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Supplementary Materials for

Systemic inequalities for LGBTQ professionals in STEM

E. A. Cech* and T. J. Waidzunas

*Corresponding author. Email: ecech@umich.edu

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Additional Methods and Materials Information

STEM Inclusion Study Survey: Between winter 2017 and spring 2019, we surveyed representative samples of the US-based membership of 21 STEM professional societies and organizations. In collaboration with the leadership and membership directors of each professional society, we fielded the survey electronically via email to either a random sample of the US-based members of each society (for societies over 10,000 members) or to the full US-based membership (for societies under 10,000 members). The survey was open at each society for a period of six weeks. Non-responders received up to two reminder emails. The average response rate was 20.1%, which is typical of surveys of members of voluntary organizations (56). Respondents could end the survey at any time and participation was anonymous. The study was approved by the human subjects board at each author's institution.

The survey asked respondents a variety of questions about their experiences with the climate in their workplaces, their interactions with colleagues, and their future plans. At the end of the survey, respondents were invited to enter a raffle for a $100 gift card (one per professional society) to help offset the annual cost of their society membership. The survey included skip logics that could accommodate students, retired members, and members who worked in non-STEM jobs; we use here only data from respondents who were employed full-time in a non-social science STEM job in the United States at the time of survey participation (N=25,324). To avoid duplicate individual entries, the first question in the survey asked respondents whether they had taken the survey previously; those who answered affirmatively (2%) were thanked and skipped out of the survey.

Survey Reliability and Validity

The measures we used in our analysis were either replications of existing, validated survey items or items written and pretested for this study. Measures for education level, STEM field, supervisory status, employment sector, race/ethnicity, and age came from the National Science Foundation's National Survey of College Graduates (https://www.census.gov/programs-surveys/nscg.html). The health and wellness variables and the social exclusion measures were replications of questions from the National Survey of the Changing Workforce (https://www.familiesandwork.org). Questions on career opportunities and sufficient resources and comfort whistleblowing came from the US Office of Personnel Management's biennial Merit Principles Survey (https://www.mspb.gov/studies/MPS2016.htm).

The five measures that make up the professional devaluation scale were specifically designed for this survey. These measures assessed whether respondents' professional expertise was recognized, valued, and given proper credit by their colleagues. We pretested these items in a survey of STEM professionals at two NASA space flight

centers, and found a strong Cronbach's alpha (a measure of how well topically-related items from a question set vary together and form a coherent and reliable scale) of .769 and high predictive validity. Indicating high test-retest reliability and internal consistency of the professional devaluation scale, we found consistently strong Cronbach's alphas (less than 10% variability) when we ran factor analyses of the professional devaluation measures for each of the 21 professional societies separately.

We assessed the validity of the survey instrument in its entirety through a number of steps. First, we established content validity by workshopping the survey with a panel of seven social scientists who are experts on workplace inequality and LGBTQ issues. Second, we checked the face validity of the survey with in-person talk-through sessions (i.e. cognitive interviews) with eight STEM professionals (three who identified as LGBTQ). In these sessions, informants took the survey while explaining aloud their interpretations of each survey question and answer option. These talk-throughs provided insight into the clarity and consistency of the survey questions and answer options (*57*). Third, we established construct validity through analysis of the convergence of similar concepts and divergence of dissimilar concepts in correlations and factor loadings (*57-58*). Evincing convergence validity, the questions used in the three scale measures (career opportunities, professional devaluation, and social exclusion) each loaded onto their respective factors; discriminant validity tests indicated that each measure in a given scale was more highly correlated with measures in its own scale than with measures in the other two scales. Tests for discriminant validity showed that within-index correlations ranged between .638-.760 (strongly correlated) while cross-index correlations were less than .400 (weakly correlated).

Finally, we calculated Cohen's *d* effect sizes (*d* = difference in means/pooled standard deviation) for the difference in means between LGBTQ and non-LGBTQ respondents (see Table S10). Suggesting that LGBTQ status is a particularly consequential axis of disadvantage in the context of STEM comparted to the labor force overall, these effect sizes are 1.5 to 2 times greater on average than the LGBTQ status effect sizes Cech and Rothwell (*23*) found in their analysis of workplace inequalities for LGBTQ employees in the US federal workforce.

