Register

Study Information

Title:

Provide the working title of your study. It is helpful if this is the same title that you submit for publication of your final manuscript, but it is not a requirement.

Demography of Microdosing Community Survey

Authors:

The author who submits the preregistration is the recipient of the award money and must also be an author of the published manuscript. Additional authors may be added or removed at any time.

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Research Questions:

Please list each research question included in this study.

Microdosing is the process of consuming very small doses of a substance. While there is mounting anecdotal evidence reporting the utility of microdosing (i.e., enhanced well-being, reduced psychopathology) there are no controlled scientific studies of microdosing psychedelics and thus no scientific understanding of the benefits and drawbacks of this practice. This study aims to characterize potential benefits and drawbacks of microdosing in a community sample. We will examine and report demographics and common practices, personality variables, and creativity scores in order to further understand the microdosing population. We will also use a grounded theory approach to develop a taxonomy of reported benefits and drawbacks.

Hypotheses:

For each of the research questions listed in the previous section, provide one or multiple specific and testable hypotheses. Please state if the hypotheses are directional or non-directional. If directional, state the direction. A predicted effect is also appropriate here.

"Microdosers" are defined as those participants with experience microdosing, whether current or historical.

H1a: Microdosers will have lower neuroticism scores than non-microdosers.
H1b: Microdosers will have higher openness scores than non-microdosers.
H1c: Microdosers will have higher wisdom scores than non-microdosers.
H1d: Microdosers will have lower dysfunctional attitude scores than non-microdosers.

H2: Microdosers will have higher creativity scores than non-microdosers.

H3a: A logarithmic relationship will exist between total lifetime microdoses and average reported importance of benefits. Specifically, benefits are expected to be minimal with minimal total doses, then increase, and subsequently stabilize at a plateau.
H3b: A quadratic relationship will exist between frequency of microdosing and average reported importance of benefits. Specifically, maximum benefits are expected when participants report frequency of microdoses at ~3 days between microdoses with reduced benefits for shorter and longer frequencies.

H4a: Microdosers reporting at least one life-time use of a classic hallucinogen (LSD, psilocybin mushrooms, DMT, ayahuasca, mescaline) at full dose will report higher average importance of benefits than microdosers that have not had a full dose.
H4b: Microdosers reporting greater variety of recreational substance use ("Polydrug user experience index", explained further in subsequent sections) will report higher average importance of benefits than microdosers with less recreational substance experience.

Sampling Plan

Existing Data:
Preregistration is designed to make clear the distinction between confirmatory tests, specified prior to seeing the data, and exploratory analyses conducted after observing the data. Therefore, creating a research plan in which existing data will be used presents unique challenges. Please select the description that best describes your situation. Please do not hesitate to contact us if you have questions about how to answer this question (prereg@cos.io).

Registration prior to creation of data

Explanation of existing data:
If you indicate that you will be using some data that already exist in this study, please describe the steps you have taken to assure that you are unaware of any patterns or summary statistics in the data. This may include an explanation of how access to the data has been limited, who has observed the data, or how you have avoided observing any analysis of the specific data you will use in your study. The purpose of this question is to assure that the line between confirmatory and exploratory analysis is clear.

N/A

Data collection procedures:
Please describe the process by which you will collect your data. If you are using human subjects, this should include the population from which you obtain subjects, recruitment efforts, payment for participation, how subjects will be selected for eligibility from the initial pool (e.g. inclusion and exclusion rules), and your study timeline. For studies that don't include human

subjects, include information about how you will collect samples, duration of data gathering efforts, source or location of samples, or batch numbers you will use.

Participants will be required to be fluent in English to understand the survey.

Participants will be recruited online from reddit.
Subreddits included will be at least the following: /r/microdosing, /r/Psychonaut, /r/Nootropics, /r/Drugs, /r/SampleSize
We may also recruit from additional subreddits as we deem appropriate, such as /r/DMT, /r/shrooms, /r/trees, etc.
The final full list of subreddits - as well as a breakdown of participants by subreddit - will be reported.

