

Supplementary Information for

“When happiness induction techniques make respondents unhappy: Failing to induce happiness in Ukraine during the Russo-Ukrainian War”

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Appendix A: Data collection

We draw on data from the ReUP panel study that was set-up via social media sampling in June 2022. Due to the ongoing war in Ukraine, random sampling was not feasible. Millions of Ukrainians had left their homes, making address-based sampling (e.g., via registers), or random digit dialing, already very biased. Additionally, applying geo-referenced sampling techniques could not be carried out; as such methods rely on later face-to-face interviewing. In summary, we saw no possibility of applying any random-sampling approach.

Therefore, we relied on sample selection using geo-referenced advertisement campaigns on two widely used social network sites in Ukraine, Facebook and Instagram, which are supposedly used by more than 60 percent of the population (statcounter, 2023). In total, we used four different sets of advertisement campaigns which differed with respect to the picture material presented. Here, we used the Ukrainian flag, the respective national colours of blue and yellow, partly in combination with the European flag. Furthermore, the campaigns also differed with respect to the targeted population, which we stratified in five regions, and by gender and age (up to 50 and above 50). Luhansk, Donetsk and Crimea could not be targeted directly. People who clicked on the campaign were asked whether they would be willing to take part in an online survey about the Ukrainian view on the role of the European Union. We did not offer incentives because we feared that people from outside the Ukraine might take part which could affect the results. We made this clear in the introduction of the survey and participation could be stopped at any moment (which would delete all answers).

The first wave of data collection was conducted between June, 3 and June, 28 2022, with more than 18,500 respondents taking part. For those participating in this recruitment survey, we asked for their consent for us to contact them again. More than 14,000 provided their panel consent, of which about 7,240 provided us with valid email addresses.

The data for our article was taken from the second, third and fourth wave of the study. The field time of the second wave of data collection, took place between November 24th, 2022 and January 31st, 2023 (response rate: 32.5 %). One invitation and three reminders were sent out. Apart from some socio-demographic questions, the questionnaire dealt mainly with the respondents' attachment to the EU and NATO countries – and whether joining the EU is preferred – as well as including questions on national identity, attitudes towards sanctions against Russia, and political attitudes. No incentives were provided to respondents. The average length of survey participation in wave 2 was 33.6 minutes (SD = 35.3, median = 26.3). The survey was offered in Ukrainian and in Russian – both versions were provided by a translation company – and checked by three native speakers.

The third wave of data collection took place between July 11th and August 6th, 2023 (response rate: 28.7 %). Again, one invitation and three reminders were sent out. No incentives were provided, and the survey was again offered in Ukrainian and Russian. The average length of survey participation in wave 3 was 19.0 minutes (SD = 22.1, median = 14.6).

The fourth wave of data collection took place between February 8th and 24th, 2024 (response rate: 29.6%). Again, one invitation and three reminders were sent out. No incentives were provided, and the survey was again offered in Ukrainian and Russian. The average length of survey participation in wave 4 was 20.0 minutes (SD = 22.5, median = 14.9).

Table A 1: Study overview

	Wave 2	Wave 3	Study 4
Field time	November 24 th , 2022 to January 31 st , 2023	July 11 th to August 6 th , 2023	February 8 th to May 6 th , 2024
N (of which still in Ukraine)	1,980 (1,498)	1,542 (1,190)	1,639 (1,260)
Survey time in minutes: Mean, Median (SD)	33.6, 26.3 (35.3)	19.0, 14.6 (22.1)	20.0, 14.9 (22.5)

Table A 2: Summary statistics (all finished interviews)

	Wave 2	Wave 3	Wave 4	Other surveys from 2021/2022
Female	0.52	0.50	0.50	
Ukrainian language spoken at home	0.48	0.47	0.48	0.60 ^a
Median age	39.8	39.8	40.9	41 ^b
Vocational training or college degree	0.80	0.80	0.80	0.58 ^c
N	2,005	1,563	1,644	

^a <https://chytomo.com/ponad-20-ukraintsiv-pochaly-chastishe-vykorystovuvaty-ukrainsku-movu-opytuvannia/>

^b <https://population.un.org/dataportal/data/indicators/67/locations/804/start/1990/end/2024/table/pivotbylocation?df=c19ffe12-d840-44aa-9513-e6a66beaabaec>

^c Only refers to tertiary education, see https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Archive:European_Neighbourhood_Policy_-_East_-_education_statistics

Table A 3: Overview of dropout and item non-response

	Study 1	Study 2	Study 3	Study 4
Survey dropouts on the page of the experiment	39 (1.7 % of all that started the survey)	22 (1.3 %)	42 (2.3 %)	10 (0.6 %)
Item non-response for the happy-sad question	349 (17.6% of all that finished the survey)	251 (16.3%)	76 (14.3 %)	87 (15.0 %)

Appendix B: Survey instruments

Study 1 and 3:

Emotional recall question:

Control: “Towards the end of the interview, we would like to know more about your life. Can you briefly describe for us in a few sentences what you ate for breakfast this morning. Please describe this situation to us clearly and in as much detail as possible. We are interested in what such a situation looks like for you. Ideally, another person who then reads the text would have a good idea of how you ate breakfast.”

Experimental treatment: “Towards the end of the interview, we would like to know more about your life. Can you briefly describe for us in a few sentences a situation in which you were very happy? Please describe this situation clearly and in as much detail as possible. We are especially interested in why you were happy and how this situation felt to you. Ideally, another person who then reads the text would be able to understand well that you were happy.”

Study 2:

Visual stimulus:

Please take a look at the following picture. Please describe what you are seeing.

