Power Analysis in Social Psychology

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殷艺格 金碧辉 林靓 朱颖颖

A Brief Summary

Articles	Studies (not justified)	Samle size justification methods			
		power analysis	post-hoc power analysis	sensitivity analysis	sequntial analysis
22	98(29)	39	17	14	1

ANOVA

- G*power
- ANOVA including mediation analysis (specify the power analysis is based on which one)
- ANOVA including interaction

Mediation

- Using sample size guidelines set out by Fritz and MacKinnon (2007) for detecting an indirect effect with 80% power when a and b paths are small to medium in size, we recruited 300 participants

TABLE 3

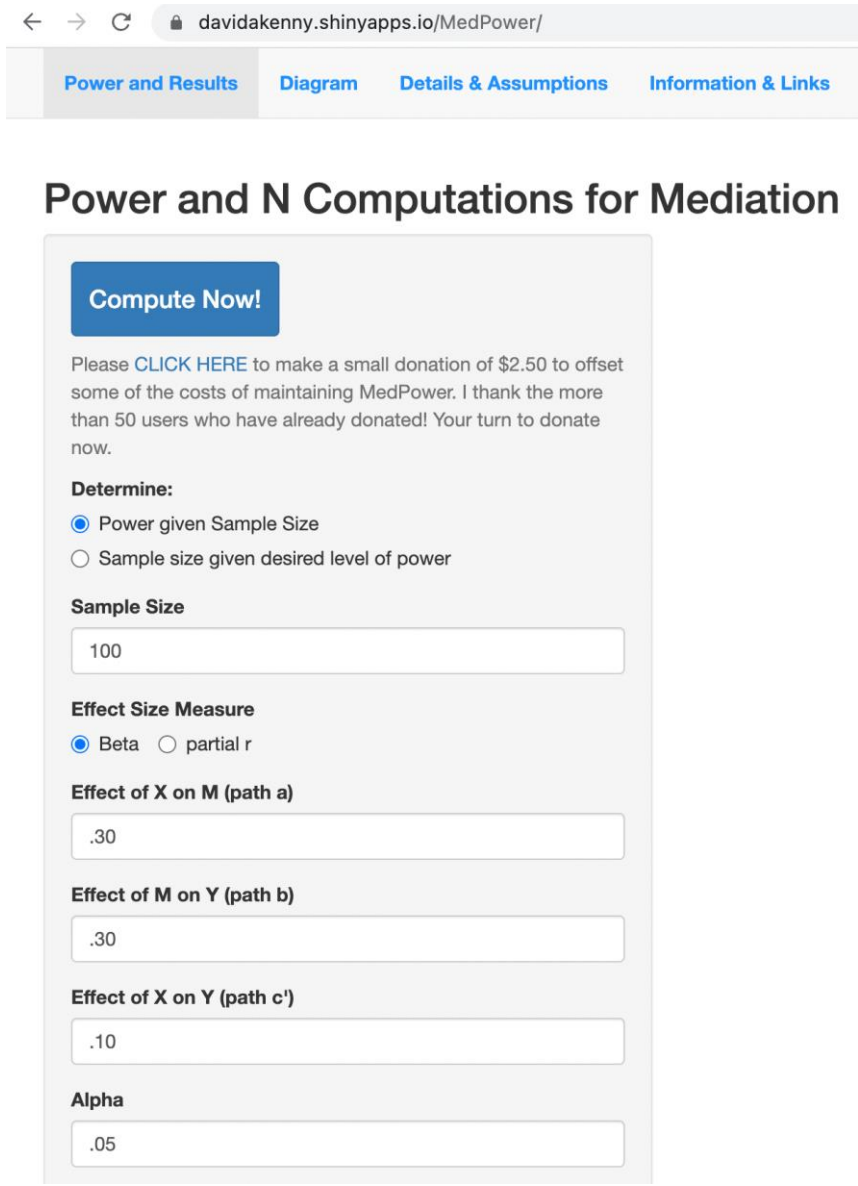
Empirical Estimates of Sample Sizes Needed for .8 Power