Participants will fill out self-report questionnaires regarding their experiences with microdosing.

No payment/remunerations

Study timeline: (ideal, but approximate)
Survey comes online August 2017
Continue collection until November 2017
Analysis and writing December 2017 onward

no file selected

Sample size:
Describe the sample size of your study. How many units will be analyzed in the study? This could be the number of people, birds, classrooms, plots, interactions, or countries included. If the units are not individuals, then describe the size requirements for each unit. If you are using a clustered or multilevel design, how many units are you collecting at each level of the analysis?

Sample size will depend on free community participation. Our goal is to get up to 1000 participants, but not consider analyses with less than 50.

Participants will be grouped into four groups by response to this question: Do you currently microdose or will your responses be based on past experience?

1. I am currently microdosing
2. I am not currently microdosing, but I have microdosed in the past
3. I have not microdosed yet, but I am interested in microdosing
4. I am not interested in microdosing

Participants will also be considered as two groups: those who have microdosing experience ("microdosers", options 1 and 2) and those that do not ("nonmicrodosers", options 3 and 4).

We expect that the groups will not be of equal size and that option 4 will be the least selected item.

Sample size rationale:
This could include a power analysis or an arbitrary constraint such as time, money, or personnel.

Sample size is entirely dependent on free community participation so while we have a high ideal goal we cannot guarantee participation,
Our tactic will be to re-post the survey periodically in order to increase participant count, but we cannot repost too often or we would be harassing the subreddit.

Stopping rule:
If your data collection procedures do not give you full control over your exact sample size, specify how you will decide when to terminate your data collection.

If we reach 1000 participants we will stop collecting.
We will otherwise stop collecting participants in November 2017 in preparation to write and publish.
We will begin preliminary analyses when we hit 50 participants and update the results as more participants continue to take the survey.

Variables

Manipulated variables:
Describe all variables you plan to manipulate and the levels or treatment arms of each variable. For observational studies and meta-analyses, simply state that this is not applicable.

N/A

no file selected

Measured variables:
Describe each variable that you will measure. This will include outcome measures, as well as any predictors or covariates that you will measure. You do not need to include any variables that you plan on collecting if they are not going to be included in the confirmatory analyses of this study.

See attached for full survey. Qualtrics survey file will be made available and open.

Benefits and Drawbacks of microdosing:
Grounded theory coding/memoing will be used (see analysis section)

Unusual Uses Task:

Big Five Inventory 2: Negative Emotionality and Open-Mindedness subscales:
Soto, C. J., & John, O. P. (2016). The Next Big Five Inventory (BFI-2): Developing and Assessing a Hierarchical Model With 15 Facets to Enhance Bandwidth, Fidelity, and Predictive Power. Article in Press. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-84962720315&partnerID=40&md5=a060a5135d4ee7cfc25cb84c5118a272

Brief Wisdom Screening Scale:
Glück, J., König, S., Naschenweng, K., Redzanowski, U., Dorner, L., Straßer, I., & Wiedermann, W. (2013). How to measure wisdom: content, reliability, and validity of five measures. Frontiers in Psychology, 4. https://doi.org/10.3389/fpsyg.2013.00405

DAS-A-17 scoring:
de Graaf, L. E., Roelofs, J., & Huibers, M. J. H. (2009). Measuring Dysfunctional Attitudes in the General Population: The Dysfunctional Attitude Scale (form A) Revised. Cognitive Therapy and Research, 33(4), 345–355. https://doi.org/10.1007/s10608-009-9229-y

APPENDIX C - QUESTIONS - Demography of Microdosing Community Survey.pdf (/project/g5cwy/files/osfstorage/596311c66c613b023614c582)

Indices:
If any measurements are going to be combined into an index (or even a mean), what measures will you use and how will they be combined? Include either a formula or a precise description of your method. If your are using a more complicated statistical method to combine measures (e.g. a factor analysis), you can note that here but describe the exact method in the analysis plan section.

