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Factors Contributing to Faculty Research Misconduct

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FACTORS CONTRIBUTING TO FACULTY RESEARCH MISCONDUCT

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Background

- Research on research misconduct
  - Is scant, focused on scandals & speculation
  - Others focused on how to effectively teach or mentor RCR
  - Only a few studies on prevalence and causes – key to prevention
- Prevalence – low rates of "serious" misconduct, high rates of QRPs (Fanelli, 2009)
- Funding received from Office of Research Integrity for larger study with additional research questions

Fanelli, D. (2009). How many scientists fabricate and falsify research? A systematic review and meta-analysis of survey data. *PloS ONE, 4(5),* 1-10. Retrieved from doi:10.1371/journal.pone.0005738

2014-2016 Gordon, Anita M. Department of Health and Human Services, Office of Research Integrity, $ 243,678. 8/1/14-7/31/16. Moral, Rational, and Justice Perceptions as Predictors of Research Misconduct.

Martinson, B. C., Anderson, M. S., Crain, A. L., & DeVries, R. (2006). Scientists' perceptions of organizational justice and self-reported misbehaviors. *Journal of Empirical Research on Human Research Ethics, 1(1),* 51-66. doi: doi:10.1525/jer.2006.1.1.51

Study Design

- Test hypotheses on why misconduct or QRPs may occur
- Previous research: interaction between potential consequences and moral judgment, in perceived likelihood of misconduct (Gordon, 2014)
- Sample hypotheses:
  - That moral judgments & harm perceptions, as well as perceived likelihood of detection and sanctions, will all predict perceived likelihood of misconduct, but will vary by scenario (moral judgments more relevant in FFP's, rational choice more in QRP's)
  - Funding pressures and organizational justice variables will predict perceived likelihood of misconduct more in R1s than in Masters
  - Senior faculty will have lower perceived likelihood of misconduct than junior faculty, but only on certain scenarios (eg., reneges on authorship)

Gordon, A.M. (2014). Rational choice and moral decision-making in research. *Ethics & Behavior*, *24* (3), 175-194. DOI: 10.1080/10508422.2013.830573.

Sample

- 4,500 faculty from 4 disciplines invited
  - Biology, Psychology, Sociology/Criminology, & Social Work
- About half each - R1 and Masters-Large universities
  - Hypothesis pertaining to research environment & funding pressures
- Dillman et. al. mixed mode TDM – structured series of contacts starting with personalized contacts by mail, moving on to online invitations
- Response rates – overall 39%
- *n*=1,735 (53% from R1s)

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2008). *Internet, mail, and mixed-mode surveys: The Tailored Design Method (3rd ed.).* New York: Wiley & Sons.

Study Design

Scenario design – ask respondents to read scenarios and:

1. estimate the probability they would do the same under the same circumstances
2. estimate probabilities for harm, detection, sanctions
3. report on hypothesized co-variates such as funding pressure, perceptions of fairness in resource allocations, publication productivity, involvement in IRB or IACUC, position, gender, etc.

Hypothetical approach has limitations but some research suggests it can work. It is difficult to measure actual behavior and self-report of behavior has potential for greater bias.

Scenarios adapted from Mumford (2006) EDM's

Mumford, M. D., Devenport, L. D., Brown, R. P., Connelly, M. S., Murphy, S. T., Hill, J. H., & Antes, A. L. (2006). Validation of ethical decision-making measures: Evidence for a new set of measures. *Ethics & Behavior, 16(4),* 319-345