Control:



Experimental treatment:



Study 4:

Control: “Can you briefly describe for us in a few sentences how you started of an ordinary day when you were 15 years old? Please describe this situation to us clearly and in as much detail as possible. We are interested in what such a situation looks like for you. Ideally, another person who then reads the text would have a good idea of how you started a day back then.”

Experimental treatment:

- What is your favorite song?
- What is your favorite food?
- What is your favorite animal?
- What is your favorite hobby?
- What is your favorite travel destination?
- What makes you most happy? It can be a place, a person, an activity, or anything else that makes you very happy.

Manipulation check:

How are you feeling at the moment?

1: Sad - 7: Happy

Appendix C: Pre-registration forms

Study 1 & 3

https://osf.io/pg25f?view_only=44b52db7e3504c589f3dd0a50408fa31

Study 2 & 4

https://osf.io/g5cmr?view_only=d0fc2bfe9bab40658967c23e9c312461

Appendix D: CONSORT Participant Flow Diagram

Figure D 1: Complete CONSORT Participant Flow Diagram (Study 1)

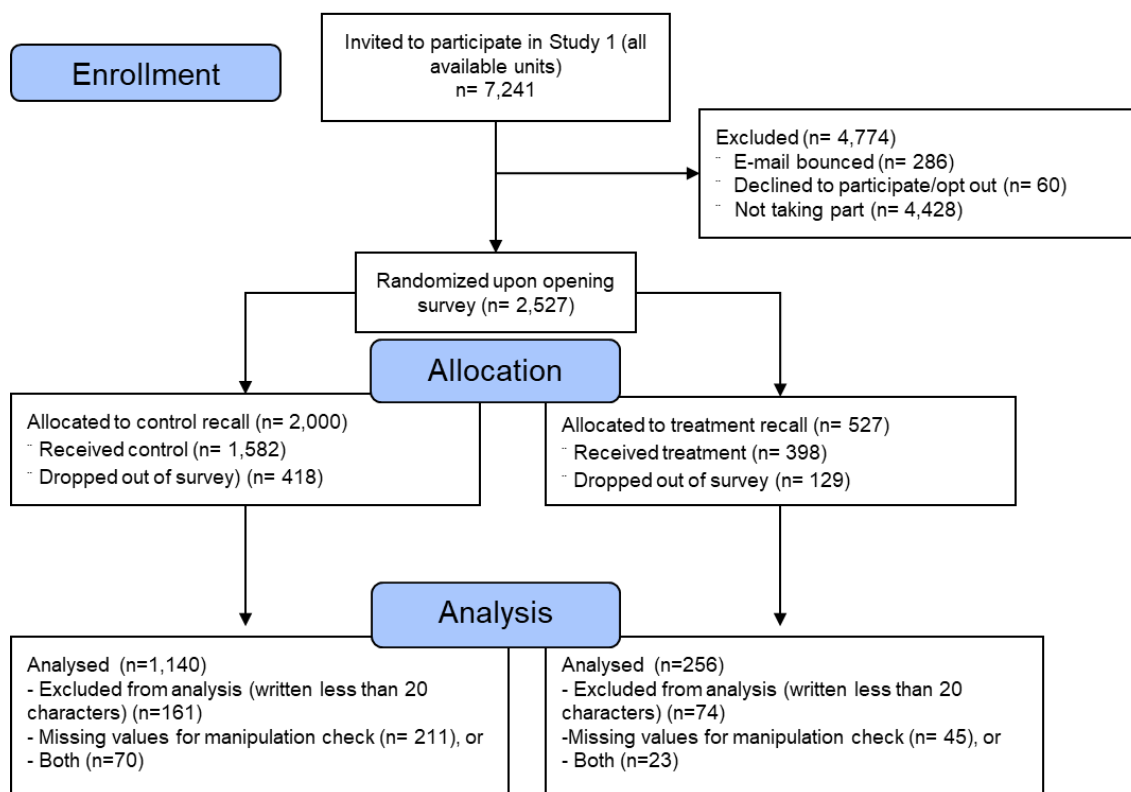


Figure D 2: Complete CONSORT Participant Flow Diagram (Study 2)

