PARTICIPATION IN ONLINE SURVEYS IN PSYCHOLOGY. A META-ANALYSIS.

Tanja Burgard, ZPID

Nadine Kasten, University of Trier

Michael Bosnjak, ZPID

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PROBLEM: DECLINING PARTICIPATION IN PSYCHOLOGICAL SURVEYS

- Nonresponse has increased since the 1990s
  - in household surveys in social sciences and politics (Brick & Williams 2013) and
  - in counseling and clinical psychology (Van Horn et al. 2009)

- Nonresponse often systematic (Groves & Peytcheva 2008): Participants not representative → Biased results

- In recent years, online surveys have become more popular in psychology
  - Web surveys yield lower response rates than other survey modes (Lozar Manfreda et al. 2008), e.g. Shi & Fan (2008): Meta-analytic comparison of web and paper surveys: 34 % response in web surveys, 11 % more in paper surveys
  - Web surveys may be less representative due to unequal access and use of the internet (Asire 2017)
  - Dynamic field: Growing number of internet users and increase in web surveys → Change over time?

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RESEARCH QUESTIONS

- How has the willingness to participate in psychological online surveys developed over time?
  - We assume declining initial response rates.

- Which further variables do moderate initial participation?
  - We explore the influence of the following moderators: Type of recruitment / invitation and length of the questionnaire
  - The findings should guide researchers in how to optimally implement psychological online surveys yielding high participation rates

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HYPOTHESES ON MODERATORS OF PARTICIPATION

H 1: The initial participation rate in psychological online surveys has decreased over time.

- Amount of communication has increased, as well as number of surveys and scientific studies
  - More information has to be processed, less stimulation and attention to single communication requests
  - Social exchange: After having participated in a few studies, the respondent feels to have done his part (Groves et al. 1992)
- Online surveys become more popular (cheaper and faster) → increase in requests / oversurveying

H 2: The personalization of the invitation increases participation.

- In the mass of communication requests, it is important to get attention and to appeal possible study participants
- Personal address increases the feeling of responsibility or obligation

H 3: The more burdensome a study is, the lower is the participation.

Cultural change to individualism: Respondents feel less socially obliged and rationalize the decision to participate (based on costs and benefits) (Johnson et al 2002).
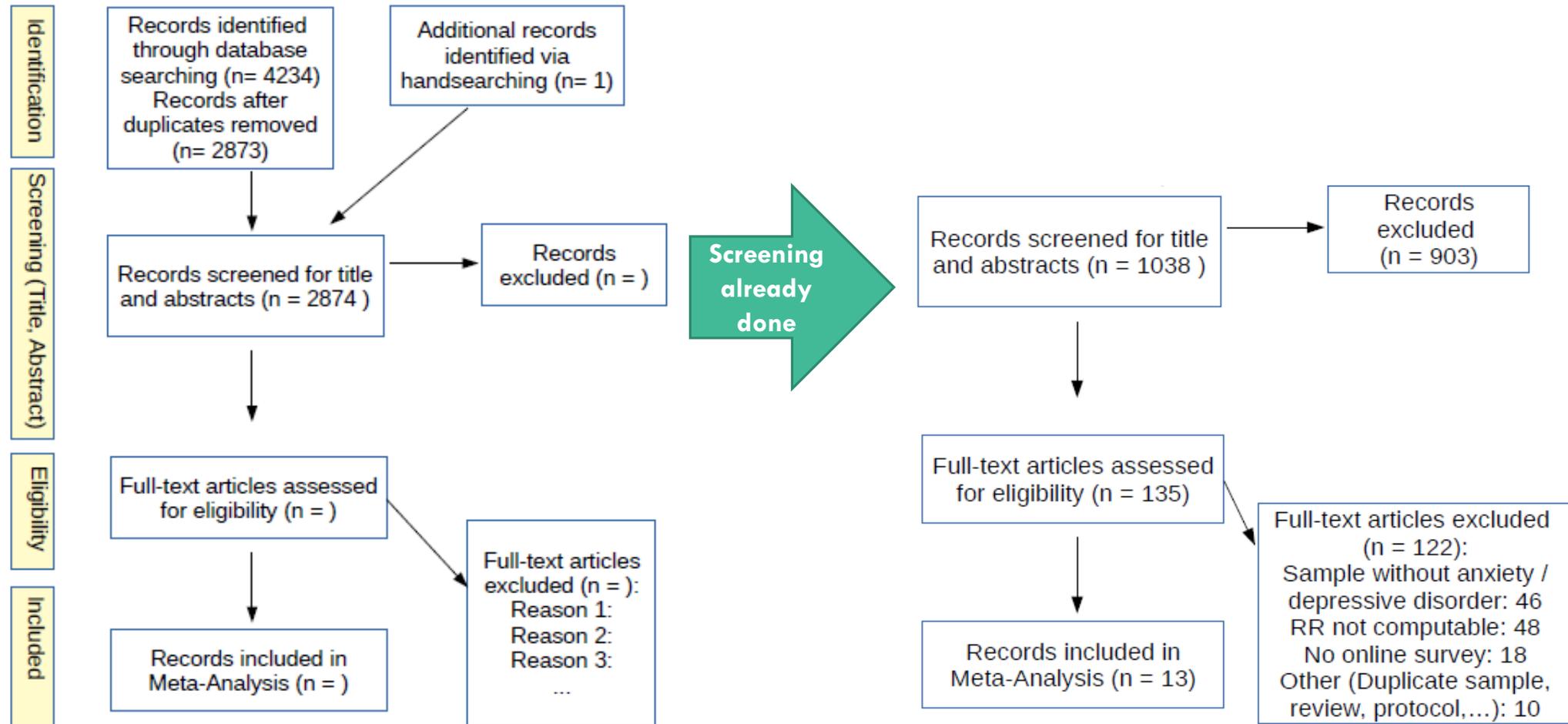
ELIGIBILITY CRITERIA