Sample Characteristics

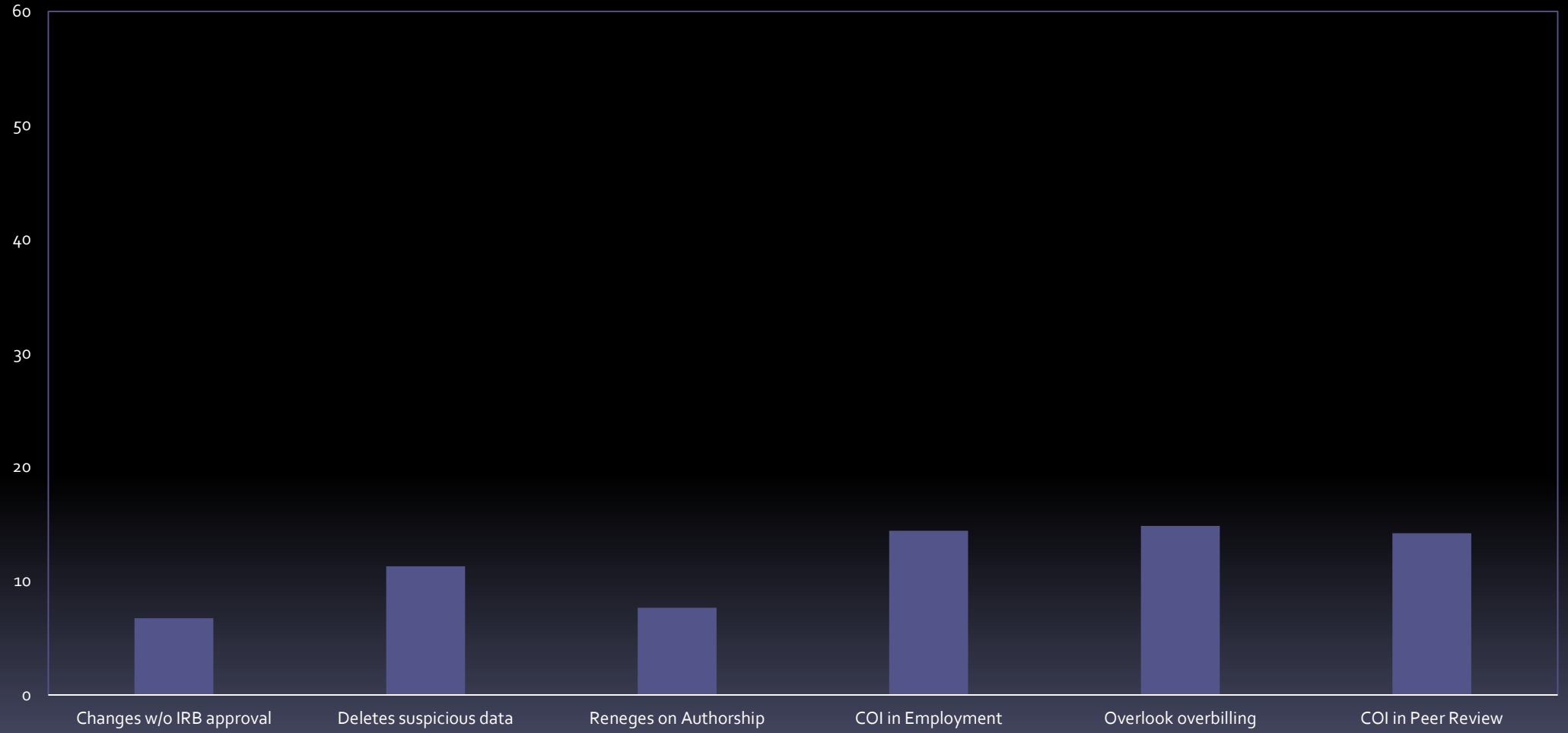
Field/Discipline	*n*	%
Biology	430	25
Psychology	521	31
Sociology/Criminology	509	30
Social Work	244	14
Total	1704	100
Missing	31	
Total	1735	

Primary Position	*n*	%
Assistant Profs	459	27
Associate Profs	507	29
Full Professors	598	35
Administrators	135	8
Other	22	1
Total	1721	100
Missing	14	
Total	1735	