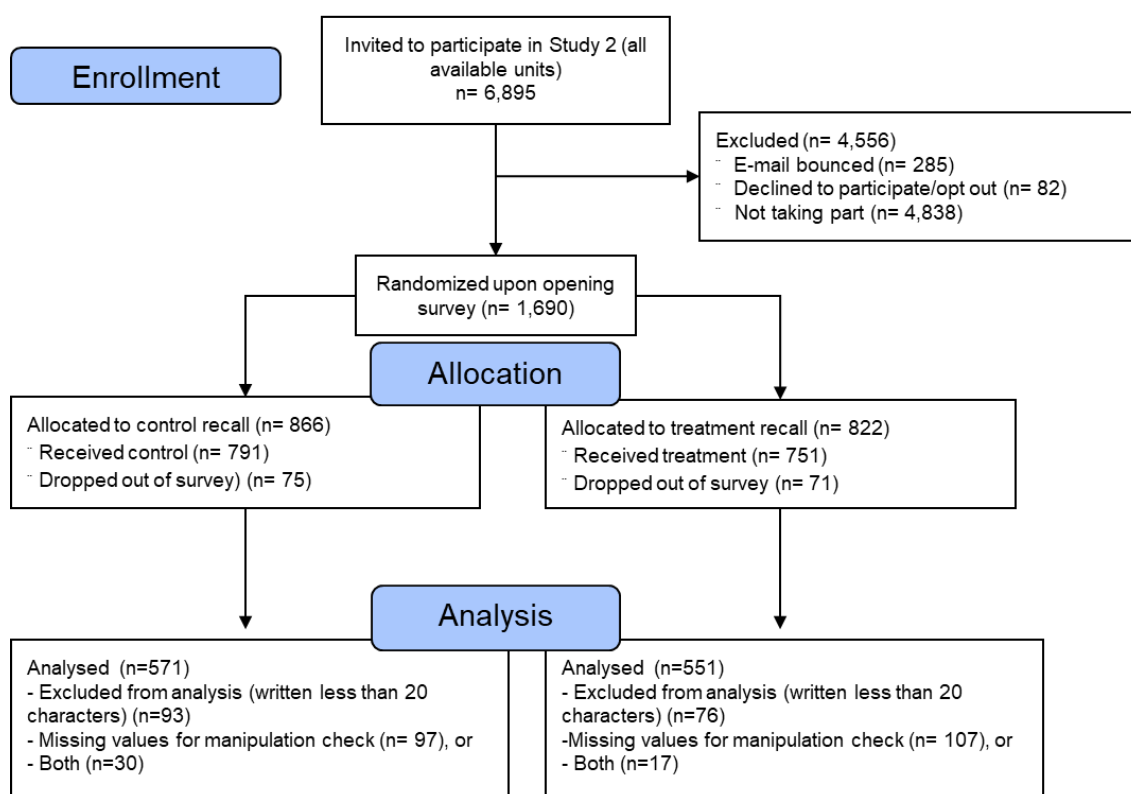


Figure D 3: Complete CONSORT Participant Flow Diagram (Study 3)

Complete CONSORT Participant Flow Diagram

CONSORT 2010 Flow Diagram (Study 3)

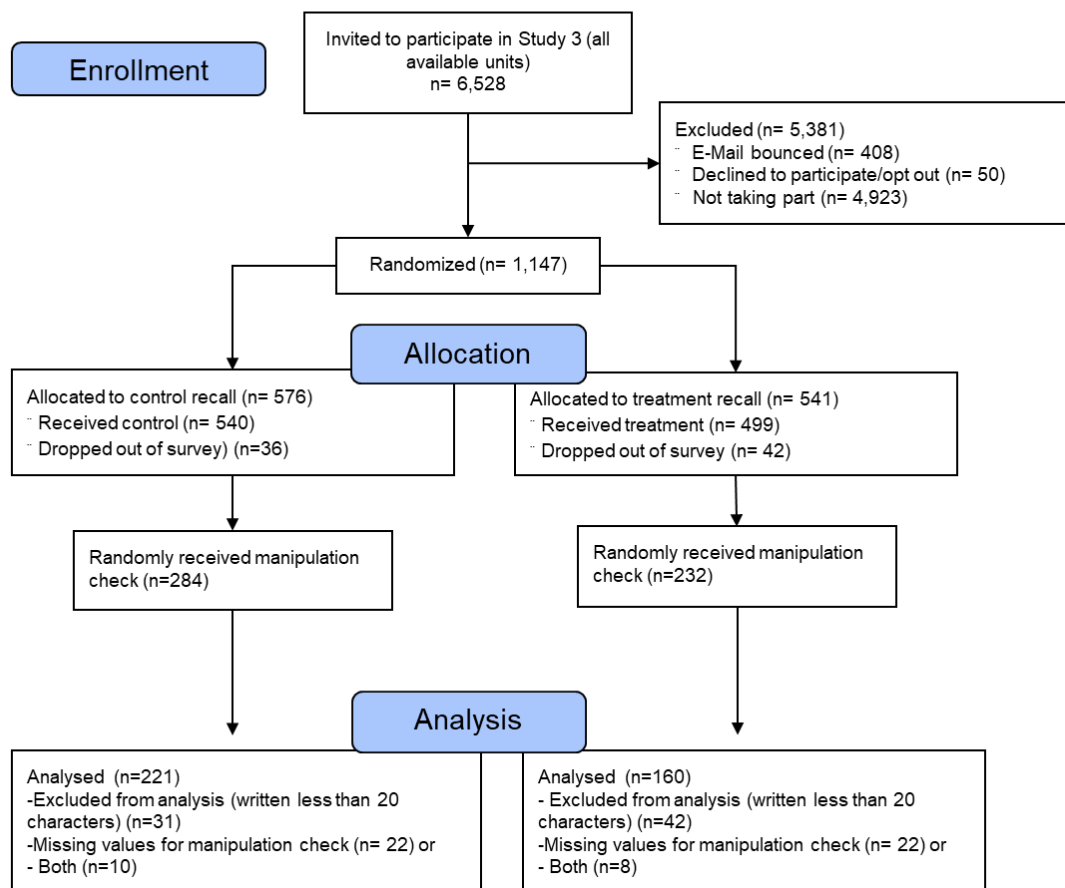
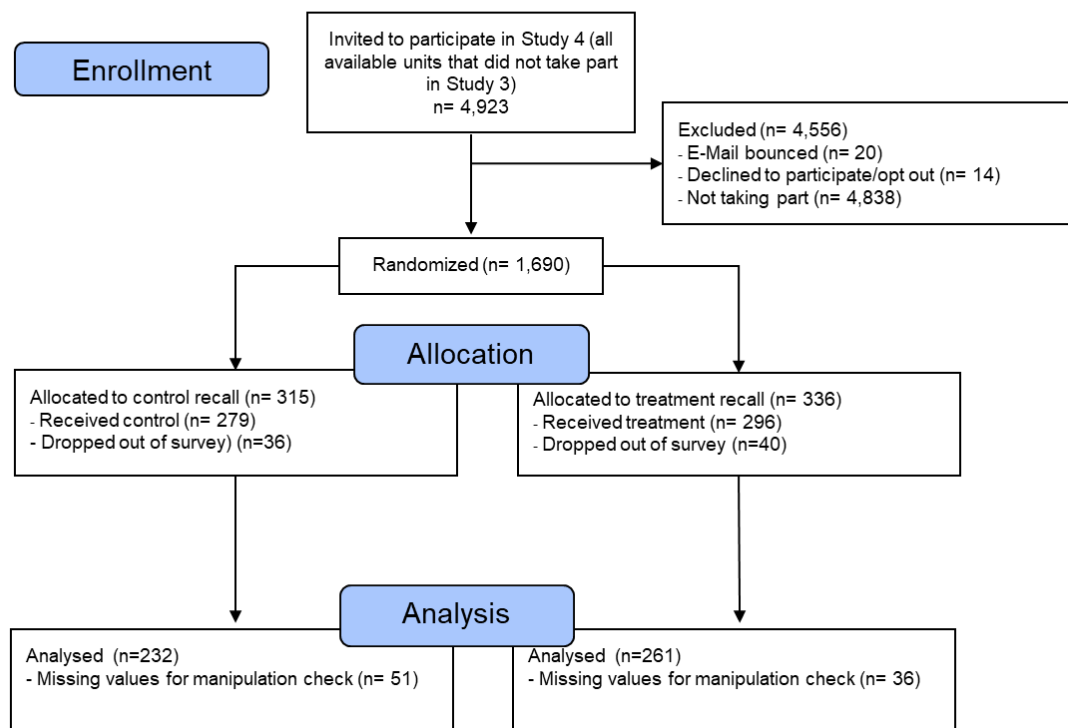


