

## PARTICIPANT INFORMATION SHEET – Full Participation

**Title of the study:** Geographic environments, daily activities and stress

**Acronym:** FragMent - Survey

**Principal investigator:** Dr. Camille Perchoux

Welcome to the FragMent Survey which investigate the impact of our “Geographic environments and daily activities on stress”. We hereby invite you to participate in a scientific study led the the Luxembourg Institute of Socio-Economic Research (LISER). The FragMent project was funded by the European Union, under the European Research Council (ERC) Starting grant program. Grant Agreement No. 101040492. This information sheet aims to provide you with comprehensive details to enable an informed decision regarding your consent to participate. Your participation in this study is entirely voluntary. It is important to note that the LISER Research Ethics Committee approved this study on September 21st, 2023.

### WHAT IS THE AIM ?

The FragMent project aims to better understand the impacts that the environments in which we live and travel, as well as our daily activities have on momentary, daily and chronic stress in Luxembourg. More specifically, FragMent has three objectives:

- Identifying the stressfull and restorative characteristics of the environments we encounter during our daily activities.
- Understanding how our daily activities (what we do, when, and with whom) further contribute to fuel our stress within these environments.
- Evaluating to what extent certain social groups may be more vulnerable to these stressors than others.

### ELIGIBILITY

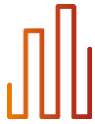
To participate in this study, you must meet the following eligibility criteria: you are aged between 18 and 65 years old, reside in the country of Luxembourg, and are fluent enough in French, German or English.

### PROCEDURES

This study covers two distinct research procedures. The first involves collecting data on your chronic stress and your environment based on an [Online Survey](#). The second involves collecting information on your momentary stress, your mobility, daily activities and environment based on a [Mobile Survey](#).

#### Online survey

Once you have signed the consent form and completed the eligibility questionnaire, you will be requested to complete two online questionnaires. Each one will take you less than 30 minutes. The first questionnaire focuses on your chronic stress and well-being, some behaviors (physical activity and



sleep), your neighborhood environment, your transport habits, household composition and demographics. The second questionnaire is a map-based questionnaire, collecting information on the locations you regularly visit, your interactions with others, and your modes of transportation. This data will help us in examining the links between the environment you are exposed to on a regular basis, your regular activities, and chronic stress.

### **Mobile survey with an app tailored for the FragMent study**

This survey is designed to integrate into your everyday life, with the assistance of the FragMent smartphone application. You will be invited to either i) download the FragMent app on your smartphone if you own an **Android smartphone**, or ii) to request a smartphone with the app pre-installed by the study team if you own a **iOS smartphone, if you prefer not to use your own smartphone, or if you do not have one**.

Over a period of 15 days, the app will register your location data through your phone's GPS. It will help us understand the stressful and restorative environments you are in contact with during the course of your day. You will further be contacted via the app at various times, and asked to answer short questions about your current situation (i.e., activity, stress, environment, interaction with others). Within the 15 days, on average, you can expect to receive 4 to 6 contact requests per day. Each questionnaire will take approximately 1 to 2 minutes to complete, and it is entirely optional to participate. Via the app, you'll be invited to take part in regular audio recordings. You can choose whether or not to respond. This data is of great importance as we aim to identify stress-related signals in vocal characteristics (intonation or pitch, for example).

### **RISKS AND POSSIBLE INCONVENIENCES OF THE STUDY**

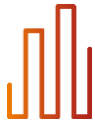
There are no major risks associated with this study. The risks listed below are associated with the processing of your data.

Since the FragMent Survey is conducted online, there is a potential risk of cybersecurity (hacking of the participant account) and breach of confidentiality. This could lead to a privacy breach of health, voice, locational and personal data. Though the probability of such a risk is minimal, it is important to acknowledge that absolute risk elimination is not possible. To mitigate this risk, LISER has implemented robust data protection measures.

To measure stress in your voice, we will use Artificial Intelligence (AI) algorithms that will include profiling methods, based on the characteristics of your voice (i.e., pitch, intonations, etc.), and the other data collected in the online and mobile survey. The AI system is not used to take any decision, or to interact with the participants. The risk of harming the participants or their autonomy is reduced to its minimum. Specific attention and appropriate measures are taken to accurately measure stress in the voice, accounting for the participant language, accent, and personal characteristics.

### **UNEXPECTED FINDINGS**

All information collected or processed in this survey (stress detection in the voice, mental or psychological quality of life questions) does not constitute a medical diagnosis.



However, the data may reveal indications of stress or highlight well-being concerns that were previously unknown. Based on the **explicit demand of the participant**, the research team can transfer his data to the participant, to offer the possibility to discuss them with a general practitioner in a medical context. Contact information available at “How can you contact the research team if you have any questions?”.

#### **DO YOU HAVE TO FILL ALL THE QUESTIONNAIRES OR TO ANSWER ALL THE QUESTIONS?**

No, there is no obligation to complete all the questionnaires or answer every question. The decision to participate in the study is entirely up to you, and you have the freedom to withdraw at any time without providing reasons. Withdrawal from participation or revocation of consent will not result in any negative consequences. Your choices and decisions throughout the study process will be respected.