	Condition															
Test	SS	SH	SM	SL	HS	HH	HM	HL	MS	MH	MM	ML	LS	LH	LM	LL
BK ($\tau' = 0$)	20,886	6,323	3,039	1,561	6,070	1,830	883	445	2,682	820	397	204	1,184	364	175	92
BK ($\tau' = .14$)	562	445	427	414	444	224	179	153	425	178	118	88	411	147	84	53
BK ($\tau' = .39$)	531	403	402	403	405	158	124	119	405	125	75	59	405	122	60	38
BK ($\tau' = .59$)	530	404	402	403	406	158	124	120	405	125	74	58	404	122	59	36
Joint significance	530	402	403	403	407	159	124	120	405	125	74	58	405	122	59	36
Sobel	667	450	422	412	450	196	144	127	421	145	90	66	410	129	67	42
PRODCLIN	539	402	401	402	402	161	125	120	404	124	74	57	404	121	58	35
Percentile bootstrap	558	412	406	398	414	162	126	122	404	124	78	59	401	123	59	36
Bias-corrected bootstrap	462	377	400	385	368	148	115	118	391	116	71	53	396	115	54	34

Note. All sample sizes have been rounded up to the next whole number. In the condition labels, the first letter refers to the size of the α path, and the second letter refers to the size of the β path; S = 0.14, H = 0.26, M = 0.39, and L = 0.59 (e.g., condition SM is the condition with $\alpha = 0.14$ and $\beta = 0.39$). All results, except for those for Baron and Kenny's (1986) test (BK), have been collapsed across τ' conditions.

