 'Yes' to meat_consumption.

Type of Data: Single-select

Options for Responses:

- Option 1: A few times in my life (Code: few_life)
 - Option 2: A few times in a year (Code: few_year)
 - Option 3: A few times in a month (Code: few_month)
 - Option 4: A few times in a week (Code: few_week)
 - Option 5: Every day (Code: daily)
-

Variable Name: bushmeat_consumption

Question: Do you eat meat from bush animals?

Description: This variable captures whether the participant consumes meat from bush animals.

Type of Data: Single-select (Yes/No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: bushmeat_animals

Question: Which bushmeat have you eaten in the last 12 months?

Description: This variable captures the types of bushmeat consumed by the participant. This question is asked if the participant responds 'Yes' to bushmeat_consumption.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Rabbit
 - Option 2: Giant pouched rat
 - Option 3: Grasscutter
 - Option 4: Monkey
 - Option 5: Porcupine (Chuku chuku)
 - Option 6: Squirrel
 - Option 7: Other rats
 - Option 8: Deer (Duiker/Antelope/Bush goat)
 - Option 9: Snake
 - Option 10: Birds
 - Option 11: Shrew
 - Option 12: None
 - Option 13: Other
-

Variable Name: bushmeat_freq

Question: How often do you eat meat from animals in the bush?

Description: This variable captures the frequency of consuming bushmeat. This question is asked if the participant responds 'Yes' to bushmeat_animals.

Type of Data: Single-select

Options for Responses:

- Option 1: A few times in my life (Code: few_life)
 - Option 2: A few times in a year (Code: few_year)
 - Option 3: A few times in a month (Code: few_month)
 - Option 4: A few times in a week (Code: few_week)
 - Option 5: Every day (Code: daily)
-

Variable Name: meat_avoided

Question: Are there any animals you do not eat?

Description: This variable captures whether the participant avoids eating certain animals.

Type of Data: Single-select (Yes/No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: meat_avoided_animals

Question: What animals will you not eat?

Description: This variable captures the specific animals that the participant avoids eating. This question is asked if the participant responds 'Yes' to avoiding certain animals.

Type of Data: Free-text

2.1.4.8 Rodent consumption and handling.

Variable Name: `current_rodent_consumption`

Question: Do they currently eat rat?

Description: This variable captures whether the participant currently consumes rat as part of their diet.

Type of Data: Single-select (Yes/No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: `past_rodent_consumption`

Question: Have they ever eaten rat?

Description: This variable captures whether the participant has ever consumed rat in the past.

Type of Data: Single-select (Yes/No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: `rodent_consumption`

Question: Why do you eat rats?

Description: This variable captures the reasons why the participant eats rats. This question is asked if the participant currently eats rats or has eaten rats in the past.

Type of Data: Multiple-select

Options for Responses:

- Option 1: They taste good (Code: taste)
 - Option 2: They are important for my nutrition (Code: nutrition)
 - Option 3: I am hungry (Code: hunger)
 - Option 4: They are available (Code: availability)
 - Option 5: They are cheap compared to other meat (Code: cheap)
 - Option 6: It is part of my culture (Code: cultural)
 - Option 7: Other reason (Code: other)
-

Variable Name: `rodent_eat_other`

Question: Specify other

Description: This variable captures additional reasons for eating rats if 'Other' is selected in `rodent_consumption`.

Type of Data: Free-text

Variable Name: `rodent_consumption_hunger`

Question: If you didn't eat rats would you go hungry?

Description: This variable captures whether the participant would go hungry if they didn't eat rats. This question is asked if "Yes" is selected in `rodent_consumption`.

Type of Data: Single-select (Yes/No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: `sell_rodent`

Question: Have you ever sold rats?

Description: This variable captures whether the participant has ever sold rats.

Type of Data: Single-select (Yes/No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: `sell_rodent_location`

Question: Where do you sell rats?

Description: This variable captures the locations where the participant sells rats. This question is asked if "Yes" is selected in `sell_rodent`.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Within the community (Code: community)
 - Option 2: In markets outside of the community (Code: outside_community)
 - Option 3: In cities (Code: cities)
 - Option 4: Other locations (Code: other)
-

Variable Name: `sell_rodent_importance`

Question: What contribution to your income is the money you make from selling rats?