Category differences in sample

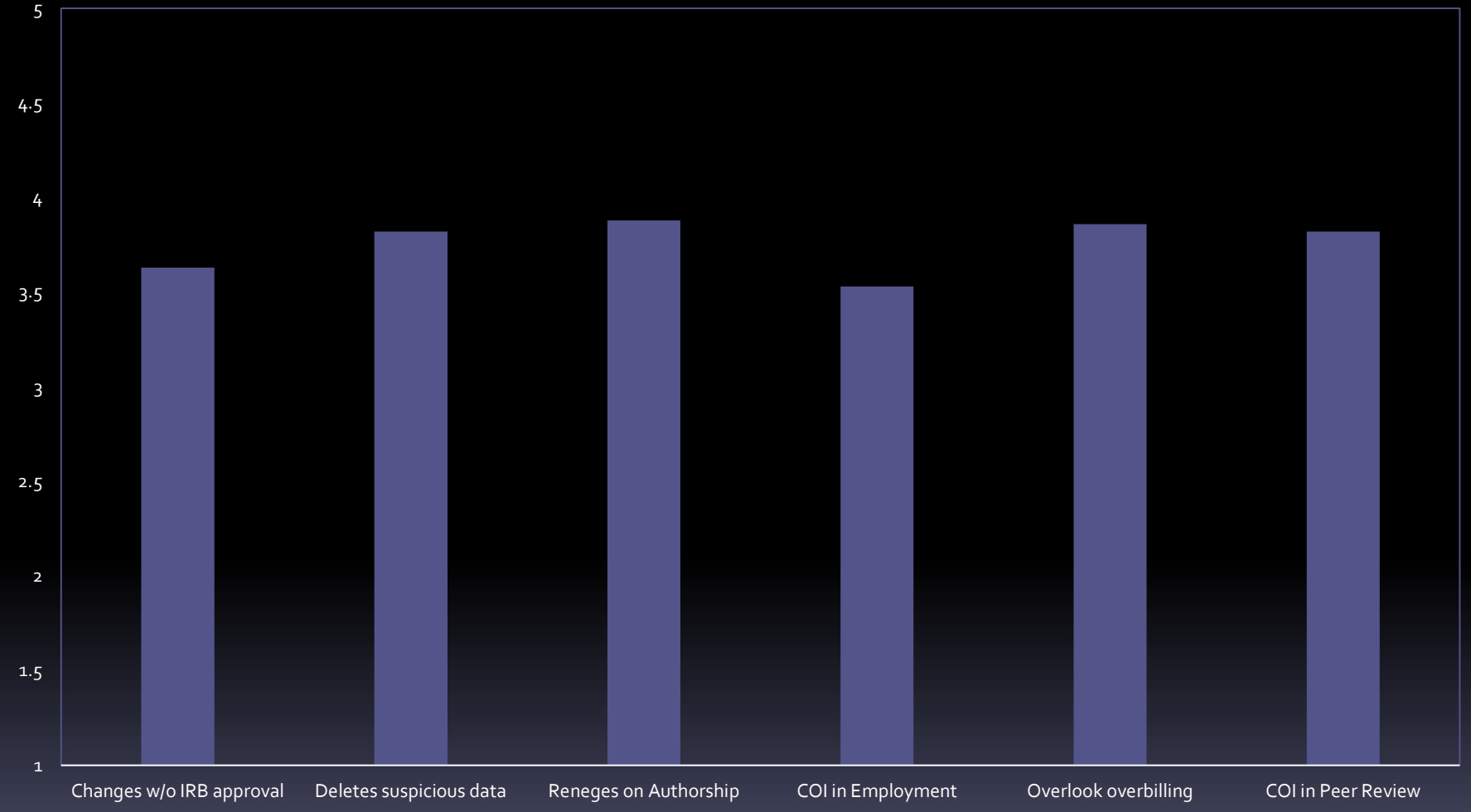
- R1 has greater expectations for contributing to salary with grants (but still < 10%)
- R1 has more publications
- R1 has more IRB experience
- R1 has greater percentage of time ascribed to research (46% vs. 28%)
- Psychology and biology have more publications and time spent on research
- Biology has greater grant expectations
- Psychology has more IRB experience

Perceived probability they would take the same action as in scenarios, 0-100% (biology)