BFI-2 scoring: http://www.colby.edu/psych/wp-content/uploads/sites/50/2013/08/bfi2-form.pdf
We will average factor-items into two scores: Negative Emotionality and Open-Mindedness.

Brief Wisdom Screening Scale scoring:
The final score will be an average of all items in the scale.

DAS-A-17 scoring:
Items are summed for a total-score, which is our primary outcome measure from the DAS-A-17
two subscales will also be computed (sums): "perfectionism/performance evaluation" (11 items) and "dependency" (6 items); confirmatory factor analysis will be done to asses the appropriateness of the two subscales

Unusual Uses Task:
We will rate performance on the task following the protocol of Silvia et al. (2008) between 1 (not at all creative) and 5 (highly creative) as detailed in Appendix 1 from the following paper and reprinted below:
Silvia, P. J., Winterstein, B. P., Willse, J. T., Barona, C. M., Cram, J. T., Hess, K. I., ... Richard, C. A. (2008). Assessing creativity with divergent thinking tasks: Exploring the reliability and validity of new subjective scoring methods. Psychology of Aesthetics, Creativity, and the Arts, 2(2), 68–85. https://doi.org/10.1037/1931-3896.2.2.68

Creativity can be viewed as having three facets. Creative responses will generally be high on all three, although being low on one of them does not disqualify a response from getting a high rating. We will use a 1 (not at all creative) to 5 (highly creative) scale.
1. Uncommon
Creative ideas are uncommon: they will occur infrequently in our sample. Any response that is given by a lot of people is common, by definition. Unique responses will tend to be creative responses, although a response given only once need not be judged as creative. For example, a random or inappropriate response would be uncommon but not creative.
2. Remote
Creative ideas are remotely linked to everyday objects and ideas. For example, creative uses for a brick are “far from” common, everyday, normal uses for a brick, and creative instances of things that are round are “far from” common round objects. Responses that stray from obvious ideas will tend to be creative, whereas responses close to obvious ideas will tend to be uncreative.
3. Clever
Creative ideas are often clever: they strike people as insightful, ironic, humorous, fitting, or smart. Responses that are clever will tend to be creative responses. Keep in mind that cleverness can compensate for the other facets. For example, a common use cleverly expressed could receive a high score.

A "Polydrug user experience index" will be computed as the sum of items indicating recreational substance use:
Each class of drug used in past month: +4 points
Each class of drug used in past year: +2 points
Each class of drug used ever: +1 point.
Each class of drug never used: +0 points
Each class of drug "Prefer not to answer": +0 points
As there are 13 classes of substance listed in the survey the scores may range from 0-52

History of mental health issues will be computed as a simple binary 0/1 based on the question "Have you ever been diagnosed by a doctor or health care professional (e.g., psychiatrist, psychologist) with any of the following diagnoses" which is followed by a list of DSM-V diagnoses; endorsing any diagnosis will result in a "1", otherwise a "0" for "None of the above" or no response.

Mood Board:
"Arousal" score: count of high-intensity minus count of low-intensity
"Valence" score: count of pleasant minus count of unpleasant

Total Lifetime Microdoses:

Numeric 0 to 100 answer on the single-item question "Approximately how many microdoses have you taken in your lifetime? (do not include any full-dose experiences)"

Benefits and Drawbacks of microdosing:
Grounded theory coding/memoing will be used (see exploratory analysis section)
Average importance-of-benefits and average importance-of-drawbacks will be computed

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Design Plan

Study type:
Please check one of the following statements

Observational Study - Data is collected from study subjects that are not randomly assigned to a treatment. This includes surveys, “natural experiments,” and regression discontinuity designs.

Blinding:
Blinding describes who is aware of the experimental manipulations within a study. Mark all that apply.

