Preregistration Template for Qualitative and Unified Studies

Version: 1.1

Preparation

(Tentative) Title of project

Environmental sustainability in dental care: Exploring current practices and ethical challenges

Contributors

Please list the contributors and their roles. For the latter, you can use CRediT (Contributor Roles Taxonomy), for example.

Szilárd Dávid Kovács: Conceptualization, Data Curation, Formal Analysis, Funding acquisition, Investigation, Project administration, Writing – original draft

Tamás Demeter: Conceptualization, Methodology, Validation

Mai Thị Quỳnh Bùi: Conceptualization, Software, Formal Analysis

Szilvia Zörgő: Conceptualization, Software, Formal Analysis, Methodology, Supervision, Validation, Writing – review & editing

Research aims

Please state the aims of your research. Your aim may be different across different domains (e.g.: knowledge generation, policy development, community resourcing). If so, specify your aim for each domain that is relevant for your study.

Our primary aim is to contribute to bioethical discourse on how a 21st-century dentist should integrate sustainability into their practice, carefully balancing it with other priorities, particularly the immediate interests of the patient. We also aim to inform potential policy considerations that promote sustainability in dentistry and to develop educational materials for practitioners to adopt sustainable practices.

Aim type

What type of study are you conducting? Exploratory projects, for example, may not have any hypotheses or even specific research questions, their aim is to explore a general topic, community, or practice. Confirmatory studies have specific hypotheses that are either proven or disproven.

This is an exploratory project.

Research question

Please state your research question(s). Research questions are subject to change and/or elaboration. Some beneficial times to review these questions may be at, e.g.: 1) preregistration, 2) after the first instances of data collection, 3) when discussing the first results, 4) when starting write-up of findings.

RQ1: What are the practices of dentists in private and public clinics within the Budapest metropolitan area regarding the adoption of sustainable options? In what ways are dentists' practices oriented toward:

- Reducing waste disposal?
- Applying a preventive approach when treating patients?
- Applying digital technologies in their practices?

RQ2: How do dentists in private and public clinics in the Budapest metropolitan area perceive their practices related to sustainable alternatives? Namely, how do dentists perceive their efforts in:

- Reducing waste disposal in their practices?
- Applying a preventive approach when treating patients?
- Applying digital technologies in their practices?

RQ3: What barriers do dentists in private and public clinics in the Budapest metropolitan area report as influencing their decisions to adopt more sustainable practices? How do dentists describe the challenges of:

- Reducing waste disposal?
- Applying a preventive approach when treating patients?
- Applying digital technologies in their practices?

Theoretical framework / Use of theory

Please specify the role of theory in your study. You may be using theory e.g., to design your methods (including the sampling strategy and coding instructions), to explore constructs defined in the theory more in-depth, or to test and expand on a certain theory. Note that this is a good moment to reflect upon your existing expectations and personal preconceptions, and think about whether these derive from theory. If so, indicate that here or in the "Positionality" item (in the Positionality and Credibility section).

Studies on sustainability in healthcare may either adopt a more comprehensive perspective examining the healthcare sector in its entirety, or a more focused approach, addressing the specifics of operating a sustainable clinic. Mehra and Sharma take a broader approach, identifying three dimensions of sustainable healthcare: environmental, social, and economic. Within the economic dimension, two measures —"research and innovation" and "indigenous production"—are the primary drivers of sustainable alternatives. These, in turn, support all measures within the environmental dimension ("circular practices", "facilities design", "waste reduction and management", "sustainable procurement"). Ultimately, according to the authors, these measures enhance patient satisfaction, savings in operational costs, and affordability. An exception within this framework is "sustainable health," which stands as an autonomous measure and is defined as the focus on disease prevention. (1) In contrast, Beşiroğlu et al. focus specifically on the operation of a dental clinic and delineate the following key areas to achieve sustainability: 1) Reducing patient and staff travel 2) Reducing waste disposal (rethink, reduce, reuse, recycle) 3) High-tech innovations 4) Energy consumption of the building (2). This framework emphasizes readily available alternatives, overlapping significantly with the environmental dimension of Mehra and Sharma's model (1), while not addressing the economic foundation required to develop these alternatives, nor the long term social impacts that they engender. However, these areas also overlap with the "sustainable health" measure, as disease prevention reduces the need for further visits (3).