Figure D 4: Complete CONSORT Participant Flow Diagram (Study 4)

Complete CONSORT Participant Flow Diagram

CONSORT 2010 Flow Diagram (Study 4)



Appendix E: Additional Table and Figures

Table E 1: Experimental results restricting cases to those that wrote 20+ characters

Stimulus description					Happiness manipulation check						
Control			Treatment		Control			Treatment			Diff
#	Question	N	Question	N	Mean	SD	N	Mean	SD	N	
1	breakfast	1,582	happy situation	398	4.41	1.74	1,140	4.80	1.75	256	-0.39***
2	image of paper stack	791	picture of beach	751	4.42	1.77	571	4.27	1.80	551	0.15
3	breakfast	548	happy situation	511	4.38	1.81	221	4.84	1.82	160	-0.46**
4	ordinary day at age 15	283	6 happy questions	297	4.46	1.74	232	4.28	1.84	261	0.18

The # indicates the study number. In Studies 1 and 3, participants in the treatment group were significantly more likely to write fewer than 20 characters (Study 1: 8.6 percentage points higher, $p < 0.001$; Study 3: 5.7 percentage points higher, $p < 0.05$). The random split for study 1 was 4/5 in the control group and 1/5 in the treatment group because we were initially afraid that the happiness treatment would lead to larger dropout due to higher cognitive recall effort. In Study 3, only half of the participants randomly received the manipulation check in accordance with the preregistration. “Diff” indicates mean differences based on two-tailed two-sample t-tests with equal variances with * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table E 2: Distribution

	Study 1		Study 2		Study 3		Study 4	
	Control	Exp	Control	Exp	Control	Exp	Control	Exp
Age	39.48	40.14	39.09	39.99	40.31	39.44	41.93	41.58
Gender: Male	0.50	0.46	0.49	0.52	0.50	0.51	0.52	0.48
University educated	0.79	0.81	0.79	0.81	0.81	0.79	0.79	0.85
Origin: Eastern Ukraine	0.08	0.09	0.07	0.09	0.07	0.10	0.07	0.07

Differences for grey shaded cells are statistical significant ($p < 0.05$) based on two-sampled two-paired t-Test with equal variances.

Table E 3: Manski bounds of treatment effects with 95% Bootstrap CIs

	Study 1	Study 2	Study 3	Study 4
LB	0.306**	-0.127	0.418*	-0.207
	[0.092,0.520]	[-0.313,0.058]	[0.090,0.746]	[-0.522,0.107]
UB	2.798***	2.927***	3.154***	2.923***
	[2.714,2.883]	[2.831,3.023]	[2.985,3.324]	[2.763,3.083]
N	1670	1297	480	508

Manski bounds with 95% bootstrapped confidence intervals (based on 1,000 iterations) in brackets (Manski & Pepper, 2000). The lower bound value is based on the Monotone Treatment Selection (MTS) assumption. LB = Lower Bound (MTS), UB = Upper Bound (Extreme). * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

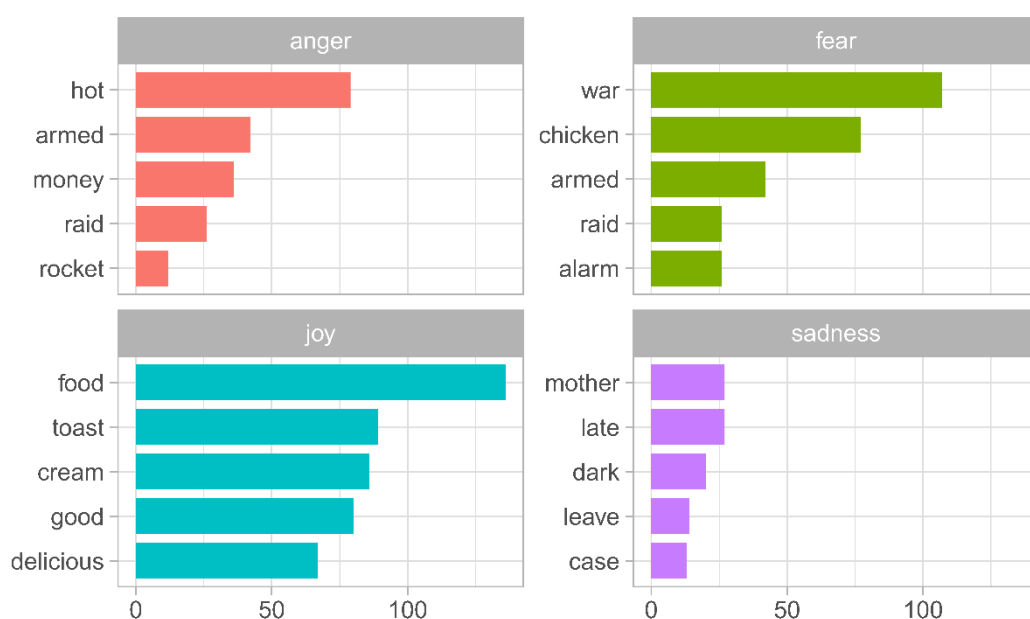
Figure E 1: Wordcloud of open-ended responses of the control group (Study 1)