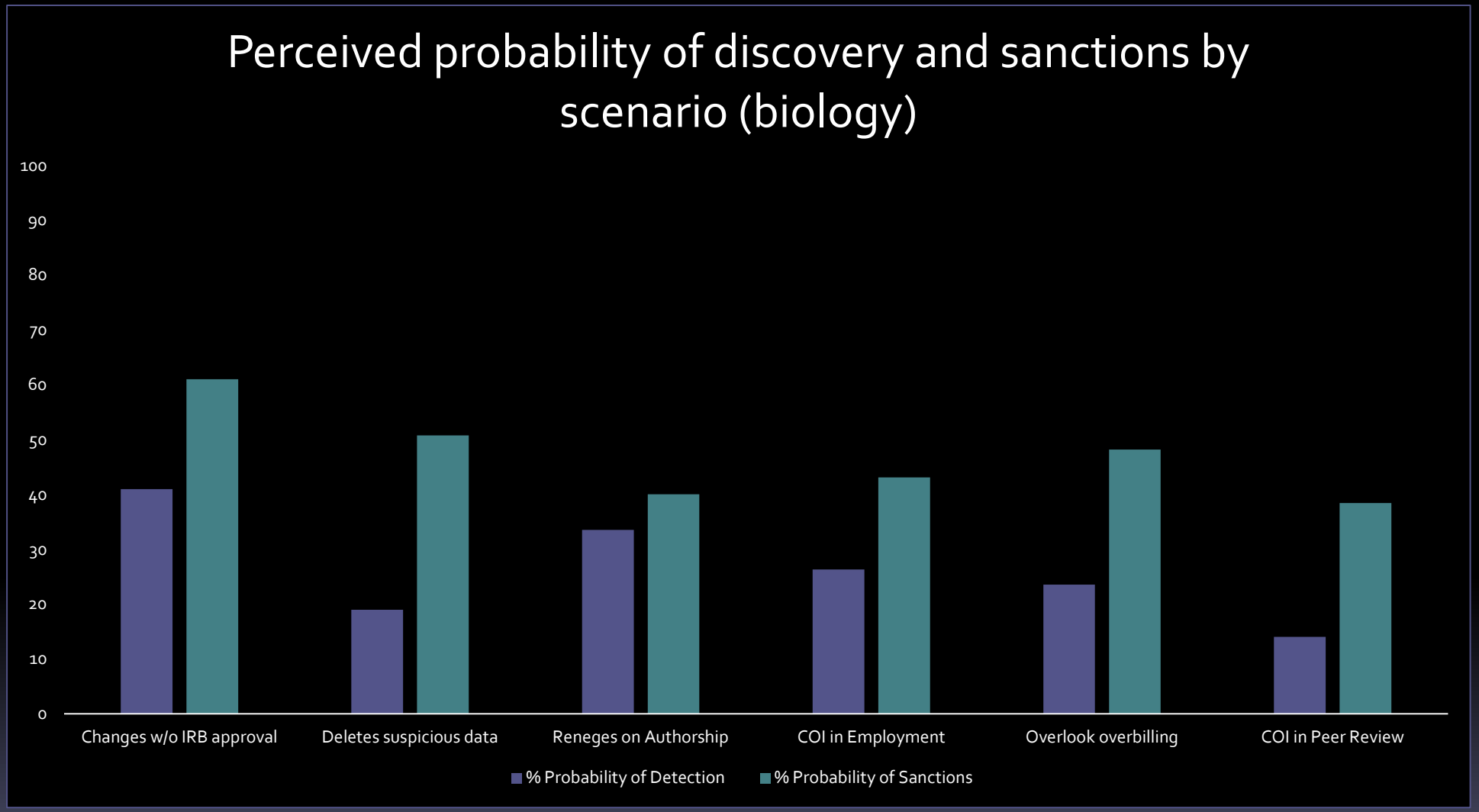
No differences by type of university

Perceived harm by scenario (biology)