No blinding is involved in this study.

Study design:
Describe your study design. Examples include two-group, factorial, randomized block, and repeated measures. Is it a between (unpaired), within-subject (paired), or mixed design? Describe any counterbalancing required. Typical study designs for observation studies include cohort, cross sectional, and case-control studies.

Observational cross-sectional study

no file selected

Randomization:
If you are doing a randomized study, how will you randomize, and at what level?

N/A

Analysis Plan

Statistical models:

What statistical model will you use to test each hypothesis? Please include the type of model (e.g. ANOVA, multiple regression, SEM, etc) and the specification of the model (this includes each variable that will be included as predictors, outcomes, or covariates). Please specify any interactions that will be tested and remember that any test not included here must be noted as an exploratory test in your final article.

We will use general linear modelling, which in this 2-group between-groups categorical analysis is often equivalent to an independent samples t-test. Outcome variables will be predicted by microdosing category.

"Microdosers" are defined as those participants with experience microdosing, whether current or historical.
Participants will be grouped into two primary groups by response to the question: "Do you currently microdose or will your responses be based on past experience?"
"Microdosers" will be participants responding (1. I am currently microdosing, 2. I am not currently microdosing, but I have microdosed in the past)
"NonMicrodosers" will be participants responding (3. I have not microdosed yet, but I am interested in microdosing, 4. I am not interested in microdosing)
Let "MD" denote a categorical variable "microdosing category" such that MD=1 for "Microdosers" and MD=-1 for "NonMicrodosers".

H1a: Microdosers will have lower negative emotionality scores than non-microdosers.
negative emotionality ~ MD
When considering negative emotionality scores we will also control for gender.
negative emotionality ~ MD + gender(male/female)

H1b: Microdosers will have higher open-mindedness scores than non-microdosers.
open-mindedness ~ MD
When considering open-mindedness scores we will also control for level of education.
open-mindedness ~ MD + level of education

H1c: Microdosers will have higher wisdom scores than non-microdosers.
wisdom ~ MD
When considering wisdom scores we will also control for age and level of education.
wisdom ~ MD + age + level of education

H1d: Microdosers will have lower dysfunctional attitude scores than non-microdosers.
DAS ~ MD
When considering dysfunctional attitude scores we will also control for history of mental health issues.
DAS ~ MD + history of mental health issues (binary -1/1)

H2: Microdosers will have higher creativity scores than non-microdosers.
creativity ~ MD
When considering creativity scores we will also control for open-mindedness.

creativity ~ MD + open-mindedness

H3a: A logarithmic relationship will exist between total lifetime microdoses and average reported importance of benefits. Specifically, benefits are expected to be minimal with minimal total doses, then increase, and subsequently stabilize at a plateau.
For MD=1: average reported importance of benefits ~ β0 + β1*ln(total lifetime microdoses)
Total lifetime microdoses will also be tested as a mediator in H1a-d and H2 if appropriate mediation pathways are satisfied (as per Baron and Kenny (1986))

H3b: A quadratic relationship will exist between frequency of microdosing and average reported importance of benefits. Specifically, maximum benefits are expected when participants report frequency of microdoses at ~3 days between microdoses with reduced benefits for shorter and longer frequencies.
For MD=1: average reported importance of benefits ~ β0 + β1*(frequency of microdosing) + β2*(frequency of microdosing)²
Frequency of microdosing will also be tested as a mediator in H1a-d and H2 if appropriate mediation pathways are satisfied (as per Baron and Kenny (1986))

H4a: Microdosers reporting at least one life-time use of a classic hallucinogen (LSD, psilocybin mushrooms, DMT, ayahuasca, mescaline) at full dose will report higher average importance of benefits than Microdosers that have not had a full dose. Let "FD" denote a categorical variable "full-dose category" such that FD=1 for at least one life-time full-dose and FD=-1 otherwise.
For MD=1: average reported importance of benefits ~ FD

H4b: Microdosers reporting greater variety of recreational substance use ("Polydrug user experience index", explained further in variable section) will report higher average importance of benefits than microdosers with less recreational substance experience.
For MD=1: average reported importance of benefits ~ β0 + β1*(Polydrug user experience index)

no file selected

Transformations:
If you plan on transforming, centering, recoding the data, or will require a coding scheme for categorical variables, please describe that process.