Description: This variable captures the importance of the income derived from selling rats to the participant's overall income.

Type of Data: Single-select (Small/Medium/Large)

Options for Responses:

- Option 1: Small (Code: small)
 - Option 2: Medium (Code: medium)
 - Option 3: Large (Code: large)
-

Variable Name: `sell_rodent_condition`

Question: What is the condition of rats you sell?

Description: This variable captures the condition of the rats sold by the participant. This question is asked if "Yes" is selected in `sell_rodent`.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Alive (Code: alive)
 - Option 2: Raw (whole animal) (Code: raw_whole_animal)
 - Option 3: Raw (butchered animal) (Code: raw_butchered_animal)
 - Option 4: Dried (Code: dried)
 - Option 5: Cooked (whole animal) (Code: cooked_whole)
 - Option 6: Cooked (butchered animal) (Code: cooked_butchered)
 - Option 7: Other (Code: other)
-

Variable Name: `sell_mastomys`

Question: Do you ever sell *Mastomys natalensis* (the multimammate rat)?

Description: This variable captures whether the participant ever sells *Mastomys natalensis*.

Type of Data: Single-select (Yes/No)

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
-

Variable Name: `sell_mastomys_condition`

Question: What is the condition of *Mastomys natalensis* you sell?

Description: This variable captures the condition of the *Mastomys natalensis* sold by the participant. This question is asked if "Yes" is selected in `sell_mastomys`.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Alive (Code: alive)
- Option 2: Raw (whole animal) (Code: raw_whole_animal)
- Option 3: Raw (butchered animal) (Code: raw_butchered_animal)
- Option 4: Dried (Code: dried)
- Option 5: Cooked (whole animal) (Code: cooked_whole)
- Option 6: Cooked (butchered animal) (Code: cooked_butchered)
- Option 7: Other (Code: other)

2.1.4.9 Administered rodent products for health or cultural practices. Repeat question group, this is only completed if the individual has been involved in administering rodent products for healthcare or cultural practices.

Repeat Section: Administering rodent products for health or cultural practices

Variable Name: name_health_cultural

Question: What is the name of the practice?

Description: This variable captures the name of the cultural health practice involving the use of rats.

Type of Data: Free-text

Variable Name: rodent_species

Question: What rat species is this information about?

Description: This variable captures the specific rat species relevant to the cultural health practice.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Ntaali (Code: ntaali)
 - Option 2: Ektupo (Code: ektupo)
 - Option 3: Nkapfu (Code: nkapfu)
 - Option 4: Oginyi (Code: oginyi)
 - Option 5: Ikpo (Code: ikpo)
 - Option 6: Okoror (Code: okoror)
 - Option 7: Oriku (Code: oriku)
 - Option 8: Odupfu (Code: odupfu)
 - Option 9: Ekwata (Code: ekwata)
 - Option 10: Kpev (Code: kpev)
 - Option 11: Agundu (Code: agundu)
 - Option 12: Julie (Code: julie)
 - Option 13: Akpezinga/Abrazinga (Code: akpezinga)
 - Option 14: Mbam/Ngbam (Code: mbam)
 - Option 15: Nyongu (Code: nyongu)
 - Option 16: Sam (Code: sam)
 - Option 17: Agbacha (Code: agbacha)
 - Option 18: Torhe (Code: torhe)
 - Option 19: Fashion (Code: fashion)
 - Option 20: Ubina (Code: ubina)
 - Option 21: Irom (Code: irom)
 - Option 22: Imanava (Code: imanava)
-

Variable Name: part_of_rodent

Question: What parts of the rat were used for this practice?

Description: This variable captures the parts of the rat utilized in the cultural health practice.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Meat of rat (Code: meat)
 - Option 2: Skin of rat (Code: skin)
 - Option 3: Bones/teeth/claws of rat (Code: hard_part)
 - Option 4: Whole rat (Code: whole_animal)
 - Option 5: Organs of the rat (Code: internal_organ)
 - Option 6: Faeces of the rat (Code: faeces)
 - Option 7: Fat of the rat (Code: fat)
 - Option 8: Fur of the rat (Code: fur)
 - Option 9: Rat blood (Code: blood)
 - Option 10: Other (Code: other)
-

Variable Name: purpose_of_rodent

Question: What was the purpose of using this part?

