IMRAD

The student's guide to scientific writing by A.

Outline

— Empirical research articles
- Title page, Abstract
- Introduction
- Methods
- Results
- Discussion
- Supplements & other additions

— Presenting research

— Teamwork

— Critical thinking & reading

— Final assignment (Q & A)

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Research articles

— Research papers are just advertisements – presentation !
— Good story sells, high rejection rates of journals
  o Novel, interesting, important, crucial
— Citations & impact factor (IF)
— Editing & rewriting

— Empirical research
— Quanti vs. quali vs. both

How to write really good articles for premier academic journals

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HOW TO WRITE A RESEARCH PAPER

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Title page

— **Title**
- Concise and descriptive (e.g., main finding / what was done / what is discussed)

— **Authors affiliations**
- Institutions where the authors work
- Identify the corresponding author
- Provide contact to the corresponding author

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ARTICLE INFO

Keywords:
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Audio
Voice
Stereotype threat
Group work
Computing

ABSTRACT

We investigate how gender-anonymous voice avatars influence women's performance in online computing group work. Female participants worked with two male confederates. Voices were filtered according to four voice gender anonymity conditions: (1) All unmasked, (2) Male confederates masked, (3) Female participant masked, and (4) All masked. When only male confederates used masked voices (compared to all unmasked), female participants spoke for a longer period of time and scored higher on computing problems. When everyone used masked voices (compared to all unmasked), female participants spoke for a longer period of time, spoke more words, and scored higher on computing problems. Effects were not significant on subjective measures and one behavioral measure. We discuss the implications for virtual interactions between people.

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Title page

– Title
  o Concise and descriptive (e.g., main finding / what was done / what is discussed)

– Authors affiliations
  o Institutions where the authors work
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  o Provide contact to the corresponding author

Context-Dependent Memory Recall in HMD-Based Immersive Virtual Environments

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Author Note

6

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Abstract

— The most important section
— Concise, but rich in information
— No references
— Key information
  o Relevant prior knowledge
  o Research goals and ways to achieve them
    ▪ Methods, participants, analysis...
  o The main findings / results / outcomes
  o Crucial limits (if necessary)
  o Suggestions for future research (optional)

  o Key words (depends on the journal)
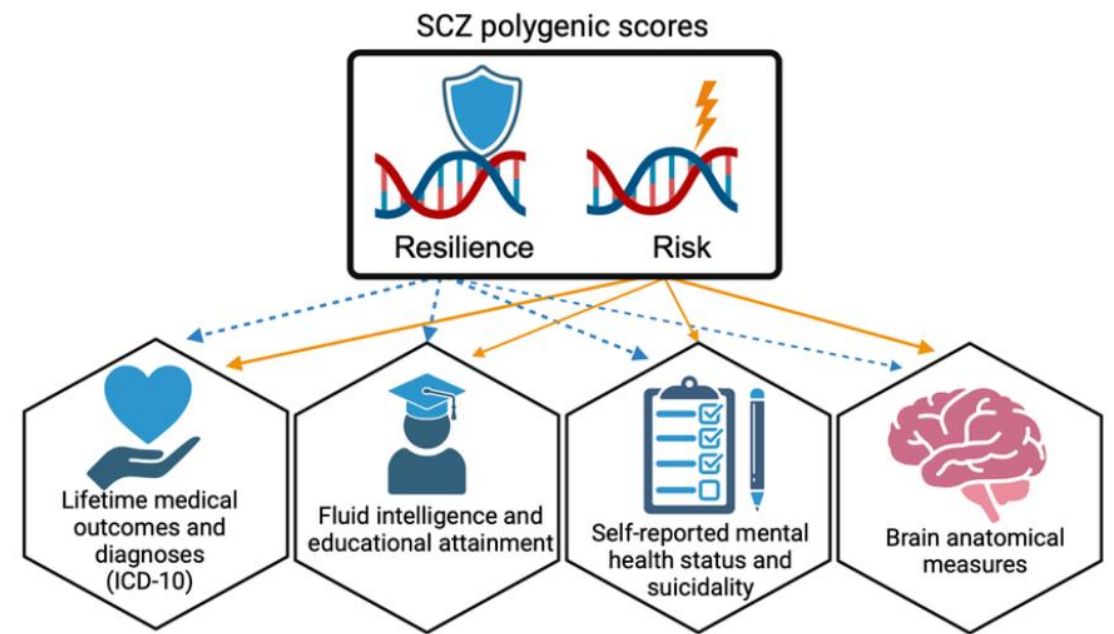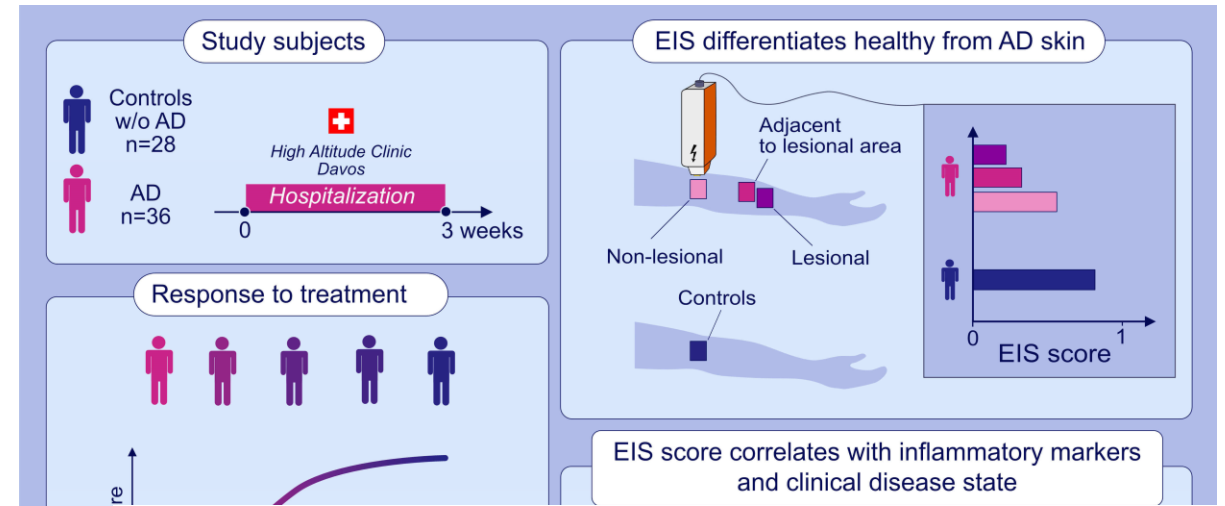
Graphical abstracts

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INTRODUCTION

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Introduction (structure)

— Introductory paragraph
- General statements, definitions, facts...
- Engage the reader

— Theory (headings depend on the journal)

— Final paragraph
- Research gap
- The importance of the current study
- Aims, predictions, research questions, hypothesis (quanti / quali)
  - Do not state compound hypotheses !
- What you did (methods) /+ what were the results

*just one of the possible structures!!!