Criteria	Inclusion	Exclusion
Population	Adults (≥18 years) with depression Adults (≥18 years) with general anxiety disorder	- Student samples - Studies reporting on children or adolescents - Individuals with post-partum depression
Outcomes	% response rate % participation rate	Studies that do not give information necessary for computing response or participation rates
Study type	Experimental psychological studies of any design that report the results of **online surveys only**. And at least one of the following: - **Kind of invitation** *(personalised, non-personalised or none)* - **Burden of participation** *(time spent, effort required, cognitive complexity)* - **Incentives for participation** *(monetary, non-monetary)*	- Studies reporting on any survey type other than online surveys - Studies reporting on mixed survey types that don't explicitly report on an online survey subgroup. - Case reports and case studies reporting on <20 participants. - Panel studies that do not report results from the first wave. - Review articles and editorials.
Studies were not restricted based on publication date, language or publication format.		

LITERATURE SEARCH: DATABASES AND SEARCH TERMS

- 10 databases searched:
  PsycInfo, Embase, Medline & In-Process Citations, Medline Ahead of Print & Daily Update, Campbell Library, Science Citation Index, SocIndex, CENTRAL, PubPsych, ReStore

- Conference proceedings searched manually:
  ESRA and AAPOR (the past three years)

- Search terms:
  ("participation rate" OR "response rate")
  AND ("online survey" OR "online surveys" OR "internet survey" OR "electronic survey" OR "email survey")
  AND (Anxi* OR depress*)

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LITERATURE SEARCH: PRISMA FLOW CHART

Identification

Records identified through database searching (n= 4234)
Records after duplicates removed (n= 2873)

Additional records identified via handsearching (n= 1)

Screening (Title, Abstract)

Records screened for title and abstracts (n = 2874)

Records excluded (n =)

Screening already done

Records screened for title and abstracts (n = 1038)

Records excluded (n = 903)

Eligibility

Full-text articles assessed for eligibility (n =)

Full-text articles excluded (n =):
Reason 1:
Reason 2:
Reason 3:
...