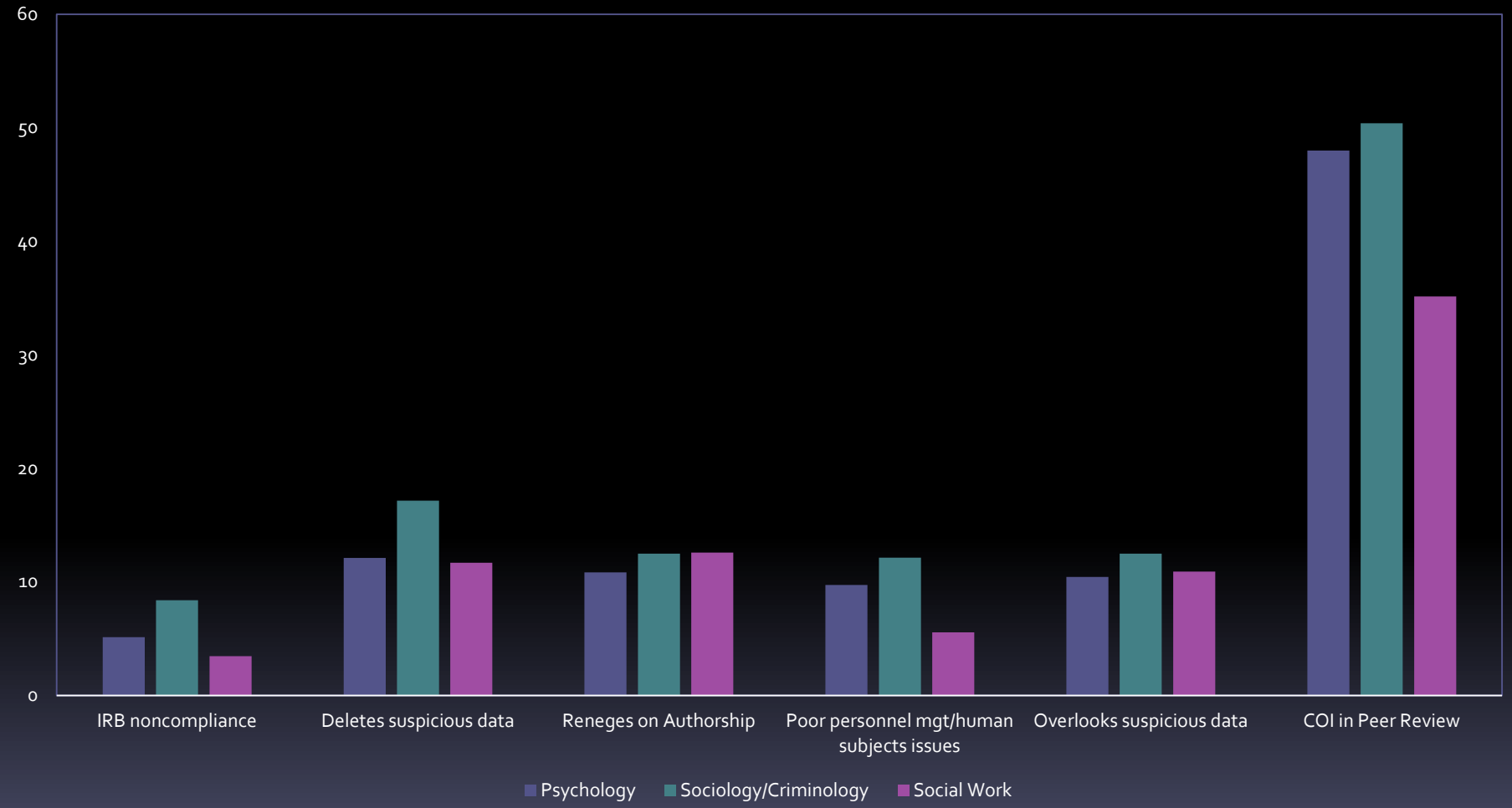
No differences by type of university

Perceived probability of discovery and sanctions by scenario (biology)