Description: This variable captures the purpose behind using the specified part of the rat in the cultural health practice.

Type of Data: Free-text

Variable Name: prepare_rodent

Question: How was the rat prepared?

Description: This variable captures the method used to prepare the rat for the cultural health practice.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Live (Code: live)
 - Option 2: Raw (Code: raw)
 - Option 3: Passive heat (under sun) (Code: passive_heat)
 - Option 4: Direct heat (above fire) (Code: direct_heat)
 - Option 5: Liquor (Code: liquor)
 - Option 6: Other (Code: other)
 - Option 7: Don't know (Code: unknown)
-

Variable Name: administering_rodent

Question: How was the rat prescribed/administered?

Description: This variable captures how the rat was prescribed or administered in the cultural health practice.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Oral (Code: oral)
- Option 2: Topical (skin) (Code: topical_skin)
- Option 3: Topical (eye) (Code: topical_eye)
- Option 4: Topical (inhaled) (Code: topical_inhaled)
- Option 5: Enema (Code: enema)
- Option 6: Subcutaneous (Code: subcutaneous)
- Option 7: Intravenous (Code: intravenous)
- Option 8: Other (Code: other)
- Option 9: Don't know (Code: unknown)

End of administering rodent products repeat

2.1.4.10 Prepared rodent products for health or cultural practices. Repeat question group. Only completed if the individual has reported being involved in the preparation of rodent products for healthcare or cultural practices.

Repeat Section: Preparing rodent products for health or cultural practices

Variable Name: prepared_health_cultural

Question: Have you ever prepared a rat for use in a cultural or health practice?

Description: This variable captures whether the respondent has ever prepared a rat for use in a cultural or health practice.

Type of Data: Single-select (Yes/No)

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: name_health_cultural_prep

Question: What is the name of the practice?

Description: This variable captures the name of the cultural or health practice involving the prepared rat.

Type of Data: Free-text

Variable Name: rodent_species_prep

Question: What rat species is this information about?

Description: This variable captures the specific rat species relevant to the cultural or health practice.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Ntaali (Code: ntaali)
- Option 2: Ektupo (Code: ektupo)
- Option 3: Nkapfu (Code: nkapfu)
- Option 4: Oginyi (Code: oginyi)
- Option 5: Ikpo (Code: ikpo)
- Option 6: Okoror (Code: okoror)
- Option 7: Oriku (Code: oriku)
- Option 8: Odupfu (Code: odupfu)
- Option 9: Ekwata (Code: ekwata)
- Option 10: Kpev (Code: kpev)
- Option 11: Agundu (Code: agundu)
- Option 12: Julie (Code: julie)
- Option 13: Akpezinga/Abrazinga (Code: akpezinga)
- Option 14: Mbam/Ngbam (Code: mbam)
- Option 15: Nyongu (Code: nyongu)
- Option 16: Sam (Code: sam)
- Option 17: Agbacha (Code: agbacha)
- Option 18: Torhe (Code: torhe)
- Option 19: Fashion (Code: fashion)
- Option 20: Ubina (Code: ubina)
- Option 21: Irom (Code: irom)
- Option 22: Imanava (Code: imanava)

Variable Name: part_of_rodent_prep

Question: What parts of the rat were used for this practice?

Description: This variable captures the parts of the rat utilized in the cultural or health practice.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Meat of rat (Code: meat)
- Option 2: Skin of rat (Code: skin)
- Option 3: Bones/teeth/claws of rat (Code: hard_part)
- Option 4: Whole rat (Code: whole_animal)
- Option 5: Organs of the rat (Code: internal_organ)
- Option 6: Faeces of the rat (Code: faeces)
- Option 7: Fat of the rat (Code: fat)
- Option 8: Fur of the rat (Code: fur)

- Option 9: Don't know (Code: unknown)
- Option 10: Other (Code: other)

Variable Name: purpose_of_rodent_prep

Question: What was the purpose of using this part?