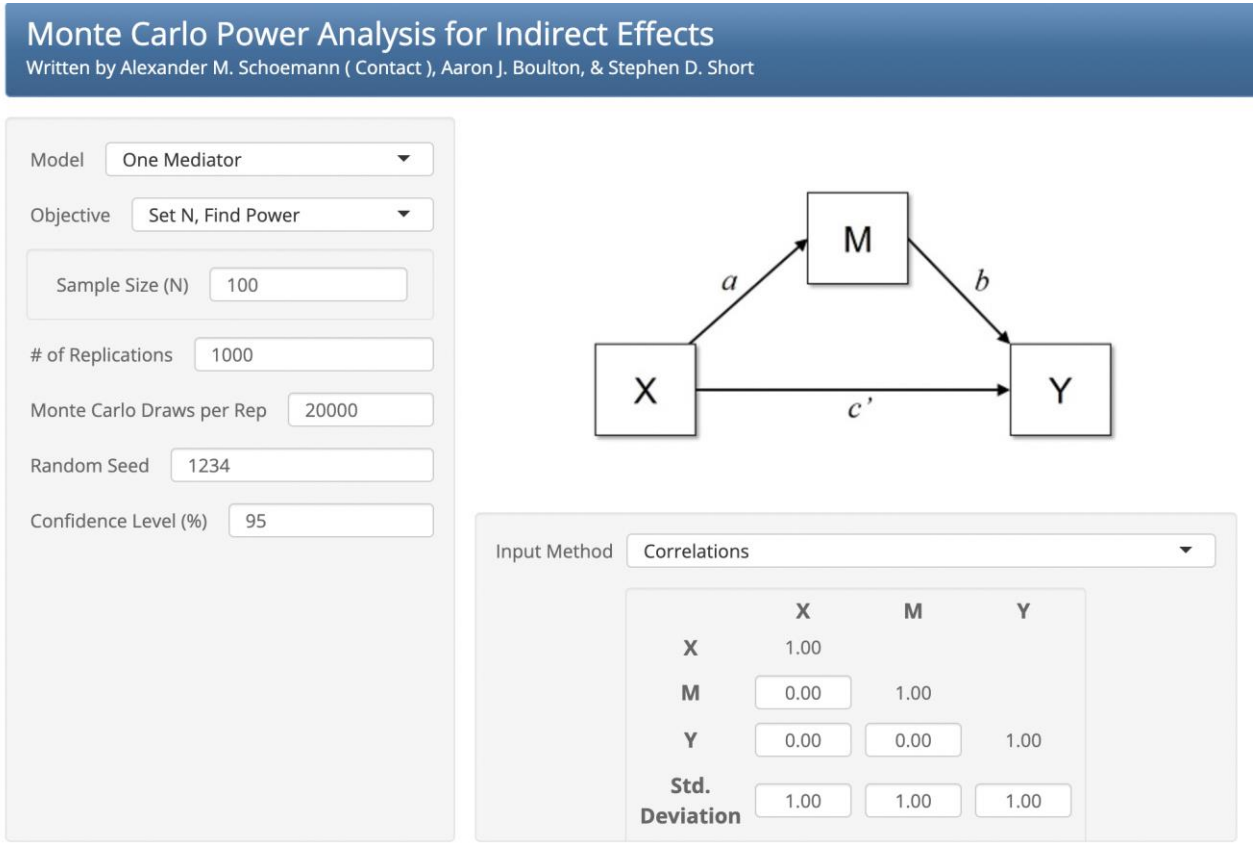
Mediation

- shiny app
- Using the mediation **coefficients from Study 4**, the recommended sample size for the indirect effect suggested by **MedPower (https://davidakenny .shinyapps.io/MedPower/)** was 159. Therefore, for both Studies 5A and 5B, we aimed to recruit at least 294 participants.



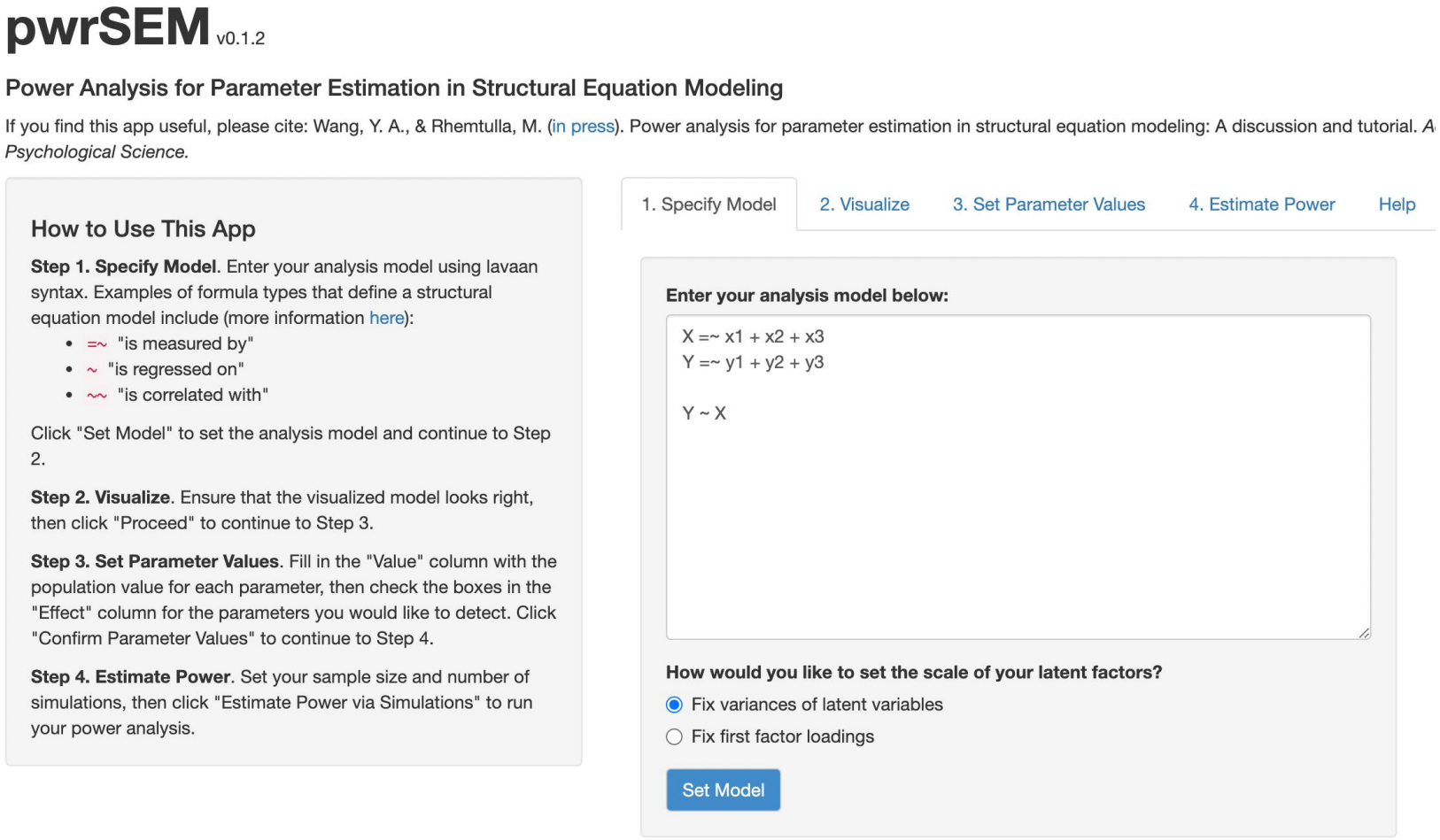
Mediation (others)