Figure E 2: Wordcloud of open-ended responses of the treatment group (Study 1)

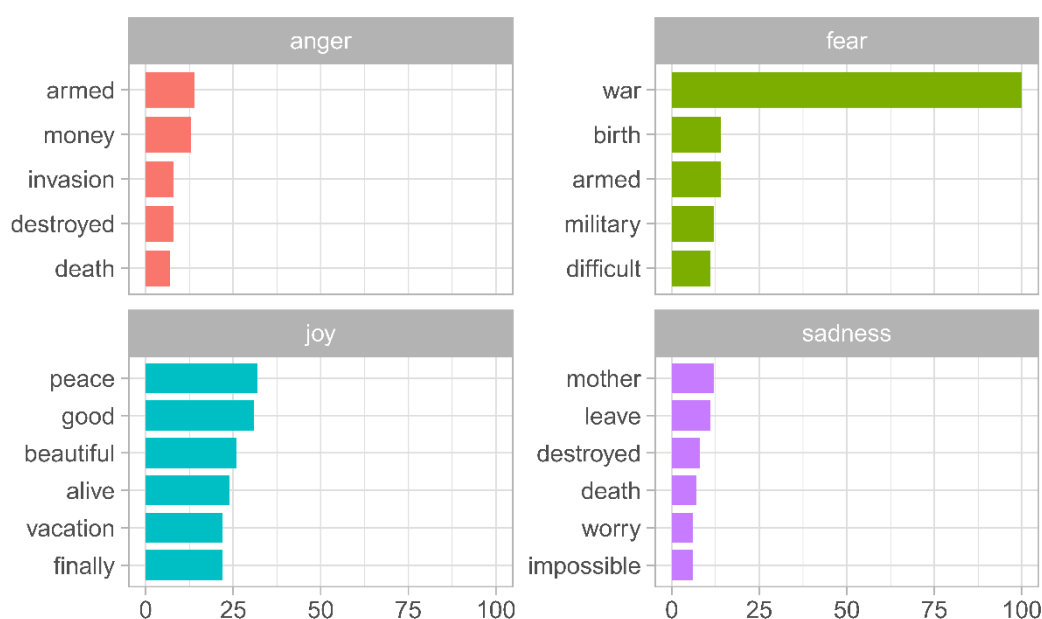


Figure E 3: Distribution of sentiments of open-ended responses in the control group (Study 1)



Sentiment classification of open-ended responses without the terms “feeling”, “happy”, “happiness”. Reported are the five most common terms per sentiment. In case of multiple terms with the same number of counted classifications, more than five entries are displayed.

Figure E 4: Distribution of sentiments of open-ended responses in the treatment group (Study 1)



Sentiment classification of open-ended responses without the terms “feeling”, “happy”, “happiness”. Reported are the five most common terms per sentiment. In case of multiple terms with the same number of counted classifications, more than five entries are displayed.

Figure E 5: Wordcloud of open-ended responses of the control group (Study 3)