Given our focus on the responsibilities of dentists in patient care, we exclude aspects not directly related to patient treatment (namely the building's energy consumption and staff travel). This leaves three core areas of interest: *reducing waste disposal*, *adopting technological innovations*, and *minimizing patient travel*. To assess waste reduction, we use a dichotomous scale to distinguish between environmentally more or less sustainable choice of items (e.g., single-use or multi-use). The use of digital technologies is measured by determining whether dentists opt for conventional or digital alternatives in their practice, as conventional methods also produce more waste. While minimizing patient travel is a complex issue influenced by treatment needs and patient compliance—factors beyond the dentist's direct control—we measure the implementation of primary prevention strategies, as a means to reduce both future patient travel and subsequent waste production.

Paradigm

Please elaborate if your research is conducted from a certain theoretical paradigm (e.g., social constructionism, positivism, post-positivism, critical theory, etc.). How will this paradigm influence your research?

Our paradigm is most accurately described as *postpositivist*. We acknowledge that the researchers will not remain independent from the researched phenomena, as we recognize a continuum of practices ranging from “preferable" (more sustainable) to “undesirable” (less sustainable). This viewpoint drove the construction of the data collection tools, impacting, for example, the type of data we will collect when observing everyday clinical practice. Additionally, our analysis will be guided by an evaluation of sustainability in these practices, incorporating reflections from dentists on their sustainability efforts and identifying barriers and opportunities for implementing sustainable approaches. In accordance with the postpositivist paradigm, we will triangulate data obtained via two different data collection methods (observation and interviews), consider these data as complementary for the phenomena under scrutiny, and we plan to triangulate findings, as well as aggregate data across multiple data providers.

Basic data

Please specify whether you are working with original or pre-existing (secondary) data.

Our project will collect original data.

Project stance

At what stage is your project currently in (e.g., research design, data collection)?

The project is currently in the phase of research design.

Anticipated duration

How long do you imagine the study taking, from its preregistration to the final write-up of results?

The project receives funding until August 2025, therefore our plan is to conclude it by then.

Sampling

Population

How do you define your study population?

Our target population is Hungarian dentists. Our study will take place at public and private dental clinics in the Budapest metropolitan area (4), and the participants will be the dentists at these clinics.

Sampling strategy

Please describe your sampling strategy (e.g.: convenience, snowball, theoretical, maximum variation, (non-)proportional quota, random, mixed), providing a short rationale for why you selected it. Describe inclusion and exclusion criteria.

We will utilize quota sampling. For the stratum sex, we follow proportional quota-sampling, for two key reasons. Firstly, literature indicates differences between sexes in waste management practices (5,6). Secondly, Gilligan's theory suggests that men and women generally perceive ethical challenges differently (7). The sample will reflect the distribution of dentists in Hungary, where two-thirds are female and one-third are male (8). For our other stratum, the clinic's funding source, we utilize non-proportional quota sampling due to the significant overlap of dentists working in both public and private clinics. We will ensure that at least one-third of the sample represents one of the funding types: privately funded or publicly funded clinic. Literature indicates public healthcare produces more waste than private healthcare associated with the different types of medical interventions typically performed in each sector (9–11). Although there is no information whether this distinction applies to dentistry, interventions may vary between sectors, as prosthetics for patients under the age of 62 and cosmetic interventions such as tooth bleaching are not covered by public dental services in Hungary.

Inclusion criteria: Dentists employed at clinics with a valid permit for independently performing dental treatments in Hungary

Exclusion criteria:

- No valid permit for independently performing dental treatment in Hungary (e.g., dental students under supervision, foreign trained dentists practicing under supervision);
- Leaders of the Workgroup for Environmentally Friendly and Sustainable Dentistry and dentists working at clinics claiming their practice is concerned with environmental sustainability on their websites, as their perspectives are less likely to provide insights into the barriers faced by the broader dental community in incorporating sustainable practices

Recruitment

Please describe from where you are recruiting the participants for your study and how you will be getting in touch with them. Are you providing any compensation for participation?

Heads of dental clinics will be approached via their publicly available email addresses. Individual dentists will be recruited with the cooperation of these interlocutors. Given the recruitment method, the researchers will ask for participants' informed consent and will provide them materials of the project concerning what participation entails, the processing of the data they provide, how to withdraw, and contact information of the research team.