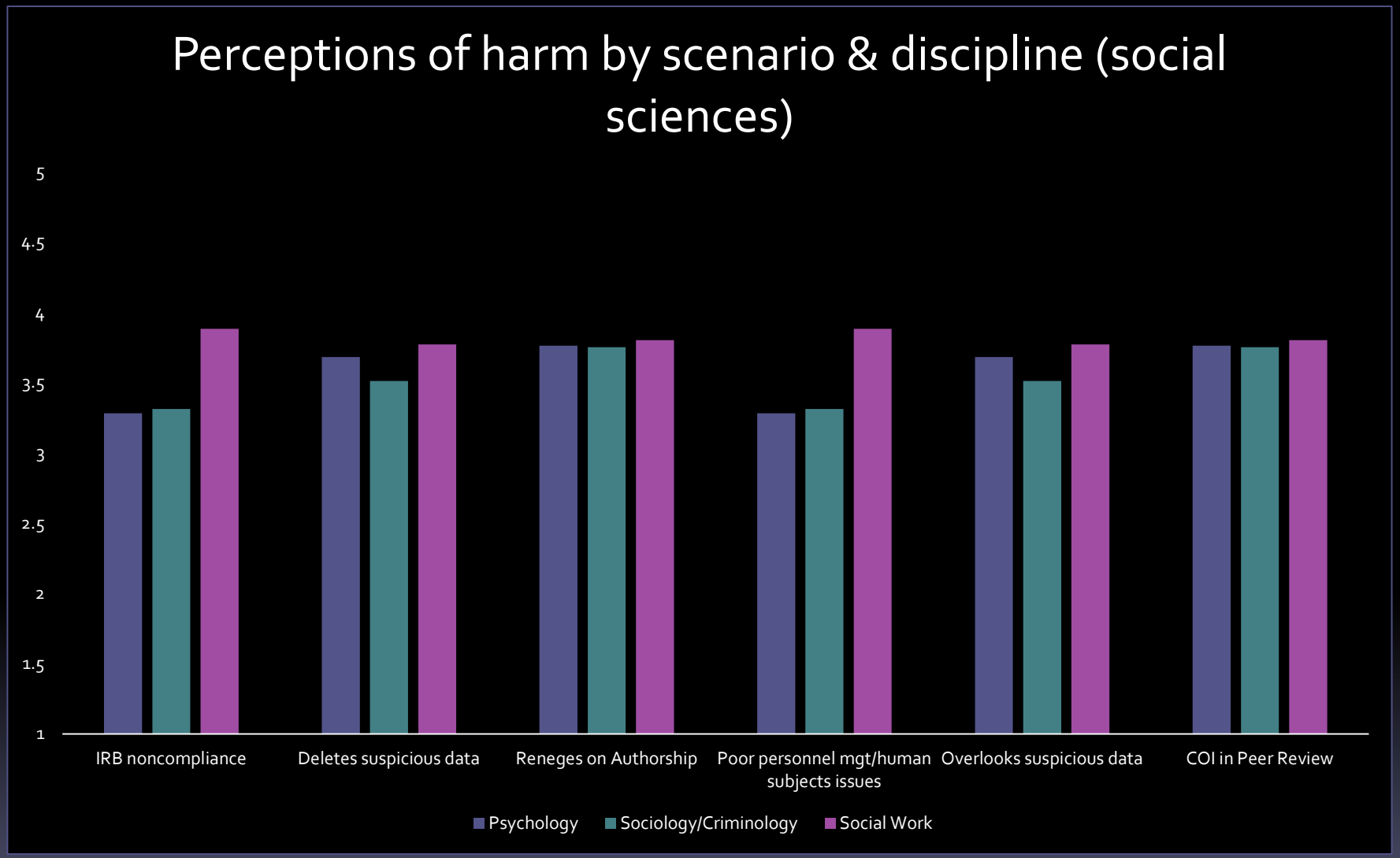
No differences by type of university, except discovery on reneges

Perceived probability they would take the same action as in scenarios, 0-100% (social sciences)