Full-text articles assessed for eligibility (n = 135)

Full-text articles excluded (n = 122):
Sample without anxiety / depressive disorder: 46
RR not computable: 48
No online survey: 18
Other (Duplicate sample, review, protocol,...): 10

Included

Records included in Meta-Analysis (n =)

Records included in Meta-Analysis (n = 13)

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CODING AND DATA EXTRACTION

Report	Sample	Study design	Effect sizes
- First author - Publication year - Publication type - Peer-Reviewed? - Sponsorship	- Target population (depression or anxiety disorder?) - Percentage female - Mean age - Year data collection - Country data collection	- Type of recruitment (list-based, probability-based, access-panel or self-selection) - Kind of invitation (E-Mail, Mail, Other) - Duration of study participation (minutes or items) - Incentives (yes, no, monetary?) - Topic - Complexity of questions	- Results from the report: Returned questionnaires, Refusals, Non-contacts, Unknown eligibility, Not eligible (screened out / quota filled) - Effect size: Response rate = Percentage of the target population responding (Cook et al. 2000)

DEFINING AND COMPUTING PARTICIPATION AS MAIN OUTCOME

- Information retrieved from studies (AAPOR 2016)
  - A: Participants providing sufficient information
  - B: Eligible, but non-interview (Refusal, no contact)
  - C: Unknown eligibility, non-interview (Nothing known about respondent)
  - D: Not eligible (screened out, quota filled)

- Computation of Response Rate (RR) and Participation Rate (PR)
  - RR = Number of responders providing usable response (A) / number of eligible sample units (A+B+C)
  - Var(RR) = (RR*(1-RR))/ (A+B+C)
    (Sampling variance for population proportions in Lipsey / Wilson (2001))

ANALYSIS METHOD

- All analyses are conducted using the metafor package in R (Viechtbauer 2010)
- Next to a few exploratory analyses to get an idea of the distributions and possible relations of the variables, we computed three meta-analytic models:

1. Overall effect: Random-Effects model without moderators to compute:
   - The weighted mean participation across all studies and
   - The sampling variability within studies, as well as
   - The heterogeneity between study results
2. Meta-analytic mixed effects model with moderator variables (publication year, invitation, length survey) as explanatory variables to test the hypotheses about the influence of study characteristics on participation
3. Meta-analytic mixed effects model additionally controlling for the use of funds for study conduction and the type of population (only depressive or with anxiety disorder)

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OVERVIEW: VARIABLE DISTRIBUTION AND CORRELATION MATRIX

Variable	Mean	SD	Publication year	List-based sample	E-Mail	Number items	Mean age	Response Rate
Publication year	2013	4.0438	-	-0.0283	-0.2235	**-0.4095**	**0.4927**	-0.2234
List-based sample	0.73	0.4577	-	-	**-0.5641**	0.2351	0.1968	-0.0380
E-Mail	0.53	0.5164	-	-	-	0.2025	-0.2833	0.0955
Number items	47	57.433	-	-	-	-	**-0.673**	-0.0507
Mean age	43	9.4578	-	-	-	-	-	**-0.4696**
Response Rate	**0.48**	0.2734	-	-	-	-	-	-