Description: This variable captures the purpose behind using the specified part of the rat in the cultural or health practice.

Type of Data: Free-text

Variable Name: prepare_rodent_prep

Question: How was the rat prepared?

Description: This variable captures the method used to prepare the rat for the cultural or health practice.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Live (Code: live)
- Option 2: Raw (Code: raw)
- Option 3: Passive heat (under sun) (Code: passive_heat)
- Option 4: Direct heat (above fire) (Code: direct_heat)
- Option 5: Liquor (Code: liquor)
- Option 6: Other (Code: other)

Variable Name: administering_rodent_prep

Question: How was the rat prescribed/administered?

Description: This variable captures how the rat was prescribed or administered in the cultural or health practice.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Oral (Code: oral)
- Option 2: Topical (skin) (Code: topical_skin)
- Option 3: Topical (eye) (Code: topical_eye)
- Option 4: Topical (inhaled) (Code: topical_inhaled)
- Option 5: Enema (Code: enema)
- Option 6: Subcutaneous (Code: subcutaneous)
- Option 7: Intravenous (Code: intravenous)
- Option 8: Other (Code: other)

End of preparing rodent products repeat

2.1.4.11 Rodent Contact Sheet. The rodent contact sheet is a paper administered survey where interviewees report their known and recalled contacts with rodents in the last year. Data is transcribed into a separate google sheets document but for record retention photographs are uploaded alongside the individuals questionnaire.

Image: rc_year_p1

Description: Take a photo of the first page of the participant's last year rodent contact sheet.

Additional Instructions: Ensure the image is clear and readable. Maximum image size: 1024 pixels.

Image: rc_year_p2

Description: Take a photo of the second page of the participant's last year rodent contact sheet.

Additional Instructions: Ensure the image is clear and readable. Maximum image size: 1024 pixels.

Image: rc_year_p3

Description: Take a photo of the third page of the participant's last year rodent contact sheet.

Additional Instructions: Ensure the image is clear and readable. Maximum image size: 1024 pixels.

Image: rc_year_p4

Description: Take a photo of the fourth page of the participant's last year rodent contact sheet.

Additional Instructions: Ensure the image is clear and readable. Maximum image size: 1024 pixels.

Variable Name: excreta_year

Question: In the last year have you come into contact with the urine or faeces of a rat?

Description: This variable captures whether the respondent has come into contact with the urine or faeces of a rat in the last year.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
 - Option 3: Don't know (Code: unknown)
-

Variable Name: excreta_location

Question: Was this contact in the agricultural areas, somewhere you sleep, or somewhere else?

Description: This variable captures the locations where the contact with rat urine or faeces occurred.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Agricultural area (Code: fields)
 - Option 2: Household (Code: house)
 - Option 3: Yam barn (Code: barn)
 - Option 4: Other (Code: other)
-

Variable Name: excreta_location_other

Question: Specify other

Description: This variable allows the respondent to specify other locations where the contact with rat urine or faeces occurred.

Type of Data: Free-text

Variable Name: excreta_cleaning

Question: Do you ever clean up or remove the rat faeces when you see it?

Description: This variable captures whether the respondent cleans up or removes rat faeces when they see it.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)
 - Option 2: No (Code: no)
 - Option 3: Don't know (Code: unknown)
-

Variable Name: excreta_cleaning_method

Question: How do you do this?

Description: This variable captures the methods used by the respondent to clean up or remove rat faeces.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Brush it out of the house (Code: brush)
- Option 2: Remove it with my hands (Code: hand)
- Option 3: Use water to wash it away (Code: water)
- Option 4: Other (Code: other)

Variable Name: excreta_cleaning_other

Question: Specify other

Description: This variable allows the respondent to specify other methods used to clean up or remove rat faeces.

Type of Data: Free-text

2.1.4.12 Awareness of rodent associated diseases.

Variable Name: rodent_diseases

Question: Are you aware that people can get diseases or sicknesses spread to people by rats?

Description: This variable captures whether the respondent is aware that people can get diseases or sicknesses spread to people by rats. If the respondent answers “Yes” to this question, they will be prompted to specify the names of these diseases.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: rodent_diseases_name

Question: What are the names of these diseases?