Our recruitment materials are available at: https://osf.io/bmnht

Sample size

Planned number of participants (i.e., data providers or cases) and your justification or rationale for this number or range.

Our planned sample size is 40 dentists with 4 observed sessions per dentist. However, the final sample size will be determined via theoretical saturation.

Transferability of results

Given your sampling plans, to what or whom do you expect your procedure or findings to be transferable? In other words, to what group of cases or circumstances will your findings be applicable or feasibly true?

Given our sampling plans, the findings of our study are expected to be transferable primarily to Hungarian dentists. The findings may also be relevant to similar contexts in the European Union, variations in the frequency of procedures should be considered, as most EU countries offer a narrower range of interventions available in public dentistry compared to Hungary (12,13).

Data Collection

Data collection method

Please indicate the data collection procedure(s) you will use (e.g.: semi-structured interview, structured interview, focus group, enabling technique, self-report, field notes, diary, participant observation, observation, archival research, survey).

Structured observations, structured interviews, sociodemographic survey

Type of raw data

In what form will you be collecting data for your study (e.g.: audio, video, audio-video, text, numerical)?

The raw data of the observations will be numerical and categorical data. The raw data of the interviews will be audio data. The raw data of the sociodemographic survey will be textual, numerical and categorical data.

Data providers

Your study may be conducted with individuals but data is recorded among dyads or groups; individuals may not be considered separately. Thus, please indicate who/what you consider data providers in your study (e.g.: individual, dyad, group (≥3), individual and group).

We consider individual dentists as data providers.

Data collection tools

Please describe or upload the tools, instruments, or plans you will use in collecting or generating your data (e.g.: topic guide, interview structure, questionnaire, focus group guide, observation scheme, standardized prompts, protocol, archival search interfaces and queries).

The repository for our project is available at the following link: https://osf.io/472r6
The observation template and protocol is available at the following link: https://osf.io/ew6uv
The interview guide is available at the following link: https://osf.io/v8c32
The sociodemographic survey is available at the following link: https://osf.io/xvndp

Stopping criteria

Please describe the criteria or rationale for stopping data generation or collection. These can differ for various aspects of the project (e.g.: data saturation (please elaborate), when inclusion criteria are satisfied, resource constraints (e.g. time/funding), when the analysis has produced an enriching answer to the research question(s)).

Data collection will stop once we have reached the planned sample size and met our quotas and/or theoretical saturation has been reached.

Metadata or Attributes

Please specify what constitutes metadata or attributes (data about data providers, data collection, or data itself) in your study. Examples include: participant age, sex, education; interviewer, date of interview, timestamp.

Dentists: Private or Public, ID, Sex, Age, Accredited specializations

Sessions: ID, Type of procedure

Coding

Type of coding

Please indicate whether you will be developing your own codes (inductively) or adopting codes from a previous study or theoretical framework (deductively). You may be using a combination of these, e.g., inductively developing codes through test coding and then deductively applying the final code scheme.

Observation: The data will be coded deductively, as the observation is carried out.

Interviews: A coding scheme will be developed via a guided inductive approach and subsequently applied deductively to the dataset.

Code(book) development

Please describe in detail the stages of code(book) development. If applicable, you may upload/link to different code schemes developed before triangulation, as well as anything in the process of creating the final codebook, including the codebook itself.

Observation codes: Observation codes correspond to the items and events in the observation template.

Interview codes: Two raters will co-create a tentative codebook based on the examined dimensions of sustainability (sustainable choice in items, preventive approach, usage of digital technologies) and the research questions. Researchers will juxtapose the items and events in the observation and the coding scheme of the interviews to create a coherent framework. Subsequently, the raters will individually conduct guided inductive coding on 10% of the data. The raters will then triangulate their results and create a tentative codebook, containing code labels, code identifiers, definitions, and examples. In a second round, the raters will individually code another 10% of the data with the tentative codes, and modify the tentative codebook accordingly, if necessary. This iterative process will continue until a final codebook is developed and the raters reach a .95 ≤ Kappa.

Code structure

Describe the final code structure, if you have it at the time of preregistration. For example, is it flat or hierarchical (e.g., how many levels of abstraction, how many codes on each level)? Is it a network structure (e.g., for use in the Qualitative Network Approach) defining relationships between codes?

Observation codes: The code structure is hierarchical with two levels. The parent codes are the examined dimensions of sustainability, whereas the child codes are the items in each dimension.