Writing a research paper introduction

1.	Introduce your topic
2.	Describe your background
3.	Establish your research problem
4.	Specify your objectives
5.	Map out your paper

Scribbr

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Introduction

– Different approaches

- o Hypotheses specified along with theorizing
- o Research questions /+ hypotheses /+ aim
- o State hypotheses / questions in the text / separately

(Bowling and Beehr, 2006; e.g. Leary *et al.*, 1998; Mikula *et al.*, 1998; Weatherbee, 2007; Richman *et al.*, 1999). Thus, this relationship should hold true for virtual non-sexual harassment:

H1. Virtual non-sexual harassment is associated with lower psychological health.

Although there is a relationship between experiencing workplace harassment and psychological health, it has been suggested that it is not a direct relationship, as fear is a form of stress (the direct outcome of a stressor); whereas, diminished psychological health constitutes a strain (an indirect outcome of stressors; Barling, 1996). Past research supports this relationship and has found fear of future harassment mediates the relationship (Barling *et al.*, 2001). Thus, the following hypothesis is made:

H2. Fear of future harassment mediates the relationship between virtual non-sexual harassment and psychological health.

The above seeks to replicate previous findings of Harassment for virtual harassment. As noted by Hershcovis (2011), many of the different forms of workplace aggression (e.g. incivility, social undermining, bullying) have the same basic relationships with individual outcomes; however, she contends that there has been insufficient testing of the differentiating characteristics to make these distinctions. Hershcovis (2011) makes a call for the differentiating factors to be tested as moderators within a workplace aggression model.

There have been many potential moderators proposed for the stressor-strain model.

The differential roles of medium and anonymity are going to be examined in study 2. Based on results from previous studies, we hypothesize that cyber scenarios are perceived as worse than traditional ones and that anonymous scenarios are perceived as worse than not anonymous ones. Moreover, we expect that the effect size of medium is smaller than the effect size of anonymity. The interaction between medium and anonymity also is going to be explored.

Method

The variables examined in this study were based on prior research and on the outcomes of focus groups that were conducted in a preliminary phase of the study, as detailed in the tools and measures section. The following research questions reflect what we learned in this preliminary phase:

RQ1. How does anonymity relate to the level of online participation?

RQ2. How does SVO relate to the level of online participation?

RQ3. Which motivations are in relationship with the level of online participation?

RQ4. What is the relationship between personal traits and the level of online participation?

RQ5. How does the perception of the internet's impact as a political platform relate to the level of online participation?

What is the relationship between personal traits and the level of online participation?

In summary, the study examined (a) how young people perceive the severity of cyberbullying, and (b) how young people respond as a bystander according to different factors associated with cyberbullying.

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Introduction (content)

— Be clear and concise!
  o Use abbreviations to a limited extent (no more than 7 – 10)
  o Each abbreviations must be defined at first mention
  o Continuity

— Findings are followed by a citation
  o Make clear to which statements the citation relates
  o Generalize, combine findings from multiple studies
  o Support your claims with more studies and/or systematic reviews
  o Use "i.e.", "e.g.", "see XY for a review" when appropriate (e.g., Study 1; Study 2)
  o The more recent the citation the better

— Explain less known theories, terms

— Pay attention to the wording
  o Evidence / finding / result / suggestion / speculation

highly influential in determining online behavior (Amichai-Hamburger *et al.*, 2002; Amichai-Hamburger, 2005; Nussbaum *et al.*, 2004). The "Big Five" model (Costa and McCrae, 1992), one of the most well-researched measures of personality structure in recent years (Golbeck *et al.*, 2011), was used as a theoretical framework for this phase of the study. The model consists of five factors that represent personality traits: extroversion characterized by sociability, energy, and talkativeness; neuroticism characterized by anxiety, moodiness, and emotional instability; openness representing creativity, intellectualism, and preference for novelty to experiences; agreeableness involving warmth, cooperativeness, and helpfulness; and conscientiousness reflected in discipline, responsibility, and orderliness (Seidman, 2013). Recent studies have investigated the five factors as predictors of social media use and found them

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Introduction

— Be clear and concise!

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Introduction

- Be clear and concise!

Duration of Speaking

H4.1: Participant voice masking will lead to higher duration of speaking.

H4.2: Groupmate voice masking will lead to higher duration of speaking.

H4.3: Interaction effect: Participant unmasking will see a greater reduction in duration of speaking with respect to participant masking when faux participants are unmasked compared to when faux participants are masked.

H4.4: Competence will mediate H4.1.

H4.5: Competence will mediate H4.2.

H4.6: Autonomy will mediate H4.1.

H4.7: Autonomy will mediate H4.2.

H4.8: Relatedness will mediate H4.1.

H4.9: Relatedness will mediate H4.2.

H8.2: Groupmate voice masking will lead to higher autonomous respect scores.

H8.3: Interaction effect: Participant unmasking will see a greater reduction in autonomous respect scores with respect to participant masking when faux participants are unmasked compared to when faux participants are masked.

H8.4: Competence will mediate H8.1.

H8.5: Competence will mediate H8.2.

H8.6: Autonomy will mediate H8.1.

H8.7: Autonomy will mediate H8.2.

H8.8: Relatedness will mediate H8.1.

H8.9: Relatedness will mediate H8.2.

3. Voice avatar creation software

We wanted to develop voice avatar creation software. To do so, as

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H6.6: Autonomy will mediate H6.1.
H6.7: Autonomy will mediate H6.2.
H6.8: Relatedness will mediate H6.1.
H6.9: Relatedness will mediate H6.2.

Stereotype Threat Scores

H7.1: Participant voice masking will lead to lower stereotype threat scores.
H7.2: Groupmate voice masking will lead to lower stereotype threat scores.

H7.3: Interaction effect: Participant unmasking will see a greater increase in stereotype threat scores with respect to participant masking when faux participants are unmasked compared to when faux participants are masked.
H7.4: Competence will mediate H7.1.
H7.5: Competence will mediate H7.2.
H7.6: Autonomy will mediate H7.1.
H7.7: Autonomy will mediate H7.2.
H7.8: Relatedness will mediate H7.1.
H7.9: Relatedness will mediate H7.2.