RESPONSE RATES DEPENDING ON STUDY CHARACTERISTICS
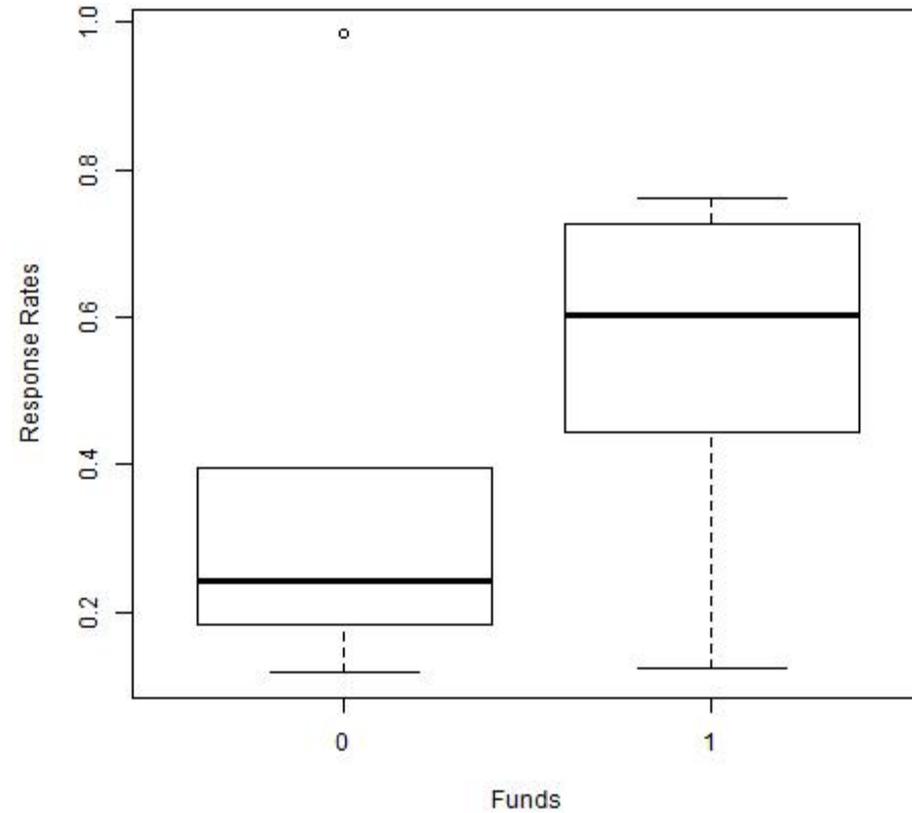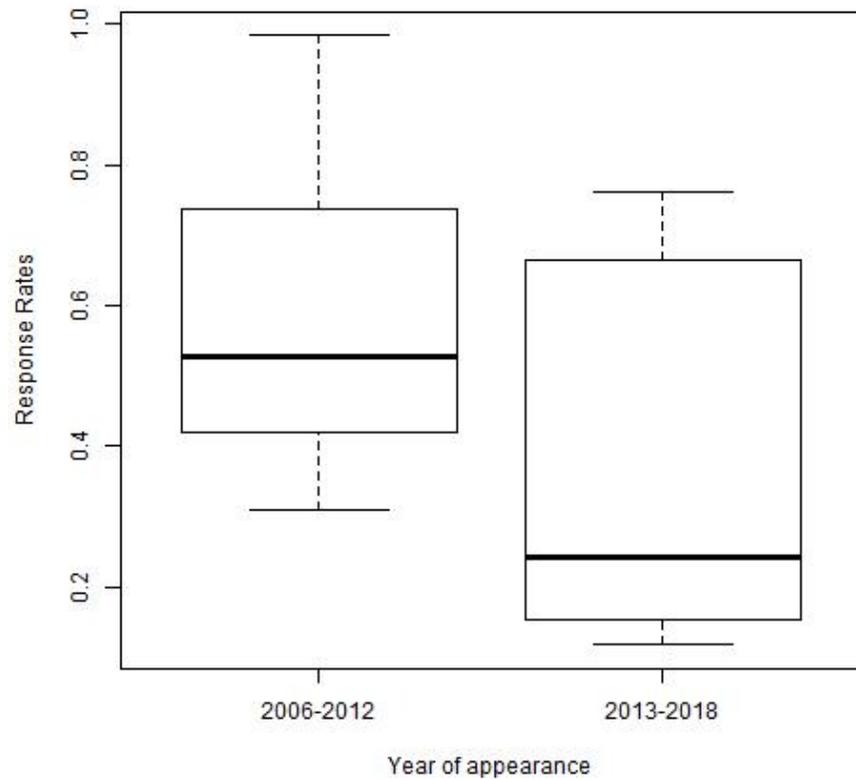
STUDY RESULTS AND OVERALL MODEL