Interview codes: This is not decided at this point, however a hierarchical code structure is more likely when coding responses to questions about self-perception, as the initial ideas guiding the inductive code development may serve as parent or grandparent codes. The interview segments addressing barriers of sustainability will be coded using a network code structure.

Code application

Are you using manual coding (each instance of a code is applied intentionally by the researcher with or without the help of a machine/software) or automated coding (machine performs coding based on an algorithm with or without parameterization by the researcher) or a combination of both?

We will be employing software-assisted manual coding for interview data. Coding of observations will be conducted by hand and converted to a human- and machine-readable format.

Process of coding

Are coders applying the same or a different set of codes (e.g., one coder applies all codes, all coders apply different codes, all coders apply same codes, mixed)?

The researchers conducting the observations will not participate in analyzing the interviews, and vice versa.

Type of coders

Who or what is performing the coding (e.g., human only, computer only, human and computer)?

Human only.

Number of coders

How many coders are performing coding? If automated coding is (also) being used, please include the computer as a "coder".

Two research assistants will conduct the observations. The interviews will be coded by two researchers.

Classifiers

Are you using classifiers (e.g., regular expressions) for automated coding? If so, please elaborate your considerations in developing your classifiers. Provided you have them at the time of preregistration, please list/upload/link your classifiers.

We are not employing automated coding.

Coding tools

Are you planning on using any specific tools for performing coding (e.g.: interface for the Reproducible Open Coding Kit (iROCK), nCoder, NVivo, Atlas.ti)?

For interviews: Interface for the Reproducible Open Coding Kit (iROCK)

Coder training

Will you be providing any training for coders? If so, please describe this process below. If coders received any previous relevant training, you may indicate that here as well. If you are not planning to provide training, you can explain your rationale here.

Observation: Coder training will be provided consisting of coding conceptualization, observation protocol, and reviewing the precise definition of the codes and practice rounds.

Interviews: We will involve a researcher with experience in qualitative coding, therefore training will only encompass specifics of our research: our theory of sustainable dentistry, the research questions, and familiarization with the observation protocol (to align codes according to RQ2), and training on applying the developed codes.

Operationalization of source

What data will your sources (codable or coded files) contain (e.g.: one interview, a series of interviews, all think-aloud entries from a participant)?

For observation: one session (plain text file)
For interviews: one interview transcript (plain text file)

Coder agreement

Inter-coder agreement

Are you planning to examine agreement between coders in any way? If so, how? If you are not planning to do this, you can explain your rationale here.

Before beginning final coding, raters will compute inter-coder agreement via coding a section of the interview data. Our goal is to reach .95 ≤ Kappa.

Intra-coder agreement

Are you planning to examine the degree to which the application of codes changes over time within the work of the same coder? If so, how? If you are not planning to do this, you can explain your rationale here.

Raters coding interviews will compute intra-coder agreement after every five interviews. Our goal is to reach .95 ≤ Kappa

Segmentation

Lowest level of segmentation

Define the smallest meaningful unit of segmentation in your data (one sentence, one log entry, one second, etc.).

Observation: one item in the observation template in a session

Interviews: one sentence

Other levels of segmentation

Define any other level(s) of segmentation (intermediate, highest). For example: a topic, psychological proximity, recent temporal context, utterances from one participant during one session, an interview transcript, a focus group session transcript, log entries within the duration of 24 hours, observations from one group performing one task, etc.

- Sustainability dimensions of one session (material usage in one session, preventive approach of one session, digital technology usage of one session)
- Sustainability dimensions of one dentist (material usage in one dentist, preventive approach of one dentist, digital technology usage of one dentist)
- Perceived efforts by one dentist in applying sustainable alternatives (perceived sustainable material usage by one dentist, perceived application of a preventive approach by one dentist, perceived use of digital technology by one dentist)
- Reported barriers by one dentist in applying sustainable alternatives (reported barriers of using more sustainable materials by one dentist, reported barriers of applying preventive approach by one dentist, reported barriers of digital technology use by one dentist)

Type of segmentation

Please indicate whether you will be performing segmentation manually, automating it, or a combination of both. This answer may differ depending on level of segmentation; please indicate separately for each level of segmentation you plan to implement. Answers may include: automated, manual, automated and manual, not applicable.