Autonomous Respect Scores

H8.1: Participant voice masking will lead to higher autonomous respect

13

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Introduction

— Conceptual models and visualizations

METHODS

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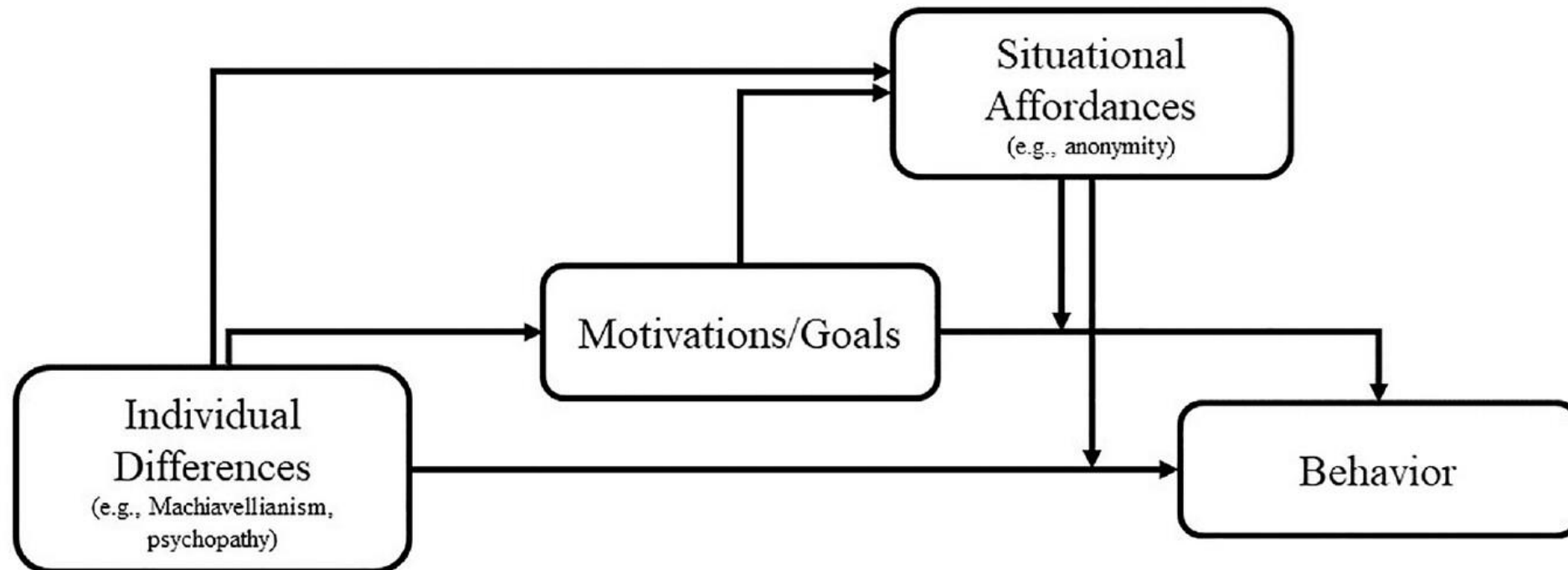
Methods

– Ethics
  o Declaration of Helsinky (1964)
    ▪ https://en.wikipedia.org/wiki/Declaration_of_Helsinki
  o Informed consent
  o Rewards
  o Voluntariness
  o Pre-registration link (eg. AsPredicted, OSF)

2.2. Ethical Issues

All study procedures were carried out in accordance with the Declaration of Helsinki. The Institutional Review Board of the Department of Psychology, Sapienza University of Rome (protocol number 1450/2021) approved the procedures and the accompanying consent forms.

Psychologists

Now   VS   Then

Is it moral to cure autism? I mean can it be called moral to cure their personality?

I am going to cut your brain in half Just to see what it does to you.

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Methods

— ## Participants

- Total sample + final sample
- Who (students/general population/clinical sample/migraineurs/dog owners...)
- Age (mean + SD (+mode, median) / range)
- Sex / gender + exceptions
- Descriptives in numbers (N = XY) / %
- How they were recruited
- Power analysis, stopping criteria, theoretical saturation (Quali)
- Exclusion criteria
- How many excluded and why (...resulting in the final sample)

*Do not collect more than you need!

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Methods

– Participants

One hundred eighty five healthy young adults (aged 18 to 39; mean = 24.28, SD = 4.762) with normal or corrected-to-normal vision and no neurological or psychiatric diagnosis were recruited via a database of volunteers and advertisements in university/social media. The volunteers were invited to participate in the research as a part of an international research project on consciousness research (COST Action CA18106 – the neural architecture of consciousness), for which the exclusion criteria were adapted. With respect to these criteria, we excluded individuals over 40 years of age, with current neurological or psychiatric medication intake, a history of migraine symptoms with aura or those not fulfilling MR safety criteria, as they self-reported in a screening questionnaire prior to study participation. In total, 182 subjects (self-reported 72 males and 110 females) gave written informed consent approved by the Research Ethics Committee of Masaryk University and underwent both the PGT and magnetic resonance spectroscopy. Participants were asked not to drink caffeinated beverages for at least 4 h before the first session (Wolde, 2014). After completing experiments, the subjects were debriefed and received a financial compensation of 1,000 Czech crowns (~40 EUR).

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Methods

— Participants

(a) Participants

During two waves of data collection, we recruited a total of 2228 participants from 15 societies (1126 females; M age = 37.0, s.d. = 14.8). Specifically, during Wave I, we recruited 591 participants who played the DISTANT RAGs and reported the results of this data collection in several publications [8,22]; however, 208 of those participants were contacted again during Wave II to collect the OUTGROUP RAGs. For Wave II, 1637 new participants were recruited, playing either the DISTANT and OUTGROUP RAGs or the DISTANT and OUTGROUP DGs (153 participants played both RAGs and DGs). Here, we collapsed both Wave I and Wave II samples to provide robust tests of our hypotheses.

We excluded all participants from our analyses whose allocations did not sum to 30 for a particular RAG or 10 for a particular DG. Specifically, we excluded 30 participants from at least one RAG and 33 from at least one DG. Furthermore, we excluded 22 participants who misunderstood the procedure or did not correctly follow procedural steps. At one site, two research assistants counterfeited data, thus all the RAG and DG data collected by these assistants were removed (72 participants). The number of participants in each analysis is displayed under specific models. While tables in the main text report only full models (these are missing three sites due to missing some of the covariates), reduced models including all sites can be found in the electronic supplementary material, section S3. Our protocols were approved by the University of British Columbia's Behavioural Research Ethics Board (BREB) and by the equivalent at each individual researcher's home university. All subjects provided an informed verbal consent for participation before the experiment.

19

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Methods

Materials and stimuli
— Describe questionnaires, modifications
— Stimuli
— Experimental task
— Technologies used
— Interview questions (Q)

*give them separate headlines
*think about ethics, if tasks are appropriate (ego depletion, war survivors)

2.1 Questionnaires

Validated psychological questionnaire measures were administered to provide an index of participants' trait-based predispositions to anomalous perceptions and subjective sensitivity that might influence the perception of visually aversive patterns. The questionnaires were selected to ascertain individual scores on various psychological aspects related to sensory sensitivity and with regard to the previous research on the topic (Braithwaite et al., 2013; Dance et al., 2021). This was supplemented by demography, sleep, and menstrual cycle.

2.1.1 Cardiff anomalous perceptions scale

Cardiff Anomalous Perceptions Scale (CAPS) (Bell et al., 2006) is an instrument for measuring the propensity to report anomalous perceptual experiences, hallucinations in non-clinical populations.