#### **BENEFITS TO TAKE PART IN THE STUDY**

Although you will not receive any direct benefits for your participation in the survey, your participation is important to provide evidence of the different elements of our cities that can be addressed to reduce stress in everyday life. It has the potential to enhance your overall quality of life and can contribute to create positive impacts for individuals and communities.

#### **HOW CAN YOU CONTACT THE RESEARCH TEAM IF YOU HAVE ANY QUESTIONS?**

If you have any questions, you can contact the LISER research team, at [fragmentproject@liser.lu](mailto:fragmentproject@liser.lu). We will answer your questions in the best of our capacities. You can also have a look at our **Frequently Asked Question (FAQ)** section in the **Support to Participants** page of the FragMent website ([www.fragmentproject.eu](http://www.fragmentproject.eu)).

## DATA PROTECTION SHEET – Full Participation

**Title of the study:** Geographic environments, daily activities and stress

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**Principal investigator:** Dr. Camille Perchoux

### CONFIDENTIALITY AND PROTECTION OF PERSONAL DATA

As part of the study entitled FragMent, we will need to collect and process some of your personal data in order to achieve the scientific objectives of the Study.

The LISER is responsible for the collection, the analysis and more generally the processing of your personal data and ensures their protection, in accordance with the General Data Protection Regulation (EU) 2016/679 of 27 April 2016 (GDPR) and any subsequent text replacing or supplementing this text, in particular the Luxembourg law of 1 August 2018 on the organisation of the National Commission for Data Protection and implementation of the GDPR.

### WHAT DATA DO WE COLLECT

Your participation in the FragMent Survey involves the collection of personal data about you, in order to achieve the scientific objectives of FragMent.

We will collect the following data by means of secured electronic questionnaires:

- **When you register**, to check that you meet the criteria for taking part in the study: age, name and surname, contact details (email address), municipality of residence, education level, how you want to engage in the study (complete or partial option), and if you want the research team to provide you a phone for the time of the study.
- **Two online questionnaires**, that will cover:
  - o Your neighborhood environment: perception of your built, natural and social environment
  - o Your daily activities: locations, related transportation modes, and social interactions with others
  - o Your health: chronic stress, well-being, physical and psychological quality of life
  - o Your personal life: physical activity and sleep habits, personality, household composition, socio-demographics
- **Mini questionnaires supported by the FragMent smartphone app (15 days)**, that will cover momentary stress, mood, perceived environment, social interactions with other
- **GPS location supported by the FragMent smartphone app**, during 15 days.
- **Vocal recordings**, supported by the FragMent app (15 days): From time to time, we will invite you to make recordings of your voice. Each time you will be asked to give your active consent to do the recording. This data is important for researchers because the voice can express emotions, and analysing it may enable a link to be made with your stress level. These recordings will be used to train an AI specifically developed for the project, aimed at analyzing and predicting the stress levels of participants. By applying these technologies, we hope to



achieve more accurate and timely insights into stress patterns, which could lead to better-targeted interventions.

### ON WHAT LEGAL BASIS?

The use of your personal data is based on your explicit consent (art. 6.1a and 9.2a of the GDPR). You can accept or refuse the use of your data collected as part of this study for other purposes by ticking the appropriate box on the consent form.

### WHO HAS ACCESS TO YOUR DATA?

Only the following categories of people may access your data, within the limits of their respective duties:

In the case of your personal or directly identifying data (surname, name, e-mail):

- Authorised members of the LISER Information System Platform (ISP) who will have access to the FragMent Survey correspondence table linking your personal data to the code allocated to you in the project.

In the case of coded (pseudonymised) or aggregated (anonymous) data:

- the scientific head of the FragMent Survey at the LISER, and the team acting under her responsibility,
- the researchers or research organisations in the public sector (such as the Luxembourg Institute of Health (LIH), Luxembourg Institute of Science and Technology (LIST), University of Luxembourg, French National Institute of Health and Medical research (Inserm), etc.) in order to meet the objectives of the study or for future scientific research purposes. No data allowing to reveal your identity are shared with them.

The data you entrust to us will be treated with the utmost care and confidentiality. However, if we receive requests for information from authorities such as the judicial or administrative authorities, we will comply with the applicable laws and regulations.

### WHAT ARE YOUR RIGHTS?

You have the right to access and rectify your personal data. Under the conditions laid down by law, you have the additional rights to object to the way in which your data is used, to request the deletion of your data, to request the restriction of certain aspects of the processing of your data, to recover your data with a view to passing it on to a third party (right to portability), and to withdraw your consent at any time to the processing of personal data. However, please note that if you withdraw your consent, and the investigators have already collected and analyzed data for research, the withdrawal of consent does not affect the lawfulness of processing based on consent before such withdrawal. If you wish to exercise your rights, you can contact the LISER Data Protection officer. Finally, you have the right to lodge a complaint with the National Data Protection Commission (CNPD) regarding the processing of your personal data.