- https://schoemanna.shinyapps.io/mc_power_med/



Mediation

- https://yilinandrewang.shinyapps.io/pwrSEM/



一些操作

- "An a priori power analysis suggested that a sample size of 428 would be required to detect a small to medium effect of social comparison on theory of power endorsement (Cohen’ s d .35) when setting power at .95 and alpha at .05.
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- **Power was increased in this study, relative to Study 3a**, in an effort to produce more precise estimates and further reduce the possibility of accepting the null hypothesis."
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一些操作

- “Because this is the first study of its kind examining unethical instances (transgression) by close others, we did not know how many instances to expect within our 15-day period.Therefore, we aimed to have about 100 participants reporting across 15 days for up to 1,500 responses.”

一些操作

sample size justification/power analysis	other justifications	expected	actual
An a priori power analysis suggested that a sample size of 260 would be required to detect **a small to medium effect of social comparison on theory of power endorsement (Cohen's d.35)** when setting power at .80 and alpha at .05.	Given the proximity to our recruitment goal, we proceeded to analysis; sensitivity power analyses suggest that this sample size would allow for detection of an effect size of d .36 with 80% power	260	245

Questions - sensitivity analysis

Participants

We recruited participants through Lucid's Fulcrum Academia service ($N = 1{,}102$; 52% female, $M_{age} = 44.01$, $SD_{age} = 16.63$). We aimed to recruit 1,000 participants and ended up with partial or complete data for 1,168 participants.[1] The sample was demographically targeted using quotas to be representative of the U.S. population in terms of age, gender, region, household income, education, and ethnicity. Of course, given the quota sampling, the sample may not fully
tion. We removed data of 66 participants
they did not complete one of the key vari

Sensitivity analysis is based on aimed sample (N = 1000), rather than the final sample size used in the analysis (N = 1102).

[1] We conducted a post hoc sensitivity (power) analysis for a single coefficient in a multiple regression analysis with three predictors. The minimum detectable effect with $N = 1{,}000$, $\alpha = .05$, and 95% power is $f^2 = .017$. This effect size is below Cohen's (1988) threshold for a small effect size ($f^2 = .02$). We present similar sensitivity analyses for Studies 2–4 in the online supplemental materials.

Krijnen, J. M. T., Ülkümen, G., Bogard, J. E., & Fox, C. R. (2022). Lay theories of financial well-being predict political and policy message preferences. *Journal of Personality and Social Psychology*, *122*(2), 310–336. https://doi.org/10.1037/pspp0000392

Questions - post hoc

- "Study 1 showed a medium effect size (Cohen’ s d = .49) for self-primes
- facilitating the classification of negative targets. With a sample size
- of 224, we had **.99 statistical power** to detect a medium effect size
- (Cohen’ s d = .5) using a two-tailed paired t test and a of .05. A
- **sensitivity analysis** showed that with these same parameters, our
- study could detect an effect size as small as d = .19 with .80 statistical