Description: This variable captures the names of diseases spread to people by rats, if the respondent is aware of any. If the respondent selects “Lassa fever” as one of the diseases, they will be prompted to provide more information about their knowledge of Lassa fever.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Malaria (Code: malaria)
- Option 2: Typhoid (Code: typhoid)
- Option 3: Ebola (Code: ebola)
- Option 4: Lassa fever (Code: lassa)
- Option 5: Mpox/Monkeypox (Code: mpox)
- Option 6: Leptospirosis (Code: leptospirosis)
- Option 7: Leishmaniasis (Code: leishmaniasis)
- Option 8: Scrub typhus/Spotted fever/Rickettsial disease (Code: rickettsial)
- Option 9: Stomach problems (Code: stomach_symptoms)
- Option 10: Don’t know (Code: unknown)
- Option 11: Other (Code: other)

Variable Name: rodent_diseases_other

Question: Specify other

Description: This variable allows the respondent to specify other diseases spread to people by rats.

Type of Data: Free-text

Variable Name: lassa_disease_aware

Question: Have you heard about a disease called Lassa fever?

Description: This variable captures whether the respondent has heard about a disease called Lassa fever. If the respondent answers “Yes” to this question or selects “Lassa fever” in the previous question, they will be prompted to provide more information about their knowledge of Lassa fever.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: lassa_source

Question: Where have you heard about Lassa fever?

Description: This variable captures the sources from which the respondent has heard about Lassa fever.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Television (Code: television)
- Option 2: Radio (Code: radio)
- Option 3: Social media (Code: social_media)
- Option 4: Pamphlets/Posters (Code: pamphlets_posters)
- Option 5: Newspapers (Code: newspapers)
- Option 6: Hospital or health centre (Code: hospital_or_health_centre)
- Option 7: Place of worship (Code: place_of_worship)
- Option 8: Government sources (Code: government_sources)
- Option 9: School/University (Code: school_university)
- Option 10: Word of mouth (Code: word_of_mouth)
- Option 11: Other (Code: other)

Variable Name: lassa_source_other

Question: Specify other

Description: This variable allows the respondent to specify other sources from which they have heard about Lassa fever.

Type of Data: Free-text

Variable Name: `lassa_infection_source`

Question: How can humans get infected with Lassa fever?

Description: This variable captures how humans can get infected with Lassa fever.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Don't know (Code: `dont_know`)
 - Option 2: Contact with rats (Code: `contact_rats`)
 - Option 3: Contact with people (Code: `contact_people`)
 - Option 4: Dirty environments (Code: `dirty_environments`)
 - Option 5: Witchcraft (Code: `witchcraft`)
 - Option 6: Weather (Code: `weather`)
 - Option 7: Other (Code: `other`)
-

Variable Name: `human_lassa_infection_other`

Question: Specify other

Description: This variable allows the respondent to specify other ways humans can get infected with Lassa fever.

Type of Data: Free-text

Variable Name: `rodent_contact_lassa`

Question: What type of contact with rats can spread Lassa fever?

Description: This variable captures the types of contact with rats that can spread Lassa fever.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Eating rats (Code: `consumption_rat`)
 - Option 2: Being scratched/bitten by rats (Code: `rat_wound`)
 - Option 3: Touching rats (direct contact) (Code: `touch_rat`)
 - Option 4: Contact with their faeces or urine (indirect contact) (Code: `contact_excreta`)
 - Option 5: Other (Code: `other`)
-

Variable Name: `rodent_contact_lassa_other`

Question: Specify other

Description: This variable allows the respondent to specify other types of contact with rats that can spread Lassa fever.

Type of Data: Free-text

Variable Name: `rodent_species_lassa`

Question: Which type of rats can spread Lassa fever?

Description: This variable captures which type of rats can spread Lassa fever.

Type of Data: Free-text

Variable Name: `rodent_species_lassa_explicit`

Question: Do any of these rats spread Lassa fever?

Description: This variable captures whether any of the specified rat species spread Lassa fever.