Descriptive Statistics

Table S1 presents means for all respondents in the sample and for LGBTQ and non-LGBTQ respondents separately. The p-value column indicates statistical significance of two-tailed bivariate difference in means tests (i.e., t-tests) between LGBTQ and non-LGBTQ respondents. Here, LGBTQ respondents were more likely to identify as women and as Latinx and Native American or Pacific Islander, and less likely to identify as white. LGBTQ persons were less likely than non-LGBTQ respondents to work in engineering but more likely to work in life sciences, computer science and mathematics, and other STEM occupations. Finally, compared to non-LGBTQ sample members, LGBTQ professionals were less likely to work in for-profit industries and more likely to work in government and university sectors. LGBTQ respondents were also younger (~3 years on average) than their non-LGBTQ peers. Given this variation in LGBTQ persons' representation across sectors and STEM fields, it was important to control for this variation via predicted means and multivariate regressions when assessing possible LGBTQ differences in the figures and regression models above.

The rightmost column in Table S1 presents means for the STEM population nationally from 2017 National Science Foundation data (https://ncses.nsf.gov/pubs/nsf19304/data). Compared to the STEM population overall,

our data over-represents those who are white, who work in engineering and physical sciences, and those who work in university and government sectors. As noted above, we conducted supplemental analyses where we weighted our sample to match the distribution in the NSF data by demographics, sector, and STEM field; the LGBTQ results patterns did not change when we used this weighting.

Analytic Strategy for Supplemental Tables

The multivariate analyses presented in the tables below used OLS and logistic regression models, as appropriate, to predict outcome measures. We opted to use OLS and logistic regression models with dichotomous controls for each professional society rather than multilevel models because the former are easier to interpret for those without advanced quantitative training and because 21 level-two categories is just on the threshold of appropriateness for hierarchical models. We also used structural equation modeling (SEM) to test for mediation effects (Tables S4 and S5), and interaction term analysis (e.g., LGBTQ status X age, Tables S6 and S7) to test for intersectional patterns. Each model included the demographic and employment controls listed above and dichotomous controls for professional societies. Engineering is the comparison category for STEM field in the regression models because it is the largest subfield category in the sample. We use multiple imputation (MI chained technique in Stata 15 with 20 imputations) to handle missing data.

Table S1. Univariate and Bivariate Statistics for Demographics and Employment Controls for All Respondents and for LGBTQ and non-LGBTQ Respondents, and Descriptive Statistics from National Science Foundation Data on US STEM Professionals.

	ALL N=25,324	**LGBTQ N=1,006**	**Non-LGBTQ N=24,318**	**P (LGBTQ vs Non-LGBTQ)**	**2017 NSF Data**
LGBTQ	4.51%	---	---		---
Women (cisgender & transgender)	30.17%	32.63%	29.81%	***	29.00%
Men (cisgender & transgender)	69.81%	58.13%	69.57%	***	71.00%
Transgender & Gender Non-binary	0.85%	4.06%	0.09%	***	---
Black	2.19%	2.72%	2.16%		5.73%
Hispanic/Latinx	5.91%	5.97%	5.79%	**	7.58%
Asian	10.20%	13.28%	10.30%		20.09%
NAAPI	0.93%	1.45%	0.91%	*	0.57%
White	78.89%	65.80%	78.83%	*	66.02%
Engineering	38.58%	29.74%	39.11%	***	20.18%
Life Sciences	11.72%	11.71%	11.64%	*	7.12%
Physical Sciences	21.92%	23.54%	21.81%		4.30%
Computer Science & Mathematics	15.52%	20.17%	15.33%	***	39.90%
Other STEM Occupation	12.26%	14.84%	12.12%	**	28.49%
For-Profit Sector	33.71%	28.75%	33.95%	***	63.77%
University Sector	39.91%	42.49%	39.73%	*	13.01%
Government Sector	13.71%	15.25%	13.68%	*	11.60%
Nonprofit Sector	5.28%	5.97%	5.23%		5.31%
K-12	3.81%	4.46%	3.78%		3.19%
Other Sector	3.57%	3.07%	3.62%		3.12%
Age	49.84	47.24	50.12	***	---
Core Technical Work Indicator	39.15%	39.48%	39.10%		---
Employer Size	5.60	5.66	5.59		---
Parents' Highest Degree	4.30	4.30	4.29		---

Notes: * p<.05; ** p<.01; *** p<.001; two-tailed test, comparing LGBTQ and non-LGBTQ respondents via t-tests. Gender categories for women and men include both cisgender and transgender persons who identify as women and men, respectively. Transgender and gender non-binary status is combined above to protect confidentiality. NAAPI=Native American and Asian Pacific Islander. Unlike the NSF survey, the SIS survey allowed respondents to indicate more than one racial/ethnic category.