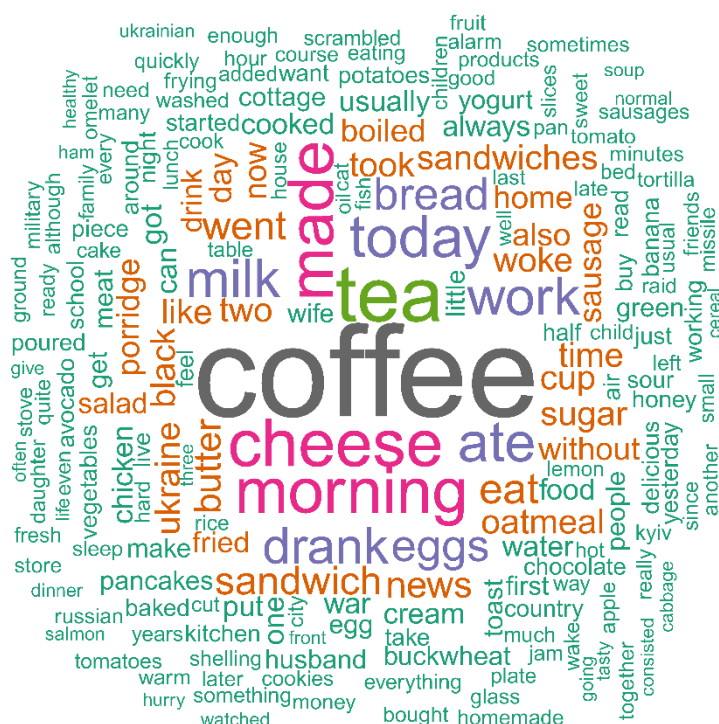
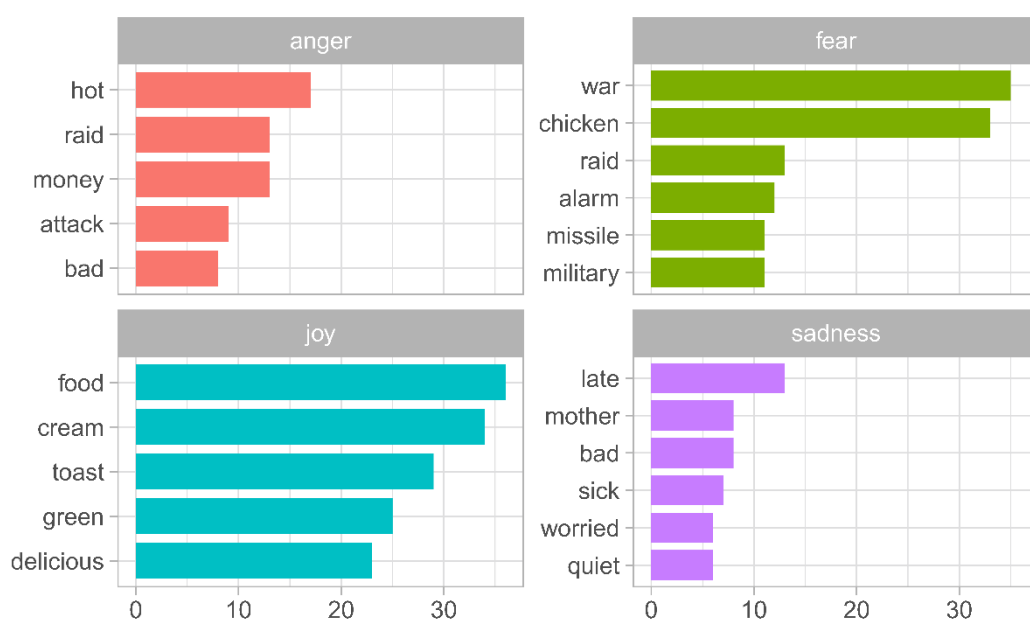


Figure E 6: Wordcloud of open-ended responses of the treatment group (Study 3)

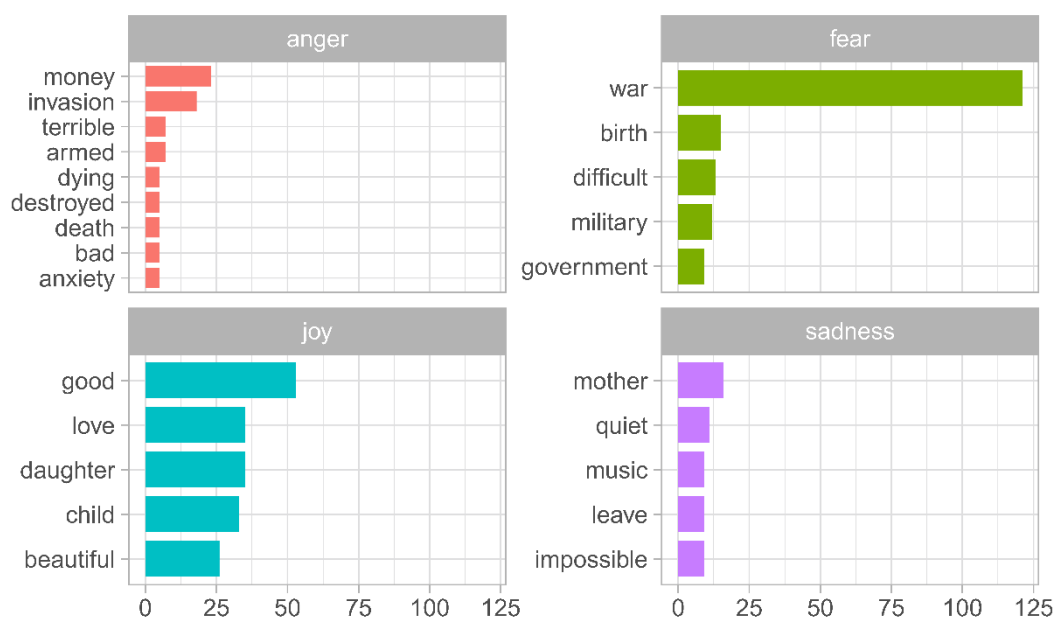


Figure E 7: Distribution of sentiments of open-ended responses in the control group (Study 3)