2.2 Pattern glare test

With the aim to assess state-based subjective visual sensitivity, we used a modified computerized version of the Pattern Glare Test (Braithwaite et al., 2015), see Figure 1. The stimulation consisted of stationary horizontal square-wave achromatic gratings differing only in their spatial frequency. Three frequencies were presented: a control low-frequency grating (0.5 cpd – cycles pre degree) intended to screen for response bias, an aversive medium-frequency grating (3 cpd), and high-frequency grating (14 cpd). Each grating was presented 6 times in a randomized order. After every three trials with grating stimuli, a checkerboard of 0.5 cpd was presented instead to reduce the potential for lingering excessive neural activity to carry over onto subsequent stimuli. The task was

2.3 MRI scan

To quantify the concentrations of individual neurotransmitters, we used the only currently available non-invasive method for measuring GABA and glutamate concentrations *in vivo*—magnetic resonance spectroscopy (MRS, Öz et al., 2020). MRS-quantified GABA and glutamate concentrations have been previously found to reflect change in the level of cortical excitability as measured (Stagg et al., 2011a) or manipulated (Gröhn et al., 2019) by transcranial magnetic stimulation and also to reflect the role of GABA in visual perception (Song et al., 2017). Participants

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Methods

Materials and stimuli
— Describe questionnaires, modifications
— Stimuli
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— Technologies used
— Interview questions (Q)

*give them separate headlines
*think about ethics, if tasks are appropriate (ego depletion, war survivors)

2.4.1. Focus Group Questions

The core theme of the focus groups was violence and aggression in SNs. The focus groups were conducted using thirteen open questions and leaving the participants' discussion free until no one had anything more to add. The open questions were the following:

1. How do you communicate with your friends, classmates, and family members when you are not physically together?

2. What digital communication tools do you use? (e.g., WhatsApp, Instagram, Facebook, Snapchat, Twitter, WeChat, Viber, TikTok, others?)

3. Which ones do you enjoy the most? Why?

4. How much time do you spend daily on electronic devices (e.g., Smartphone, tablet, computer, play station, X-box)? For what kind of activities, mainly?

5. Have you ever come into direct contact with content that you consider inappropriate and/or violent? Targeting you personally or others? What was it about? What were your reactions?

6. Is it different for you to communicate aggressively online versus face to face? What do you think is different?

7. In your opinion, are there specific categories of people who can be particularly vulnerable to this inappropriate behavior? (Do gender-related issues come up? If they don't come up spontaneously, ask question 7a)

7a. "There are many statistics indicating that on social networks there is a prevalence of insulting communications, with words and/or images, directed towards women and girls. Do you have any feedback or experience in relation to that?"

8. Are there behaviors and/or attitudes that when displayed on SNs are more likely to lead to being attacked? Which ones? Why?

9. Who, in your opinion, most frequently communicates aggressively on SNs? What effect does this have on the targeted people, groups, and specific social categories?

10. What are the reasons for this aggressive behavior on SNs?

11. The following is a case that actually happened: a boy created a closed group on Facebook where he posted photos of some of his friends (girls) taken from social media. He then invited other friends (boys) to make sexually explicit comments about the girls. Participants enthusiastically commented, but at a certain point one of the girls discovered what happened. How do you think the girl reacted?

12. Do you know how to recognize an aggression against a person, a group, or a social category on SNs? How do you notice it?

13. In your opinion, can these online aggressions have consequences? What kind of consequences?

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Methods

Materials and stimuli

— Describe questionnaires, modifications

— Stimuli

— Experimental task

— Technologies used

— Interview questions (Q)

*give them separate headlines
*provide pictures, schemes
*think about ethics, if tasks are appropriate
(ego depletion, war survivors)

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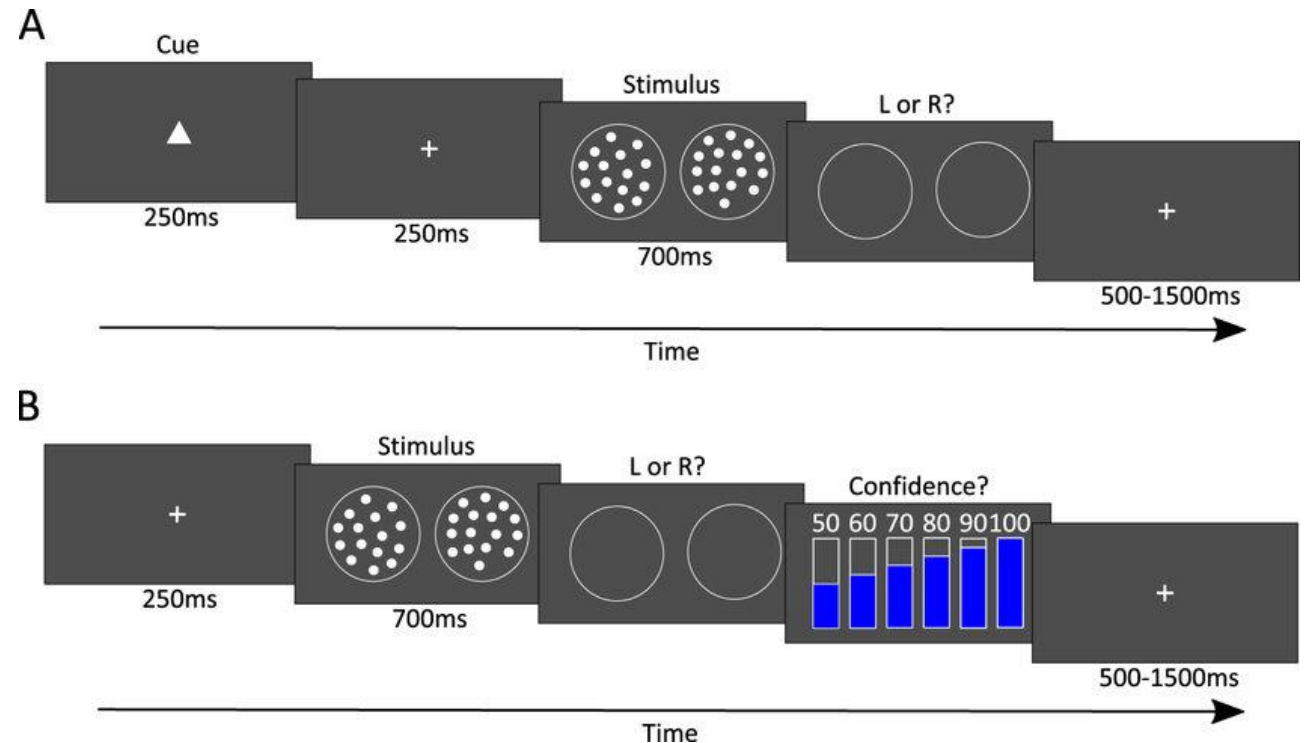
Methods

