Investigation of Data-Sharing Attitudes in the Context of a Meta-Analysis: A Randomized Controlled Trial

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AERA 2017

Overview

- Individual participant data (IPD) from primary studies can provide meta-analysts with a windfall of information
  - Complete datasets
  - Additional moderators or program characteristics
  - Conduct an IPD meta-analysis
- Obtaining IPD from primary researchers is challenging
  - Difficult to find authors
  - Once contacted, recent IPD MAs have indicated an unwillingness to share primary study dataset

Research Questions

- 1) Does the willingness to share IPD increase when authors receive a data-sharing agreement that addresses potential concerns, compared with authors who do not receive a data-sharing agreement?

- 2) What are the reasons researchers adopt non-transparent research practices (i.e., concerns about sharing IPD)?

- 3) What are researchers' attitudes toward and experiences with data sharing in general?

Methods Overview

- Searched for meta-analyses published on or after 2012
  - Social science subject matter
  - Included at least 20 primary studies
  - Identified the primary study authors (citations)
- Extracted 2,239 primary authors from articles published on or after 2004
  - Obtained 1,694 emails (after duplicates)
  - 1,207 active emails, after bounce-backs (71.2%)
- 247 individuals responded and completed demographics (17.55% response rate)

Methods Overview

- Randomly assigned participants to receive the data sharing agreement or the standard data request
- Participants completed an online survey
  - Demographics
  - Transparent research practices
  - General data sharing concerns
  - Willing to share data
  - Meta-analysis data sharing concerns
- Conducted exploratory factor analyses and impact analyses, as well as subgroup analyses

Data Sharing Agreement

Participant Characteristics

Variable	Intervention	Control	Group Difference
Gender			$\chi^2 = 1.11, p = .57$
Female	71 (58)	69 (56)	
Male	52 (42)	55 (44)	
Age			$\chi^2 = 2.25, p = .81$
25-34	12 (10)	11 (9)	
35-44	31 (25)	29 (24)	
45-55	30 (25)	38 (31)	
56-64	29 (24)	31 (25)	
65-74	18 (15)	13 (11)	
75+	2 (2)	1 (1)	
Race			$\chi^2 = 0.01, p = .99$
Non-White	12 (10)	12 (10)	
White	106 (90)	104 (90)	
Degree			$\chi^2 = 0.01, p = .99$
Ph.D. or Equivalent	112 (89)	114 (92)	
Other	14 (11)	10 (8)	
Institution			$\chi^2 = 2.02, p = .73$
Primarily Research University	62 (50)	67 (54)	
Primarily Teaching University	22 (18)	24 (19)	
Medical Institution	18 (15)	17 (14)	
Research Firm	10 (8)	5 (4)	
Other	12 (10)	11 (9)	
Primary Area of Research			$\chi^2 = 11.03, p = .20$
Education	9 (7)	12 (10)	
Criminology	6 (5)	5 (4)	
Medicine	1 (1)	9 (7)	
Psychology	52 (42)	47 (38)	
Public Health	41 (33)	32 (26)	
Social Work	3 (2)	1 (1)	
Sociology	1 (1)	1 (1)	
Statistics/Methodology	5 (4)	10 (8)	
Other	6 (5)	7 (6)	

Transparent Research Practices

I have…	Overall (%)	IN (%)	CO (%)	Group Difference
Registered a research study on a site such as clinicaltrials.gov or another publicly available website.	29.84	29.03	30.65	$\chi^2 = .02$, p = .89
Published a research protocol/plan in a journal or publicly available website before implementing a study.	52.02	50.00	54.03	$\chi^2 = .26$, p = .61
Uploaded a research dataset to a publicly-available repository.	18.15	14.52	21.77	$\chi^2 = 1.74$, p = .19
Provided additional study information to a researcher for a systematic review or meta-analysis.	71.78	67.74	75.81	$\chi^2 = 1.61$, p = .20
Provided a research dataset to be included in a meta-analysis.	29.03	24.19	33.87	$\chi^2 = 2.37$, p = .12
Shared a research dataset with a colleague.	75.00	77.42	72.58	$\chi^2 = .54$, p = .46
Shared a research dataset with a researcher who I do not know.	21.78	17.74	25.81	$\chi^2 = 1.92$, p = .17

EFA of Posttest

Factor	Variable	Loading		Reliability	Descriptive Statistics		
		F1	F2		IN	CO	d
Sharing my dataset.	I would be interested in sharing my dataset for inclusion in this meta-analysis.	.83		.79	16.99 (5.88)	12.18 (6.57)	.77
	I would not be willing to share my dataset for inclusion in this meta-analysis.*	.76					
	Now that an email has been sent to me asking for the dataset, I would share my dataset for inclusion in this meta-analysis.	.66					
Sharing my dataset with conditions.	I would be willing to share my dataset as long as I am a co-author of the meta-analysis.		.99	.47	4.26 (3.91)	4.21 (3.85)	.01
	I would be willing to share my dataset as long as I receive financial compensation.		.46				

Impact Analysis of Posttest

Variable	Coding	Coefficient (SE)	p-value
Intercept	-	15.91 (2.75)	0.001
Intervention	0 = CO, 1 = IN	4.64 (.78)	0.001
Gender	0 = Female, 1 = Male	-.16 (.83)	0.848
Race	0 = White, 1 = Non-White	.18 (1.29)	0.887
Age	Continuous variable	.3 (.38)	0.433
Degree Type	0 = Non-PhD, 1 = PhD	-.91 (1.4)	0.519
Date of Original Study Publication	Continuous variable	.04 (.14)	0.799
Experience providing data for a meta-analysis	0 = No, 1 = Yes	.15 (.98)	0.877
Experience providing data to a research you don't know	0 = No, 1 = Yes	1.65 (1.08)	0.128
Concerns about the condition of the dataset. (Pretest Factor 1)	Continuous variable	.08 (.06)	0.210
Concerns about dataset accessibility. (Pretest Factor 2)	Continuous variable	-.43 (.11)	0.001

Exploratory Analysis of Secondary Outcome

Changes to the Data Sharing Agreement

- Clarified language on storage and future use
- Added statements about "rights"
  - Right to Results
  - Right to Consultation
  - Right to Collaboration
- Added statement on financial compensation

Conclusions

- Cautiously optimistic that the data sharing agreement "works"
- Need to address initial data sharing concerns in order for this system to work effectively for all
- Bold statement: Meta-analysts should *always consider* asking primary authors for IPD, regardless of whether we are doing an IPD meta-analysis

Thanks!

- Technical Working Group: Terri Pigott, Jessaca Spybrook, Mark Lipsey

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