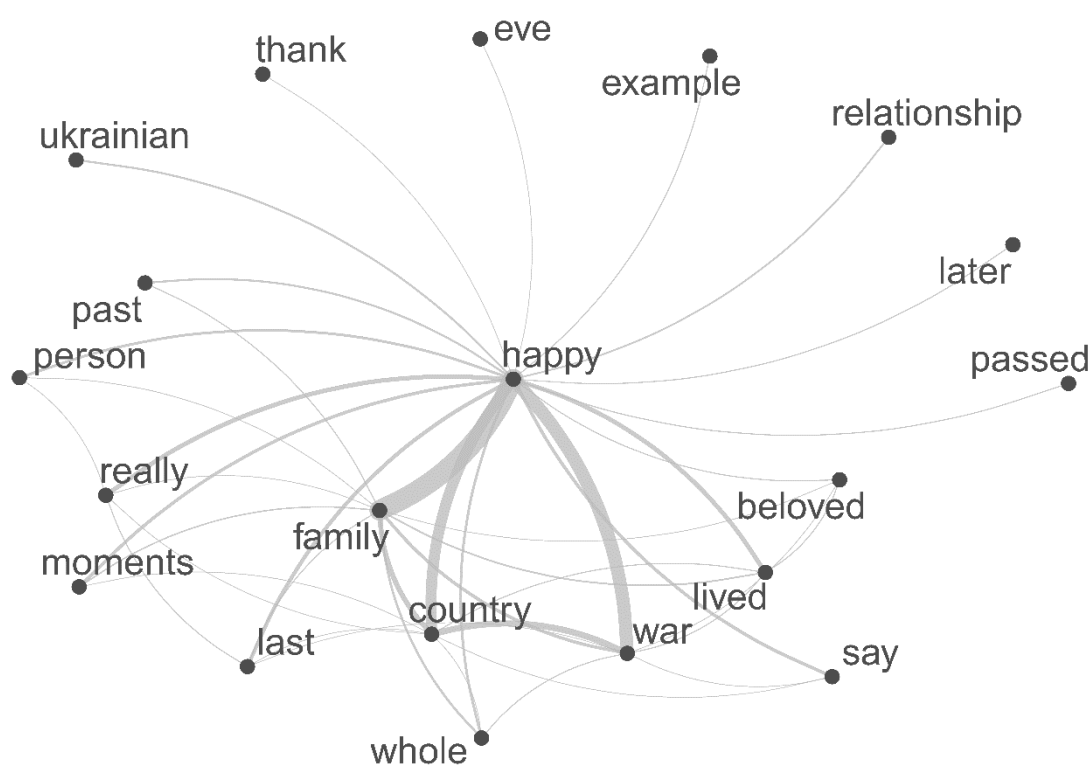
Sentiment classification of open-ended responses without the terms “feeling”, “happy”, “happiness”. Reported are the five most common terms per sentiment. In case of multiple terms with the same number of counted classifications, more than five entries are displayed.

Figure E 8: Distribution of sentiments of open-ended responses in the treatment group (Study 3)



Sentiment classification of open-ended responses without the terms “feeling”, “happy”, “happiness”. Reported are the five most common terms per sentiment. In case of multiple terms with the same number of counted classifications, more than five entries are displayed.

Figure E 9: Network of collocations for “happy” in treatment condition (Study 3)



Network graph of open-ended responses to emotional recall question. Shown are the collocations between top 20 tokens (based on highest phi values) and keyword “happy” (window=5) in treatment group.

Figure E 10: Wordcloud of open-ended responses of the control group (Study 4)

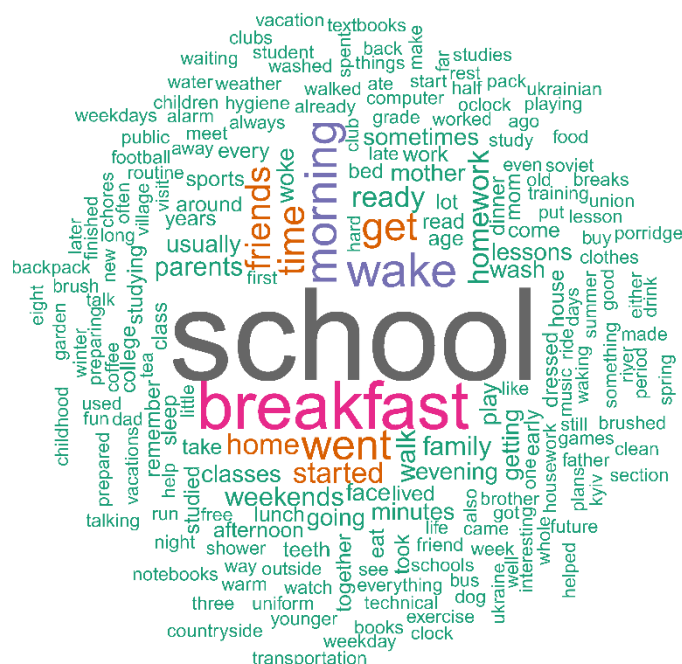
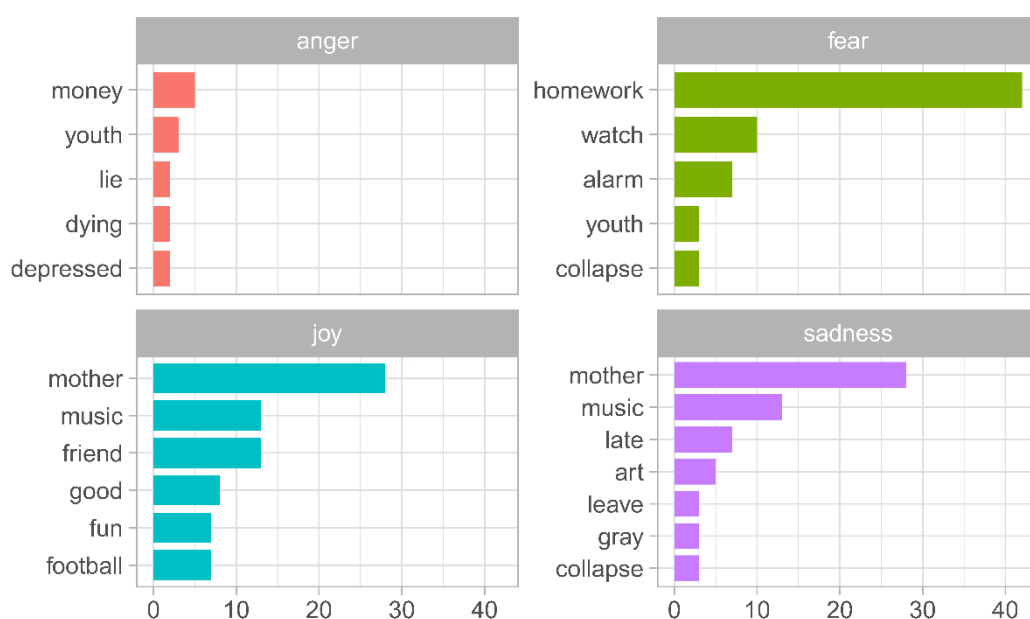