– ## Procedure

o the story of what happened during the experimental session and how
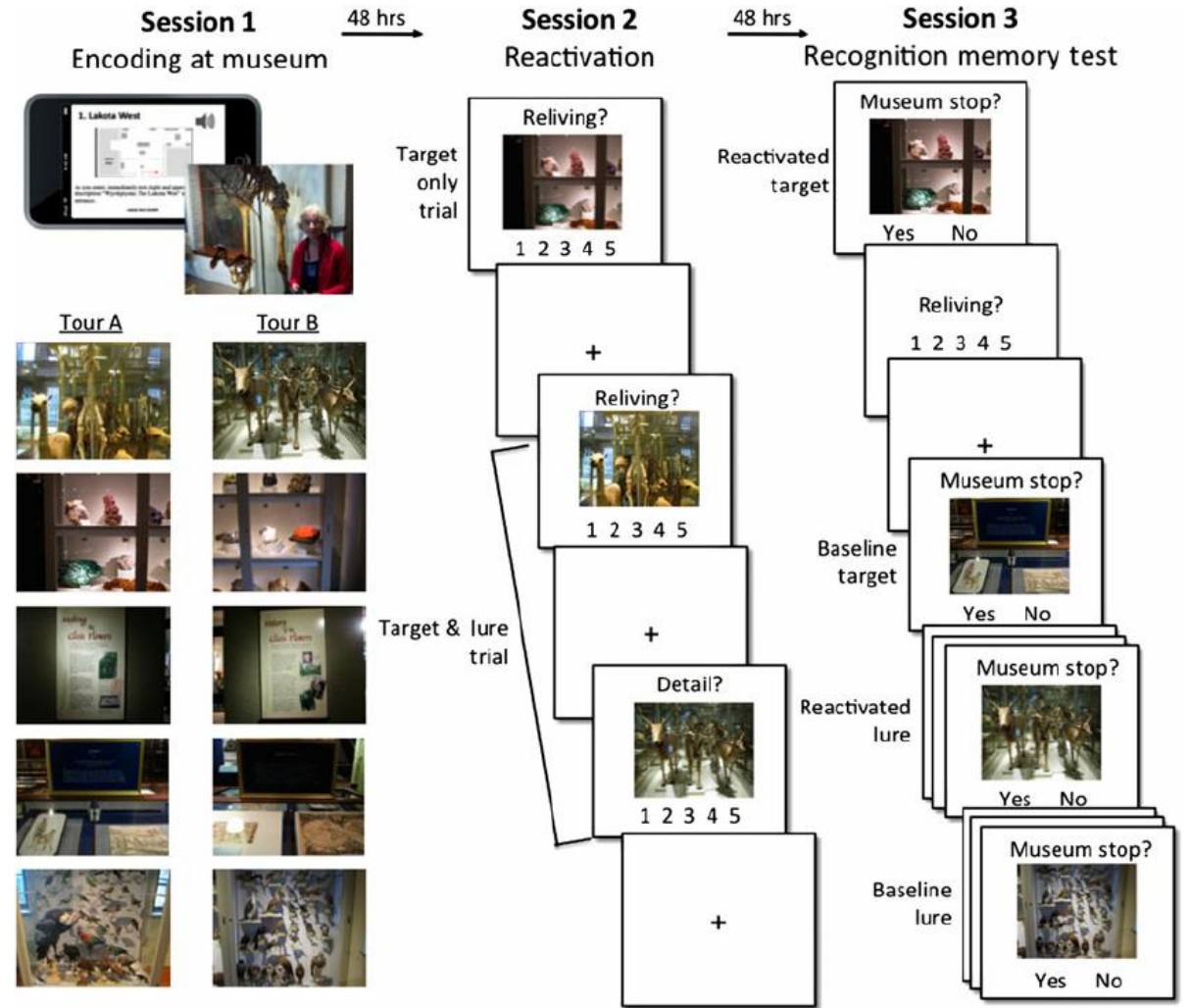
Methods

– Statistical analysis

- used software (SPSS, R, JASP, jamovi...)
- analyzed variables
- statistical tests
- assumptions check
- criterion of significance
- less known methods described in more detail
- missing values

- description of qualitative analyses (Quali)

*methods have limits and assumptions

2.5. Data Analysis

The transcripts of the focus groups were analyzed, highlighting the similarities and differences in the responses of male and female adolescents. In particular, 75% of the transcripts were analyzed, leaving 25% for the theoretical saturation test. The first step of analysis, *open coding*, is based on dividing the entire transcript into analyzable text segments. Through continuous comparison and brainstorming, the categories that can best represent the meaning of a specific segment of text are abstracted [53]. The second step of Grounded Theory is called *axial coding*. In this further step, the categories that emerged during the open coding phase are reanalyzed and the relationships between them are highlighted. The group of researchers, therefore, abstracts second-level categories which can group the categories that emerged from the open coding process. The last step in Grounded Theory is *selective coding*. The goal of selective coding is to connect together, in a single model, the relationships between the second-level categories that emerged during the axial coding phase. This process culminates in showing the reader a theoretical framework suitable to explain most of the variability of the data. The data (the first-level categories and the second-level categories) are finally reanalyzed making sure that new possible categories would not improve the accuracy of the proposed model. Finally, the theoretical saturation test was performed: an analysis of the remaining 25% of the transcript using the first and second level categories that emerged.

Statistical analysis. Initial data processing and subsequent analyses were performed using RStudio version 3.2.2 (R Foundation for Statistical Computing). Raw responses were converted into proportions of 'long duration' responses per participant and condition (i.e. the proportion of responses where the participant classified the target duration as being 'long', irrespective of its actual duration). The data were plotted against the actual duration of the stimulus, and fitted locally using the "*model-free*" statistical package[17]. This representation allows illustrating a systematic bias toward longer estimations by a leftward shift of the function (the subjects will more often classify the duration of the visual stimulus as 'long'). The shifting of the function (i.e. the stimulation duration giving rise to 50% of "long" responses and 50% of "short" responses) was calculated for each subject. The difference between the bisection point in pain and control conditions were compared using a bilateral paired Student *t*-test (with Cohen's d for the effect size). This analysis was also conducted on the just noticeable difference (JND) as a measure of sensitivity of the temporal bisection task. The pain scores were compared using bilateral independent or paired Student *t*-tests.

For all analyses, a bilateral p value of 0.05 was used as the criterion for statistical significance. Means and standard errors are given for each condition.

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Methods

— Pilot data

2.5. Pilot data

To assess the feasibility of the planned procedure, we conducted two online pilot studies (henceforth Pilot 1 and Pilot 2) with the Czech student population. Participants for the pilot studies were recruited through advertisement at various student groups on Facebook and asked for help testing a new study. No compensation was offered for participation. For Pilot 1, we recruited 89 participants (63 women; M_{age} = 23.9) and for Pilot 2, we recruited 91 participants (68 women; M_{age} = 24.5).

2.5.1. Pilot design

Since this is was an online study, we assessed the cooperative phenotype using a cooperative values scale adapted from Peysakhovich *et al.* [1] rather than the cooperative strategy planned for the actual experiment (see electronic supplementary material, section S2.1 for the specific items and reliability analysis). Note that we did not plan to use this scale as a predictor in the actual experiment. Next, we explained the rules of PGG and tested participants' understanding of the PGG rules (see §2.2). Participants who failed the second understanding check were excluded from the analysis (three participants in Pilot 1 and five participants in Pilot 2). We also excluded participants who did not finish the survey (three participants in Pilot 2), and one participant who reported being 96 years old.