Variables will be grand-mean centred

Follow-up analyses:
If not specified previously, will you be conducting any confirmatory analyses to follow up on effects in your statistical model, such as subgroup analyses, pairwise or complex contrasts, or follow-up tests from interactions? Remember that any analyses not specified in this research plan must be noted as exploratory.

Outcome variables will be predicted by microdosing category. On any significant findings sub-group analysis will investigate whether microdoser status as current (1. I am currently microdosing) or former (2. I am not currently microdosing, but I have microdosed in the past) show differential effects. e.g. if H1a shows microdosing (MD=1) predicts lower negative emotionality we will investigate whether this holds true for both current and former microdosers, and if the effects between are different (direction of effect not predicted).

Regardless of primary effects, sub-group analysis will be computed based on the type of substance used to microdose.
i.e. Is there a difference between tryptamine-based microdosing (TB=1: LSD, psilocybin, DMT, ayahuasca, etc) versus other drugs (TB=-1: phenylethylamine-based, MDxx based, other) (direction of effect not predicted)?
e.g. negative emotionality ~ TB, creativity ~ TB, etc.
This analysis is done so as to save potential actual effects due to tryptamine-based microdosing that could be blurred if non-tryptamine-based microdosing is ineffective, though this analysis would naturally have less power than the full microdosing category group.
Follow-up analysis will further assess whether there a difference between LSD (TBt=1) and psilocybin (TBt=-1) microdosing as we expect these may be the most common substances used.
e.g. for TB=1: negative emotionality ~ TBt , creativity ~ TBt, etc.

Mediation:
Total lifetime microdoses will be tested as a logarithmic mediator in H1a-d and H2 if appropriate mediation pathways are satisfied (as per Baron and Kenny (1986): Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology, 51(6), 1173–1182.)

Frequency of microdosing will be tested as a quadratic mediator in H1a-d and H2 if appropriate mediation pathways are satisfied (as per Baron and Kenny (1986))

Inference criteria:
What criteria will you use to make inferences? Please describe the information you'll use (e.g. specify the p-values, Bayes factors, specific model fit indices), as well as cut-off criterion, where appropriate. Will you be using one or two tailed tests for each of your analyses? If you are comparing multiple conditions or testing multiple hypotheses, will you account for this?

We will use the standard p<0.05 criteria. We will report all tested results, though since there will be lots to report it may not all end up in the paper; we will report it in supplementary materials or post a larger table of results on the OSF page for this project.

Data exclusion:
How will you determine which data points or samples (if any) to exclude from your analyses? How will outliers be handled?

Data will be collected anonymously and no identifying information will be connected. This specifically includes not collecting names, locations more precise than province, elements of birth-date more precise than year, IP address, any account numbers of any kind, employer names, or any other specifically identifying information. In the very unlikely event that such information is spontaneously

provided in any response space the original identifying information will be manually deleted before the data-set is shared; the rest of the participant's data will be retained.

In online studies some participants provide fake or "troll" responses. While it is difficult to define a priori precisely how "troll" responses are identified, our main heuristic is this: responses where participants report racist/sexist/punctuation-only/obscenity-only in free-response fields will be removed as "troll" responses. Likewise, situations in which participants report values that are technically possible using the survey software but that are prima facie absurd, such as reporting age to be 2 years old, or reporting that they started microdosing at an age older than the age they report being presently, etc. Similarly, if a participant selects all the same value in the questionnaires (e.g. 1/100 for every question-item) this will be considered a "troll" response. Such responses will be coded as "troll" responses, assigned a public justification, and removed from analysis; these responses will remain in the released open dataset.