Figure E 11: Wordcloud of open-ended responses of the treatment group (Study 4)

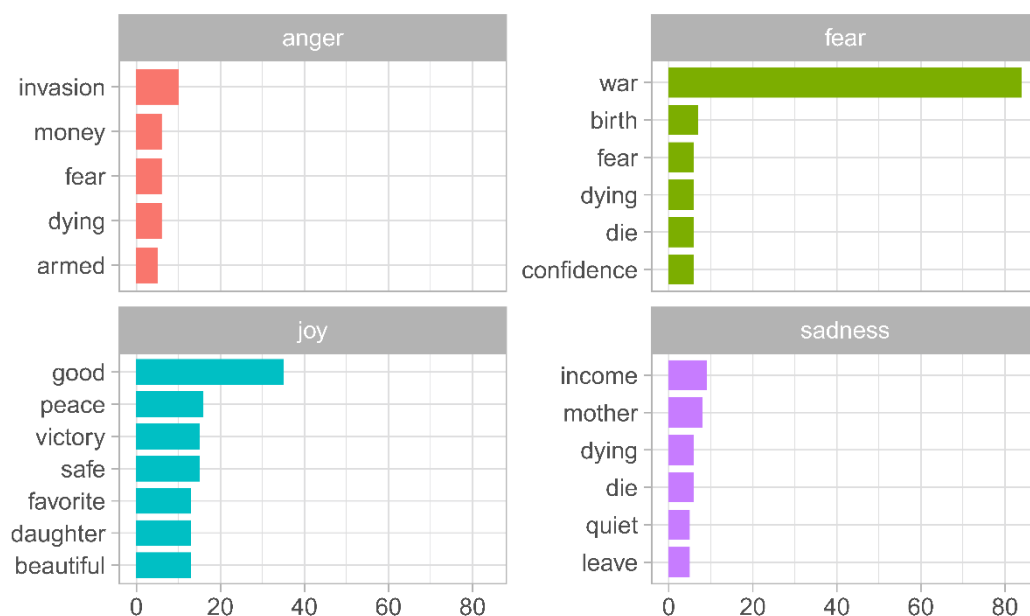


Figure E 12: Distribution of sentiments of open-ended responses in the control group (Study 4)



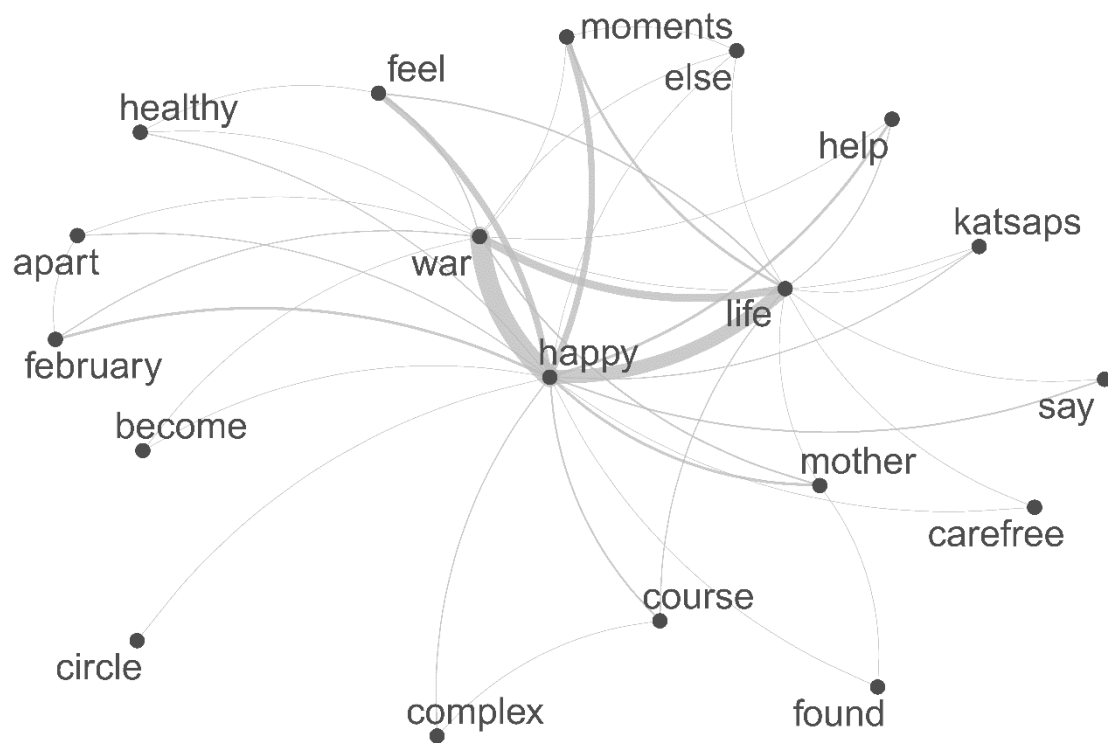
Sentiment classification of open-ended responses without the terms “feeling”, “happy”, “happiness”. Reported are the five most common terms per sentiment. In case of multiple terms with the same number of counted classifications, more than five entries are displayed.

Figure E 13: Distribution of sentiments of open-ended responses in the treatment group (Study 4)



Sentiment classification of open-ended responses without the terms “feeling”, “happy”, “happiness”. Reported are the five most common terms per sentiment. In case of multiple terms with the same number of counted classifications, more than five entries are displayed.

Figure E 14: Network of collocations for “happy” in treatment condition (Study 4)



Network graph of open-ended responses to emotional recall question. Shown are the collocations between top 20 tokens (based on highest phi values) and keyword “happy” (window=5) in treatment group.