After explaining the rules of PGG, participants were asked to imagine three hypothetical PGG scenarios played with three other players:

2.5.1.1. First scenario

In the first scenario, participants were asked to imagine receiving an endowment of 200 CZK and playing one-shot PGG as the last player, that is, after knowing how much other hypothetical players contributed to the common pool. This scenario aimed to test an

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RESULTS

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Results

— Numbers & their interpretations
— description of statistical decisions
— brief speculation if necessary
— graphs, tables

(Quali)
— thematic structures, examples
— frequencies, tables with frequencies of occurrence (of themes)
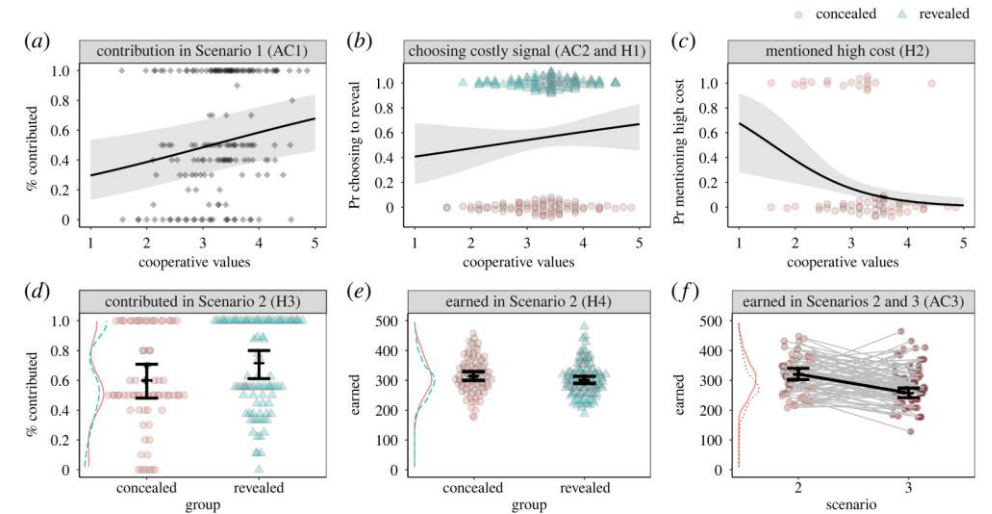
Predictors	Model 1			Model 2		
	Wald	Odds ratio	95% CI	Wald	Odds ratio	95% CI
(Intercept)	−0.62	0.54	[0.25, 1.16]	−0.55	0.57	[0.26, 1.28]
Cost	−2.77	0.06***	[0.02, 0.18]	−3.29	0.04***	[0.01, 0.15]
Financially Beneficial	4.46	86.53***	[22.20, 337.30]	3.97	53.37***	[12.72, 223.97]
Financially Fair	−1.00	0.37**	[0.18, 0.75]	−0.82	0.44*	[0.19, 0.99]
Machiavellianism	−0.35	0.70	[0.45, 1.10]	0.01	1.01	[0.48, 2.12]
Cost × Financially Beneficial				1.28	3.60	[0.83, 15.63]

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Results

Table 1. Examples of the open coding analysis.

Number	Category	Original Transcript
1	SNs to Communicate	I use social media to talk to friends. Sometimes I ask them if they want to play on PlayStation and while we play, we talk.
2	SNs to meet each other	I use social media to meet my friends. I send a message to our group, and everyone sees it. In this way it is much easier to meet them.
3	SNs to play	Sometimes I spend hours and hours playing because there is nothing to do. When I play with my cousins with a special server that gives us the possibility to play all together, I stay connected a lot. If I am alone at home I am bored.
4	SNs to share	We don't use social media a lot, but they are useful for sharing homework. Sometimes I don't make them all, there are often a lot of them and after school I'm tired.
5	SNs to know my personal value	In SNs I include my photos and photos with my friends. I wait to see the reactions and if others like me. This also happens with comments. I always wait for the reactions of others to see if they appreciate what I write.
6	SNs to be successful	I remember when I signed up, I wanted to see if I was successful with others, if they liked my posts and photos. I didn't expect to be popular but just that others liked me. Since I got a girlfriend, I've been online a lot less, connected a lot less.
7	Violence	A while ago there was a video of a homeless man at the station who either took drugs or had a seizure. Some guys were filming him on the phone, others were kicking him. I felt bad looking at it. Almost vomiting. There are tons of videos like that.
8	Offence	There are people that I don't even know who comment on my photos saying that "I suck." I don't say anything, I'm sad.
9	Pornography	Well, it happened to me that some older men sent me pictures of their penis. I blocked them immediately and made the report.
10	Unreal self-image	I uninstalled social media from my phone, and I was much calmer because I don't see the stereotype of a girl I should be every day. Since I took it off, it seems strange to say, but my self-esteem has risen more because I always saw types of girls that I knew I couldn't be.

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28

Results (Quanti)

Results

Factorial 2 x 2 ANOVA was used for data analysis. This omnibus test has several assumptions whose validity was evaluated before conducting analysis itself. The dependent variable (number of correctly recalled words) was near-to-normally distributed in each experimental group (broken down by condition and biological sex). Levene's Test of Equality of Error Variances yielded a reasonably high p-value [$F(3,88)= .767$, $p=.516$], indicating that assumption of homogenous variances was not violated. Regarding the assumption of independence, we tested participants separately, i.e. they were not interacting with each other. The fact that we were assigning participants into two experimental conditions was not communicated to them at all; they only knew that we were studying learning in VR. Furthermore, at the end of the experimental session, we explicitly asked participants not to discuss the content of the research with anyone, as this could potentially bias our results.

The only significant effect after conducting factorial ANOVA was the main effect of biological sex on the number of correctly recalled words, $F(1, 88)=9.295$, $p=.003$, partial $\eta^2=.096$. This effect appears to be small, because only 10% of variability in the dependent variable could be explained by participants' biological sex. However, with an achieved power of .85 we had a fairly good chance of detecting this effect if it really exists. When conducting this study over and over again, we would miss this effect only 15% of the time.

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Results (Quali)

Finally, in relation to typologies of cyberbullying, students suggested that 'visual' and 'impersonation' represent the cyberbullying construct better and they were considered more serious compared to the other two types (written-verbal and exclusion). In order to explain their positions, Estonian students said that the visual form of cyberbullying is more serious because it is most convincing; students said that *"a picture can paint a thousand words"*. Younger students found that the visual cyberbullying act is the most humiliating. Older students added that *"it depends on whether M sends the image only to C, or sends it to a wider audience. If he sends to others, then yes...and you'll never know which kind of photos he still has..."* In relation to impersonation, students stated that it is serious if a perpetrator finds out or steals someone's password to gain access to the accounts, then the bully can cause a lot of trouble for that person; for example, spreading private information or impersonating another person's name. In the context of written-verbal behaviour an older student said that *"this is so simple and insignificant...if it happened through messages then it cannot be taken very seriously compared to the situation where he/she was told it in a face-to-face situation."* But the students raised the topic of the content of the message and the person behind the act. Consequently, they admitted that the seriousness of such incidents also depends on the content of the message (whether it is just a vulgar joke or something more personal) and the person who sends these messages.