Missing data:

How will you deal with incomplete or missing data?

In the case of missing data the participant will be included in models where the data is not used but will be dropped from any model where the data is included.

In cases where "Prefer Not To Answer" was available but no answer was selected missing-data will be treated as if "Prefer Not To Answer" was selected.

In the case that a participant skips up to 10% of questions on a questionnaire we will interpolate their missing answers as the average of their other responses on the questionnaire, using sub-scale items if possible. If they skip more than 10% of questions their questionnaire will be dropped as incomplete.

Exploratory analysis:

If you plan to explore your data set to look for unexpected differences or relationships, you may describe those tests here. An exploratory test is any test where a prediction is not made up front, or there are multiple possible tests that you are going to use. A statistically significant finding in an exploratory test is a great way to form a new confirmatory hypothesis, which could be registered at a later time.

Exploratory follow-up analysis will assess possible differences between sub-types of substances used for microdosing. Sub-types other than LSD and psilocybin will have to be input by participants in the space provided and are expected to have very low power. Any such analysis would be exploratory.

Different members of the research team have differing hypotheses about the exact nature of the relationship between frequency of microdosing and benefits: it may be quadratic (peak at 3 days between), segmented linear (flat for 0-3 days between followed by linear decrease), or perhaps an exponential-decay (following tolerance/biological half-life). We will compute these non-linear models and report their relative fits.

Polydrug user experience index will be explored as a moderator in H1a-d and H2, and likely elsewhere as well.

Benefits and Drawbacks of Microdosing:
Grounded theory coding/memoing will be used. This method, while structured, is inherently exploratory. We will code and memo the items reported as benefits and drawbacks. This process is iterative and collaborative. We will seek to develop a taxonomy of Benefits and Drawbacks (or "Risk Factors") for microdosing. We will further consider possible theories that may emerge from the consideration of the Benefits and Drawbacks, as is the goal of Grounded Theory (i.e. whether there are parallels between Benefits and Drawbacks, whether they are distinct (e.g. honesty vs sadness) or somehow oppose each other (e.g. confidence vs anxiety), etc.).
In any case, we will develop a taxonomy of Benefits and Drawbacks, relations with which we will liberally explore using correlations; the purpose here is to generate testable hypotheses (not to make causal claims or claims for the stability of any discovered correlation). Another purpose is to identify possible measures to include in future studies.
Some examples of exploration: certain benefits may be more likely to occur for certain demographics, e.g. increased self-care for younger or higher-SES individuals; certain benefits may be more likely to occur for those who have certain diagnoses, e.g. decreased anxiety in those with an anxiety disorder, decreased anhedonia/increased pleasure in those with depression; certain drawbacks may be more likely for those who have certain personalities, e.g. more emotional instability in those with low neuroticism

Scripts

Upload an analysis script with clear comments:
This optional step is helpful in order to create a process that is completely transparent and increase the likelihood that your analysis can be replicated. We recommend that you run the code on a simulated dataset in order to check that it will run without errors.

no file selected

Other

Other:
If there is any additional information that you feel needs to be included in your preregistration, please enter it here.

Continue editing (/project/g5cwy/drafts/59630dd49ad5a1023edfcf7c/)

Submit for review

Register without review

/activity/)
Contact (mailto:contact@osf.io)
FAQ/Guides (https://osf.io/support)
API (https://api.osf.io/v2/docs/)
Source Code (https://github.com/CenterForOpenScience/osf.io)

Reproducibility Project: Cancer Biology (https://osf.io/e81xl/wiki/home/)
TOP Guidelines (http://cos.io/top/)
Donate (https://www.crowdrise.com/donate/charity/centerforopenscience)

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(https://www.github.com/centerforopenscience)
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