Manual

Coding and segmentation level

Please indicate on which level(s) of segmentation you will be performing coding. You may want to distinguish between coding a narrative and designating attributes or metadata.

Observation codes will be applied for an item or event in the observation template per session.

Interviews will be coded per sentence.

Data Management

Data management plan

Please provide a link to your data management plan or describe it here below. (For a collaborative DMP tool, see here.)

The raw data of the research consists of the filled-out observation template, audio recordings of the interviews, and responses to the sociodemographic survey. The observational data is anonymized when collected. These will be made publicly available with the participants' consent.

The audio recordings of the interviews will be transcribed into text by a researcher, who also anonymizes the data (e.g., name, location, workplace, job title) during the transcription process (for our detailed guidelines, see: https://osf.io/crg2a) The audio recordings are encrypted and stored in the cloud with a GDPR-compliant service; automated transcription will be performed with a GDPR-compliant service as well. The audio files are stored in the automated transcription system only until the textual transcription is completed; they are stored in the project repository until the end of the research. Access to the audio files is limited to researchers who record and transcribe the interviews, while all research team members have access to files stored in the repository. The raw data are retained until write-up to resolve any ambiguities that may arise during the interpretation of the transcripts (e.g., word emphasis, ambiguous sentences, or typing errors), allowing the researchers to review the original recording. However, anonymized transcripts may be made public with the participants' consent. If the participant does not consent to making their anonymized data public, the transcript is only retained until the end of the research, and access is restricted to the research team. Participants are also permitted to make interim decisions regarding the management of their data, such as reviewing the transcript before deciding whether it can be made public. Researchers will maintain a file with participant IDs and corresponding contact information stored in a GDPR-compliant service accessible only by the researchers collecting data via observations or interviews.

Analysis

Approach

Please specify what type of analysis you are planning on conducting (e.g.: Narrative analysis, Interpretative phenomenological analysis, Grounded theory, Thematic analysis, Content analysis, Process tracing, Comparative analysis, Discourse analysis).

Observation: Descriptive statistics

Interviews: Qualitative content analysis (for self-perception on dimensions); Qualitative Network Approach (QNA) (for barriers)

Process

Please describe the process that your analysis approach requires and how you see this process manifesting in your study.

Observation: Observations are recorded directly, by assigning values in the observation template. The values designated in the template will be converted into YAML (human- and machine-readable data serialization language). Those files, in return, will be processed with the R package {rock}.

Interviews: For analysis, interviews will be divided into two sections: (1) questions and responses related to self-perception of environmental impact and (2) questions and responses concerning barriers to sustainability.

In the first section, two raters will develop codes in a guided inductive approach and develop a final codebook via social moderation.

In the second section, two coders will independently perform inductive coding on 10% of the data, generating preliminary codebooks that include code labels, code identifiers, definitions, examples, and code relationship types for QNA. While this phase remains primarily inductive, coders will be encouraged to assess whether the predefined code relationship types—e.g., temporal, structural, and causal—are applicable. The two coders will triangulate their results and establish a common tentative codebook. Subsequently, the coders will test the tentative codebook on another 10% of the data and independently modify the codebook accordingly. The results will once again be triangulated, and these steps will be performed iteratively until a final codebook is developed. Prior to coding the entire dataset, coders will assess their agreement on code application to ensure consistency. Graphs, indicating developed code relationship types, will be created with QNA.

Data transformation

If you intend to do so, describe how you will change the grouping or representation of your data in order to perform analyses (e.g.: a higher order grouping of sources, cases, or attributes, typologies).

Observations: See: *Process*.

Interviews: Audio files will be uploaded to https://alrite.io/ai/, a software specifically designed to transcribe audio files into text. A researcher will review the transcript alongside the original audio file to correct errors, apply proper punctuation based on the semantic understanding of the interviews, distinguish between the interviewer and participant statements, and anonymize participants' data. However, in this process, the researcher will be advised not to add periods after abbreviations and enumerations, as it may wrongly indicate the termination of a sentence. This instruction corresponds to the grammatical rules of the Hungarian language, as for example the 21st century is commonly referred to as “XXI.” century. The text will be segmented into sentences and prepended utterance identifiers (UIDs) via the {rock} R package .