Exclusion was perceived to be the least serious by the students. It was considered a defensive reaction against aggressive behaviour to avoid or put an end to cyberbullying. In addition, blocking and ignoring the bullying action was the main reaction suggested by the students if they were asked what they would do in the specific situations. Moreover, several students raised the question of the causes, which led M. to the act of cyberbullying; before their assessments, they would have liked to have known the causes and intentions behind the perpetrator's act. Older students argued: *"Maybe C. had bullied M. before and now M. wants to get back at him/her."*

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Results

– when we fail to reject a hypothesis, the result is "inconclusive"
  o we can reject the null hypothesis but we cannot accept it

"We found no significant treatment effects for men or women, with the exception that time pressure increased utilitarian judgments among women, see S1 File Table G. The significant effect of time pressure on utilitarian judgments among women <mark>*may just be a false positive*</mark> *and should not carry any weight unless confirmed in other studies. The large number of tests carried out increases the risk of false positives and the result would not survive adjustments for multiple testing."*
(https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0164012#pone.0164012.ref020)

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DISCUSSION

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Discussion (structure)

— Introductory paragraph
  - what the research was about
  - main results
— Theory (often no headlines)
  - relate the results to the theory
  - explain the results using theory
  - discussion links back to introduction
— Limits & future research
— Final paragraph / separate headline
  - conclusion / summary
  - focused on results, interpretations, contributions and recommendations for future research

*do NOT go beyond what the results can support !!!
*just one of the possible structures !!!

Discussion

The current study investigated the effect of specific study and recall contexts on memory recollection in VR, while also taking into account the biological sex of participants. Contrary to our expectations, an exposition to different visual contexts during studying and recall of presented lists of words was not associated with impaired memory performance. Although, biological sex appeared to be a factor responsible for differences between participants, such that overall, mens' memory performance was worse than womens'. Additionally, we observed better performance of women compared to men when considering the experimental condition only. No such differences were observed when participants recalled the material in the same context where they studied. Importantly, men did not recall significantly lower numbers of studied words in the same context where they studied, compared to recalling them in a different context.

These results resemble previous studies demonstrating that study vs. recall context itself is rarely sufficient to affect memory performance in virtual reality (Shin et al., 2021,

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Discussion (structure)

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*just one of the possible structures!!!

34

Conclusion and Discussion

Do individuals intuitively favor certain moral actions over others? Building on sequential dual-process theories, claims have been made that intuition should lead to more deontological moral judgments where overall consequences are disregarded. Likewise, prosocial behavior is often assumed to emerge from exerting reflective control over automatic, selfish impulses. However, recent work by for example Rand and Nowak [61] has argued that prosocial actions in the context of cooperation in the public goods game stem from intuitive processes, which was supported by the results of Rand et al [62]. However, those results failed to replicate in independent replications [63,64]. The behavioral literature related to intuition and moral judgement and altruistic behavior is also far from coherent, with effects going in both directions.

In two studies, we applied time pressure and cognitive load to investigate the effect of intuition on moral decision-making. In general, we find no effect of our manipulations on moral judgment and altruistic behavior. Thus, we find no supporting evidence for the claim that intuitive moral judgments and intuitive decisions in the dictator game differ from more reflectively taken decisions. Our results are consistent with Haidt's [11] Social Intuitionist Model, but provide no support for Greene's dual-process theory of morality.

A possible explanation for why we detect no difference is that intuitive processing constitutes our default mode when making moral decisions so that individuals apply automatic moral rules like "maximize life saved" and "don't do harm" or "maximize own payoff" and "help others". Such moral rules can be based on both consequential and non-consequential considerations and

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Discussion (structure)

– Final paragraph / separate headline
  o Conclusion / summary
  o focused on results, interpretations, contributions and recommendations for future research

Here we have explored the cognitive underpinnings of cooperation in humans. Our results help to explain the origins of cooperative behaviour, and have implications for the design of institutions that aim to promote cooperation. Encouraging decision-makers to be maximally rational may have the unintended side-effect of making them more selfish. Furthermore, rational arguments about the importance of cooperating may paradoxically have a similar effect, whereas interventions targeting prosocial intuitions may be more successful[30]. Exploring the implications of our findings, both for scientific understanding and public policy, is an important direction for future study: although the cold logic of self-interest is seductive, our first impulse is to cooperate.

To sum up, the two experiments reported here provide converging evidence that intuitive moral decision-making does not differ from decisions made in situations where deliberation before decision is facilitated. Given the ambiguous results from the previous literature that most often has been based on small sample studies that have not been replicated and the proneness for publication bias, it is perhaps not so surprising that we find a null effect in our well-powered large sample study. The ambiguous results in previous studies may also be prone to what Gelman and Loken [69] refer to as "the garden of forking paths", which implies lots of decisions on how to analyze the data being made after seeing the data. In line with previous studies we observe a significant gender gap in both moral judgment and altruistic behavior, i.e. males make more utilitarian moral judgments and are more selfish in the dictator game. However, there are no significant interactions between gender and the treatment manipulations of intuitive versus reflective decision-making.

Conclusion

People seek anonymity to engage in behaviors that may be viewed as nonnormative. Self-centered and excessively generous behaviors can incur social costs, so people seek anonymity to mitigate the negative consequences of these behaviors. Furthermore, in line with a functionalist approach, individual differences —such as Machiavellianism and psychopathy—likely drive these motivations and the desire to use situational affordances to achieve their goals.

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Discussion

– Vocabulary

  o People are happy
  o This study provides evidence that people are happy
  o This study shows that people are happy
  o The study demonstrates that people are happy
  o The study illustrates that people are happy
  o This result implies that people are happy
  o Using the current design, the study shows that people are happy
  o This study suggests that people are happy
  o This study suggests that people may be happy
  o We speculate that people are happy
  ...

  o This and the results of other studies (XY) show that people are happy
  o The result that people are happy is in line with previous research
  o The result contradicts / does not support previous findings
  ...

Supplements & other additions

– Final statements
- Data availability (eg. OSF, GitHub, Zenodo)
- Code availability
- Author contributions
- Funding
- Acknowledgements
  - Labs that helped
  - People who helped
- Conflict of interest

Data and code availability

Data and code are publicly available at OSF: https://osf.io/ahy2b/.

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Author contributions

M.L. and R.C. developed the idea for the three studies, and B.G.P. provided comments. M.L. and R.C. collected data, and M.L. analyzed them. ML drafted the paper, and all authors provided comments.

Competing interests

The authors declare no competing interests.

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  - People who helped
- Conflict of interest

Data accessibility

The datasets and code supporting this article have been uploaded as part of the electronic supplementary material.

Authors' contributions

N.J.W. and C.H.L. developed the study concept. All authors contributed to the study and coding rubric design. Testing and data collection were supervised by N.J.W. N.J.W. performed data analysis and interpretation under supervision of A.K.W. and C.H.L. N.J.W. drafted the manuscript and C.H.L. and A.K.W. provided critical revisions. All authors approved the final version of the manuscript for submission.

Competing interests

We declare we have no competing interests.