Cumulative forest plot
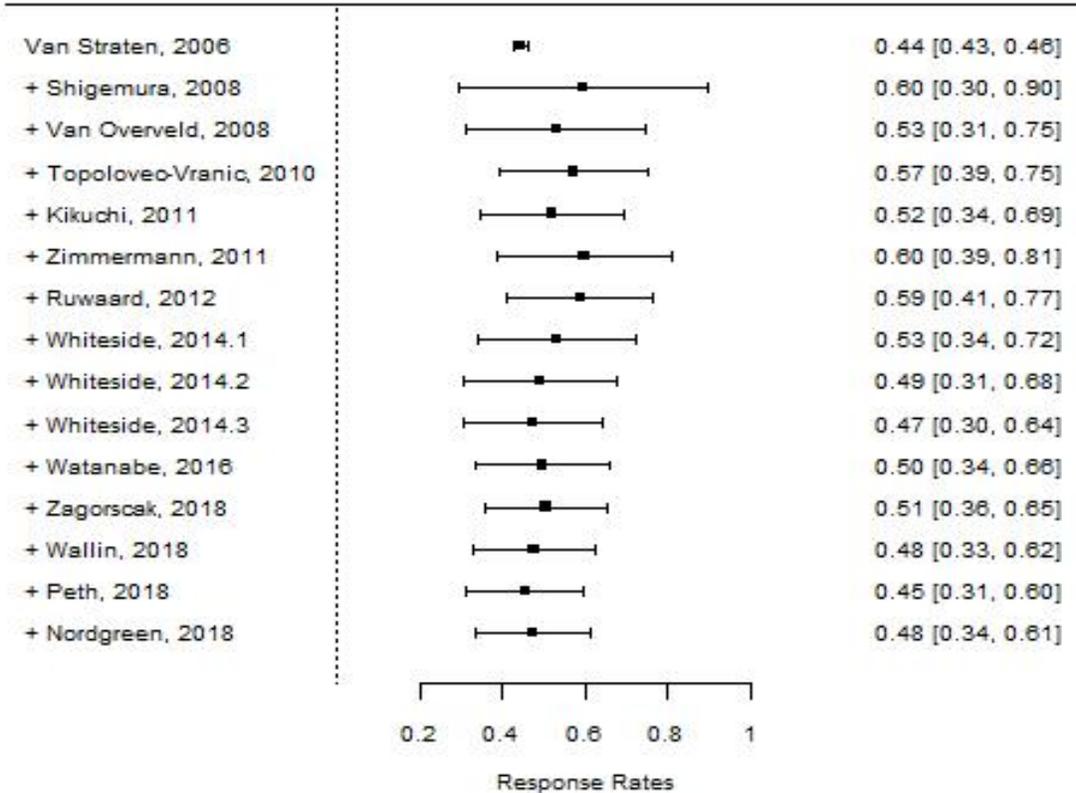
Random-Effects Model (k = 15)

tau^2: 0.0737
I^2: 99.90%

Test for Heterogeneity:
Q(df = 14) = 14179.7384, p-val < .0001

Overall mean: 0.4754 [0.3370; 0.6139]

META-ANALYTIC MIXED-EFFECTS MODELS

Moderator	Model 1 results	Model 2 results	Hypothesis
Intercept	0.461 [0.238; 0.685]	0.393 [-0.146; 0.931]	-
Publication year	-0.075 [-0.245; 0.094] p=0.385	-0.085 [-0.271; 0.101] p=0.372	1 ❌
E-Mail invitation	0.027 [-0.281; 0.336] p=0.862	0.075 [-0.245; 0.396] p=0.645	2 ❌
Number of items	-0.050 [-0.216; 0.116] p=0.552	-0.099 [-0.365; 0.167] p=0.466	3 ❌
Funds	-	0.175 [-0.192; 0.542]	-
Depressive pop.	-	-0.104 [-0.635; 0.426]	-
I^2	99,84 %	99,81 %	
R^2	0,00 %	0,00 %	

DISCUSSION AND OUTLOOK

- Hypothesized influences on participation could not yet be confirmed, but the inspection of the data reveals tendencies of expected distributions and relations:
  - The mean response rate is about 47.5 %
  - Response rates are lower in more recent years and in case of longer questionnaires

- Potentially relevant moderator variables could not be used up to now due to missing information or no variance in the 15 studies already coded
  - Incentives only reported in two studies
  - As topics are very similar, differences in saliency / complexity of the topics could not be differentiated

- What's next?
  - The remaining literature will be screened and coded
  - Possible marginal adaptations of the eligibility criteria or the coding guide will be discussed
    → Refined analyses with a broader database

LITERATURE

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CHALLENGE: FEW INCLUDED STUDIES DUE TO INCLUSION CRITERIA AND REPORTING

Main reasons for exclusion

1. Sample includes individuals without depression or anxiety disorder
    → Possible solution: Setting a threshold for the share of respondents with depression or anxiety disorder (e.g. 60 %) and including studies with samples above the threshold

2. Response rate cannot be computed due to many self-selected / convenience samples in the area of online surveys