Type of Data: Multiple-select

Options for Responses:

- Option 1: Yes (Code: `yes`)
 - Option 2: No (Code: `no`)
-

Variable Name: `lassa_diseases_other`

Question: Specify other

Description: This variable allows the respondent to specify other diseases spread to people by rats.

Type of Data: Free-text

2.1.4.13 Under-12 demographics. These questions are only asked of individuals under the age of 12 who will only be providing a DBS.

Variable Name: child_first_name

Question: What is the first name of this child?

Type of Data: Free-text

Variable Name: child_surname

Question: What is the surname of this child?

Type of Data: Free-text

Variable Name: child_under_1

Question: Is this child younger than 1 year old?

Description: This variable captures whether the child is younger than 1 year old. If **child_under_1** is 'yes', the age of the child will be captured in months using the variable **age_in_months**. If **child_under_1** is 'no', the age will be captured in years using the variable **age_under_12**.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: no)

Variable Name: age_under_12

Question: Age in years

Description: This variable captures the age of the child in years if they are older than 1 year old. Only asked when **child_under_1** is 'no'.

Type of Data: Integer

Variable Name: age_in_months

Question: How old is this child in months?

Description: This variable captures the age of the child in months if they are younger than 1 year old. Only asked when **child_under_1** is 'yes'.

Type of Data: Integer

Variable Name: sex_under_12

Question: Sex

Description: This variable captures the sex of the child.

Type of Data: Single-select

Options for Responses:

- Option 1: Female (Code: female)
- Option 2: Male (Code: male)

Variable Name: community_pob_under_12

Question: Is the community we are currently in your place of birth?

Description: This variable captures whether the community the child is currently in is their place of birth.

Type of Data: Single-select

Options for Responses:

- Option 1: Yes (Code: yes)
- Option 2: No (Code: np)

Variable Name: country_of_birth_under_12

Question: What country were you born in?

Description: This variable captures the country of birth of the child if the current community is not their place of birth. Asked when **community_pob_under_12** is 'no'.

Type of Data: Free-text

Variable Name: state_of_birth_under_12

Question: What state were you born in?

Description: This variable captures the state of birth of the child if the current community is not their place of birth. Asked when **community_pob_under_12** is 'no'.

Type of Data: Free-text

Variable Name: region_of_birth_under_12

Question: What LGA were you born in?

Description: This variable captures the LGA of birth of the child if the current community is not their place of birth. Asked when **community_pob_under_12** is 'no'.

Type of Data: Free-text

Variable Name: village_of_birth_under_12

Question: What is the name of the village you were born in?

Description: This variable captures the village of birth of the child if the current community is not their place of birth. Asked when community_pob_under_12 is 'no'.

Type of Data: Free-text

Variable Name: year_arrived

Question: What year did you move to this community?

Description: This variable captures the year the child moved to the current community if it's different from their place of birth.

Type of Data: Integer

2.1.4.14 Consent and DBS photographs.

Variable Name: consent_p1

Question: Take a photo of the signature page of the consent form.

Description: This image is a photograph of the signature page of the consent form signed by the participant or their legal guardian, indicating their consent to participate in the study.

Conditions: This image is required for all participants as part of the consent process.

Maximum Image Size: 640 pixels

Variable Name: blood_spot

Question: Take a photo of the blood spot card, with its label attached that will be used for this participant.

Description: This image is a photograph of the blood spot card with its label attached. The blood spot card will be used for collecting blood samples from the participant. This image is required if the participant has consented to provide a blood sample.

Conditions: This image is required if the participant has consented to provide a blood sample. It is triggered when the participant indicates their consent for blood sample collection.

Maximum Image Size: 640 pixels

Variable Name: confirm_blood_spot

Question: Type the label of the blood spot card here.

Description: This text field is used to input the label of the blood spot card attached to the blood sample collected from the participant. This is used for confirmation and matching individuals to their sample. It is required when the participant consents to provide a blood sample.

Conditions: This field is required if the participant has consented to provide a blood sample. It is triggered when the participant indicates their consent for blood sample collection.

Linking IDs to samples?

2.1.5 Human serology

2.1.6 Rodent trapping

2.1.7 Rodent serology/PCR

2.1.8 Other