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Supplements & other additions

— Final statements
  - Author contributions
    - CRediT author statement

Author contributions

LJ: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Project administration, Writing – original draft, Writing – review & editing. JP: Formal analysis, Methodology, Validation, Visualization, Writing – original draft, Writing – review & editing. PK: Formal analysis, Methodology, Visualization, Writing – review & editing. LP: Methodology, Visualization, Writing – review & editing. AR: Data curation, Writing – original draft. VJ: Writing – review & editing. RM: Software, Writing – review & editing. RR: Methodology, Writing – review & editing. JB: Conceptualization, Methodology, Writing – review & editing. KS: Methodology, Writing – review & editing. JN: Methodology, Writing – review & editing. MB: Conceptualization, Funding acquisition, Resources, Supervision, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

The author(s) declared that they were an editorial board member of Frontiers, at the time of submission. This had no impact on the peer review process and the final decision.

39

Supplements & other additions

- Appendices
- Separate supplements
  - Images
  - Videos
  - PDFs...

Appendix A

Glasgow Sensory Questionnaire (GSQ) (ver. 1.0)

What is your Date of Birth? _____

What is your postcode? _____

Are you male or female?

Male   *Female*

Do you live in the UK at the moment?

Yes   *No*

If *Yes*, would you like to be entered into a draw to win an HMV/Amazon UK voucher? (worth £10). Please note that I have no affiliation with any of these companies.

Hypo	*Ves*
Hypo	*Vis*
Hypo	*Vis*
Hyper	*Aud*
Hypo	*Pro*
Hypo	*Aud*
Hyper	*Gus*
Hyper	*Tac*

Appendix B

Principal Components Analysis (7(

	C		
	1	2	3
Q19	.656		
Q63	.644		
Q23	.642		
Q68	.630		
Q8	.623		
Q62	.611		
Q26	.605		
Q24	.599		
Q14	.595	-.273	
Q38	.592		
Q10	.588	.342	
Q55	.587		
Q32	.587		
Q69	.585		
Q31	.584		
Q52	.583		
Q49	.571		
Q54	.570	.309	
Q37	.563		
Q34	.558		-.264

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Presenting research

— Don't start with "takže"
  ○ dr. Juřík doesn't like it
— Clothes
— Language

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Teamwork

– Leader (usually 1st author)
– Different expertise and interests
– Discussion
  - Knowledge of theory
  - Potential design flaws
  - Alternative explanations
  - Experience with the examined sample / platform / place / research

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Critical thinking & reading

— Food / music / social skills
  - Training !

— Researcher's toolbox:
  - Knowledge of theory (papers, books, scientific discussion)
  - Methodology
  - Statistics
  - Programming, working with software
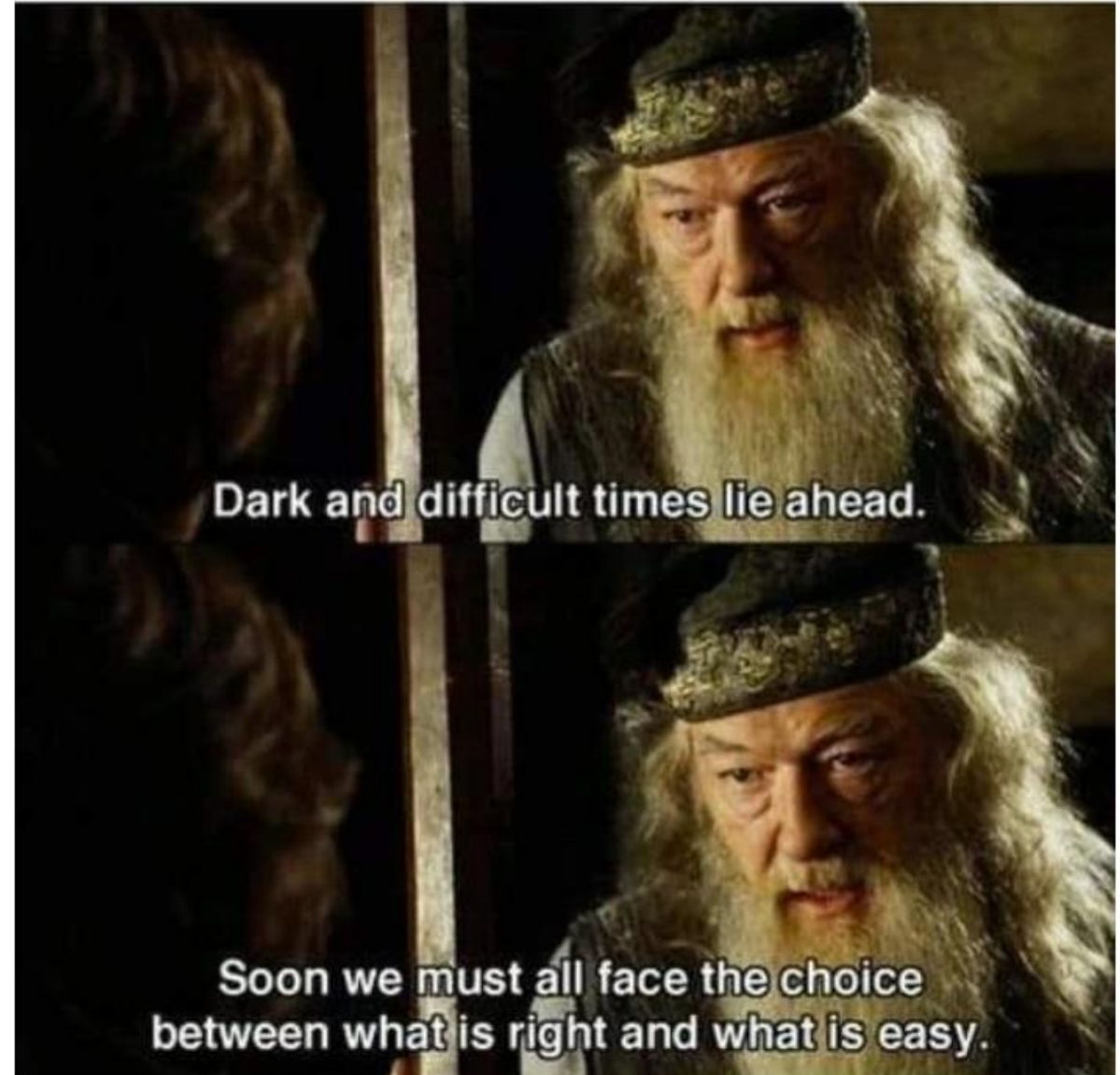 - Familiarity with technologies
  - Research experience

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Final assignment (Q & A)

– Pretend it's a proposal
  - o Future tense
  - o 1st half: introduction & methods
  - o 2nd half: what the results might be (results), contribution of results, other ways of approaching the topic, limits of the study, suggestions for future research (discussion)
  - o Check the assignment in IS

– Author plural / singular

– Quanti / Quali

– Slovak / Czech / English / combination

– ???

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Fingers crossed with your academic writing!

alexandra.ruzickova@mail.muni.cz

When you begin editing your first draft

Dark and difficult times lie ahead.

Soon we must all face the choice between what is right and what is easy.

MASARYK UNIVERSITY