Analytical tools

Are you planning on using any tools to perform analysis (e.g.: the Reproducible Open Coding Kit (ROCK), Epistemic Network Analysis (ENA), nCoder, Rho, Topic modelling)? If so, please specify them here.

Observation: {rock} R package

Interviews: iROCK and {rock} R package

Data Modelling

Qualitative Network Approach (QNA)

QNA code relationships

What relationships between codes are included in your model(s)? If you did not describe the development of code relationships and their definitions in the Coding subsection, please do so here.

At this point we do not foresee the relationship types yet, but we anticipate the following: causal, temporal, structural.

QNA edge representation

Please specify how you plan to indicate code relationships (e.g., color and type of line).

Causal = brown, dashed line
Temporal = blue, dotted line
Structural = green, solid line

QNA unit

What will constitute "units"; i.e., for what will you be generating networks? Please indicate it here along with a justification or rationale.

We will generate QNA graphs for individual participants.

QNA edge weights

Will you be specifying edge weights in your networks? If so, how do you plan to designate those?

Edge weight will be uniform (i.e., edges will be unweighted).

Other

Other quantitative model

If you plan to generate a quantitative model of your data with a tool not mentioned above, please describe the process here.

We will aggregate QNA network codes per subsample (e.g., private vs public, male vs female) and visualize the frequencies of relationship types with Soft Non-numeric Occurrence Estimation (SNOE) plots (part of {rock} functionality).

Positionality and Credibility

Positionality

Feel free to reflect on your relation to or association with the studied phenomenon and your position in the research setting/field, including your academic/personal standpoints, assumptions and values. In addition, if there are potential conflicts of interest, you may want to report those here.

TD, who practices dentistry with a “lifestyle medicine” lens, adopts a holistic approach that emphasizes primary prevention—a key dimension of this research. With prior experience in sustainable dentistry and waste management, TD actively promotes sustainability in his daily life and professional practice. He advocates that sustainable dentistry encompasses not only the choices made during patient treatment but also actions such as commuting to work using environmentally friendly modes of transport instead of driving.

SK, on the other hand, is newer to the practical aspects of this field, having encountered sustainability issues through his PhD studies in bioethics, where the topic is a focal point of discussion. He purposefully chose to engage in this project by focusing on areas where environmental impact can be mitigated without compromising the quality or accessibility of dental care, emphasizing practical, everyday decisions made by dentists. This approach is less controversial, thus more likely to gain acceptance among a broader audience. Furthermore, while debating more radical changes may be intriguing in an academic environment, prioritizing smaller-scale changes is a pragmatic first step in becoming more sustainable. Previously, he published an article awarded second prize at the European Society for Philosophy of Medicine and Healthcare's Young Scholar Awards in 2024 that informing patients about sustainable medical practices, and thereby potentially influencing their choices, does not necessarily violate their personal autonomy (14). This perspective extends beyond the scope of the current study, as a “green patient” may opt against interventions that are not highly beneficial for them to conserve medical resources. In accordance with the postpositivist paradigm of the project, SK acknowledges that his role as a project co-creator has influenced the development of data collection tools and will also impact data analysis, particularly in code development and the interpretation of graphs. To minimize bias, the project is designed to incorporate credibility strategies (see section below, and also sections on code development and application).

SZ does not work in the field of dentistry, neither does she have any (prior) interests in anything sustainability-related. Her interests lie in developing rigorous and innovative methods for working with qualitative data.

Credibility strategies

Please indicate any strategies you will be employing to ensure better credibility of analyses and conclusions (e.g.: member checking / respondent validation, triangulation with other data sources, asking different researchers to analyze the data, inter-coder agreement, negative case analysis, peer debriefing, cross-checks for rivalling explanations, bringing in an 'auditor', reflexivity).

Triangulation: While developing the coding scheme, the two raters will compare their codes and themes after each round of code development.

Inter-rater reliability, Intra-rater reliability: See "Coder agreement" section.

Reflexivity journal: A regularly updated, living document to be stored in the public repository.

Peer debriefing: We will validate our results with another researcher with expertise in sustainability.

Open Science

Repository

Do you currently have or are you planning to create a repository for making any aspects of your research process open (preregistration, data, code development, codebook, analysis, etc.)? If so, please indicate it here.

All of our research materials are available in our repository at: https://osf.io/472r6/

Supplementary Information

Supplement

If you have any additional comments or want to provide supplementary information/links, please do so below.

References:

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