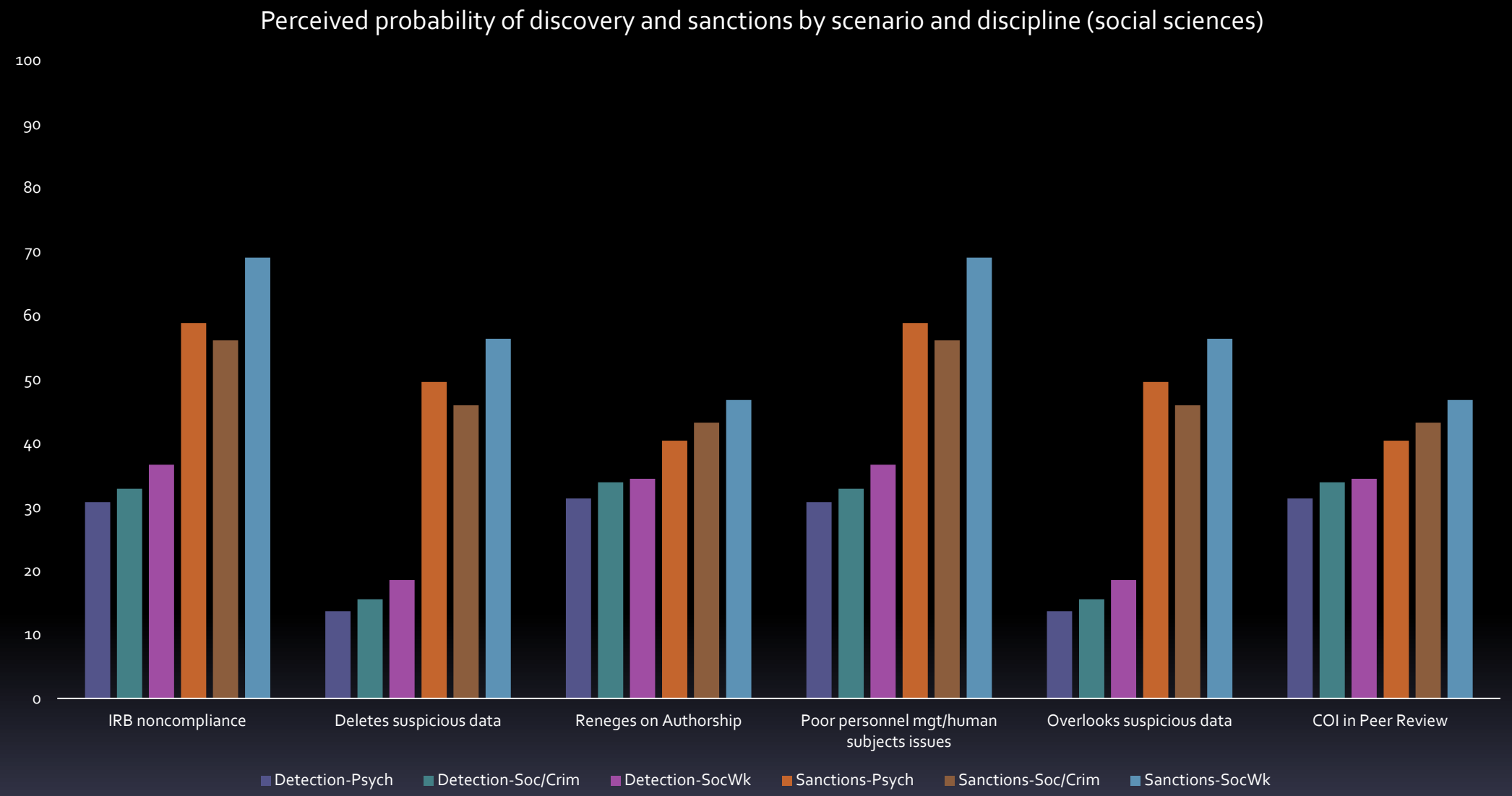


Discipline: η_p^2 = .02, SW generally lower, Soc generally higher

Perceptions of harm by scenario & discipline (social sciences)



Discipline η_p^2 = .03, SW generally higher, Soc generally lower



When there were university size differences, R1 were less concerned (η_p^2 =.01). More consistent were discipline effects, with SW and sometimes Soc generally being more concerned, η_p^2 = .02

Only significant effects are shown (p<.05-.14). Other variables included departmental distributive justice, university procedural and distributive justice, brighter, promotors, important research, Year of PhD, and % salary expected to cover.

Biology regressions

	Changes w/o IRB approval	Deletes Suspicious Data	Reneges on Authorship	COI in Employment	Overlooks overbilling	COI in Peer Review Process
R^2	.32	.39	.35	.48	.46	.51
Perceived harm	-.37	-.55	-.54	-.54	-.64	-.67
Probability of detection		.12		.09		
Probability of sanctions	-.23	-.12		-.19		
Departmental procedural justice (fair procedures)	-.15					
Successful faculty have more advantages			-.17			
Successful faculty have sponsors			.10			
Successful faculty are effective “Operators”				.10		
Gender			-.14	-.10		
# Publications						-.10

Only significant effects are shown (p<.05-.14). Other variables included departmental procedural justice, university procedural and distributive justice, brighter, promotors, important research, Year of PhD, and % salary expected to cover.

Social Science Regressions

	Changes w/o IRB approval	Deletes suspicious data	Reneges on authorship	Poor personnel mgt/human subjects issues	Overlooks & publishes suspicious data	COI in peer review
R^2	.22	.35	.53	.08	.04	.07
Perceived harm	-.34	-.39	-.64	-.17	-.12	.11
Probability of detection		.06	.07			.16
Probability of sanctions	-.18	-.13	-.09	-.08		-.13
Dept. distributive justice (resource allocation)						.12
Successful faculty have advantages			.07			
Successful faculty have done important research						.08
Gender	.06			-.09		-.06
Year PhD		.08				
Psychology	-.08					
Social Work				-.08		-.14

Tentative Conclusions

- R1s and Masters Large institutions were different in expected ways (publications, research effort, more IRB involvement, somewhat greater pressure for funding, although not high for either)
- There were few differences between R1 and Masters Large institutions in perceptions of QRPs.
- Perceptions of harm to others predicts lower perceived likelihood of engaging in QRPs, in most scenarios, in all disciplines (except possibly the COI in Peer Review).
- Perceived likelihood of sanctions was commonly associated with perceived likelihood of QRPs.
- Social Work faculty were less likely to report they would engage in these questionable practices, and perceive higher likelihood of harm in the scenarios.
- Further analyses will focus on interactions between the variables in predicting perceived likelihood of misconduct.