If you have any queries about the LISER's processing of your personal data, you can contact the LISER's Data Protection Officer by e-mail at [dpo@liser.lu](mailto:dpo@liser.lu) or by post at the following address:

LUXEMBOURG INSTITUTE OF SOCIO-ECONOMIC RESEARCH

Data Protection Officer

Maison des Sciences Humaines

11, Porte des Sciences

L-4366 ESCH-SUR-ALZETTE / BELVAL

### HOW DO WE PROTECT YOUR PERSONAL DATA?

The LISER implements appropriate security measures, depending on the sensitivity of the data concerned, in order to protect your data against the risk of unauthorised access, loss, fraudulent use, disclosure, alteration or destruction.

Your data will be treated as strictly confidential. They will be pseudonymised, i.e. a confidential reference code will be used instead of your name. This code alone cannot be used to identify you directly and will be used solely for the scientific processing of your data. At no time will your identity appear in a document intended for the public or other institutions. The correspondence table establishing the link between the reference code and your e-mail will be kept by authorised members of the LISER Information System Platform (ISP) in a confidential and secure manner and separately from other study data. Only a limited number of people have access to it (see "Who has access to your data" above).

The LISER also applies the principle of data separation, i.e. identification data on the one hand and research data on the other are stored on separate secured storage space, so as to limit as far as possible the potential risks of re-identification. Despite all our security efforts, the risk of a data breach is not zero, but it can be described as very low.

### HOW MUCH TIME DO WE KEEP THEM?

The project should end on September 30th, 2027. Your data will be kept, in compliance with legal provisions, for a period of 10 years from the end of the study. After this period, your data will be anonymized. If you no longer wish to participate in the study, your data collected prior to the withdrawal of your consent may be retained and used in the study, unless you object. In this case, they will be destroyed. However, if some of your data have already been used in some analyses or publications, they may no longer be withdrawn from the study.

### DATA TRANSFERT OUTSIDE THE EUROPEAN UNION

No data transfert outside the European Union will be performed.

For more detailed information on the appropriate measures implemented by the LISER, you may send a written request to the LISER Data Protection Officer by e-mail to [dpo@liser.lu](mailto:dpo@liser.lu).

## INFORMED CONSENT FORM – Full participation

### Title of the study: *FragMent – Geographic environments, daily activities and stress*

I hereby declare having received enough information about this study from the principal investigator. I have read the attached information sheet and understood its meaning. I am aware that my participation in this study is entirely voluntary and that I can withdraw at any time without any disadvantages.

My personal data will be treated in a strictly confidential way, as foreseen in the General Data Protection Regulation (EU) 2016/679 of 27 April 2016 and the Act of 1 August 2018 on the organization of the National Data Protection Commission and the general data protection framework (articles 63 to 65). I understand the reasons for which these data are collected, treated and used in this study.

The legal basis of processing your personal data in studies is your consent (GDPR Art. 6.1a and 9.2a).

	YES	NO
I agree to voluntarily take part in the study, with the <b>Full participation option</b> including the online questionnaires and the mobile survey, and I give my consent to the collection and use of my personal data (including my sensitive personal data), as described in the participants' information sheet.	<input type="checkbox"/>	<input type="checkbox"/>
I want to be informed about the scientific results of this research project.	<input type="checkbox"/>	<input type="checkbox"/>
I consent to the secondary use of my data obtained as part of the study for other research in the field of health and health geography (this consent is optional and is not a prerequisite for your participation).	<input type="checkbox"/>	<input type="checkbox"/>
I agree to be recontacted by the person responsible of the study or a member of LISER for a potential follow-up or the participation in another research project in the field of health or geography, in the period (until September 2037) during which my pseudonymised data will be stored.	<input type="checkbox"/>	<input type="checkbox"/>



Participant's Name: \_\_\_\_\_

Date: \_\_\_\_\_

Signature of Participant: \_\_\_\_\_

Part reserved to the investigator:

I hereby certify, Camille Perchoux, having informed the above participant about the objectives, the nature, the duration and the risks of this study and certify that he / she has agreed to take part in this study.

Date: 29/07/2024

Signature:

**Done in two electronic copies, one to be download and kept by the participant and one by the principal investigator by ticking the box on the web page, and clicking on "I consent".**

If there are any questions, you can always contact the researcher team:

<i>Project leader:</i>  <i>Camille Perchoux</i> <i>Research Scientist in Health Geography</i>  <i>Department of Urban Development and Mobility</i> <i>Luxembourg Institute of Socio-Economic</i> <i>Research- (LISER)</i> <i>Maison des Sciences Humaines</i> <i>11, Porte des Sciences</i> <i>L-4366 Esch-sur-Alzette</i> <i>T +352 58 58 55 - 998</i> <i>camille.perchoux@liser.lu</i>	<i>LISER Information System Platform:</i>  <i>Thierry Kruten</i> <i>Head of LISER Information System Platform</i>  <i>Luxembourg Institute of Socio-Economic</i> <i>research (LISER)</i>  <i>Maison des Sciences Humaines</i> <i>11, Porte des Sciences</i> <i>L-4366 Esch-sur-Alzette</i> <i>T +352 58 58 55 – 960</i> <i>Thierry.Kruten@liser.lu</i>
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