Table S2. OLS and Logistic Regression Models Predicting Career Opportunities, Professional Devaluation, and Social Exclusion Measures with LGBTQ Status and Controls.

	Career Opportunities		Career Resources		Whistleblowing comfort		Professional Devaluation		Social Marginalization		Experienced Harassment	
LGBTQ	-.106	***	-.089	***	-.151	***	.137	***	.171	***	.050	***
Women (cis and trans)	-.125	***	-.132	***	-.253	***	.257	***	.105	***	.686	***
Black	-.091	*	.040		-.134	**	.249	***	.194	***	.268	*
Hispanic/Latinx	-.084	**	.034		-.027		.094	***	.005		.231	**
Asian	-.220	***	.108	***	-.162	***	.148	***	.029		.025	
NAAPI	-.059		-.191	**	-.083		.128	**	.184	***	.363	*
Life Sciences	-.048		.044		.031		-.007		-.036		-.114	
Physical Sciences	-.030		.015		-.017		.004		-.023		-.155	*
Computer Sci & Math	.008		.014		.008		-.046		-.022		-.268	*
Other STEM Occupation	-.043	*	.027		.011		-.001		-.013		-.049	
University sector	-.039	*	-.127	***	-.197	***	.148	***	.108	***	.279	***
Government sector	-.037		-.156	***	-.174	***	.080	***	.061	***	.293	***
Nonprofit sector	-.009		.058		-.044		-.002		.044		.121	
K-12	.044		-.140	***	-.224	***	-.043		.003		.203	
Other Sector	.133	***	.152	***	-.170	***	.162	***	.037		.192	
Age	.008	***	.002	***	.001	**	-.002	***	.012	***	-.008	***
Highest Degree	.016	**	-.032	***	-.001		.001		.000		.016	**
Core Tech work indicator	-.071	***	.144	***	-.058	***	.011		.012		.014	
Employer Size	.393	***	-.038	**	.085	***	-.033	**	-.013		.085	***
Supervisory Status	-.005		-.018	***	.008	*	.010	***	.012	***	-.018	
Parents' Highest Ed	.013	***	.003		.000		-.011	***	.003		-.173	***
Constant	3.400	***	4.008	***	2.779	***	1.976	***	1.949	***	-1.838	***

Notes: N=25,324; * p<.05; ** p<.01; *** p<.001; two-tailed test. White is comparison category for race/ethnicity; men (cis and transgender) and gender non-binary respondents are comparison category for women; engineering is comparison category for STEM field; for-profit is comparison category for sector. Models also include controls for professional society. Logistic regression was used to predict the experiences of harassment (a dichotomous measure); OLS regression was used for all other outcome measures.

Table S2, Cont. OLS Regression Models Predicting Health and Wellness Difficulties and Turnover Intentions with LGBTQ Status and Controls.

	Minor Health Problems		Insomnia		Stressed from Work		Depressive Symptoms		Thought about Leaving Job		Intentions to Leave Prof.	
LGBTQ	.206	***	.246	***	.259	***	.178	***	.163	***	.173	***
Women (cis and trans)	.339	***	.150	***	.327	***	.034	**	.114	***	.102	***
Black	-.130	**	-.095	*	-.206	***	-.060	*	.159	***	.266	***
Hispanic/Latinx	-.001		-.010		-.054		-.041	*	-.004		.057	
Asian	-.133	***	-.047	*	-.271	*	.049	**	-.125	***	.278	***
NAAPI	.135	*	.075		.058		.060		.020		.067	
Life Sciences	.014		.029		.067		.034		.078		.103	
Physical Sciences	-.019		-.009		.047		.036		-.027		-.099	**
Computer Sci & Math	.024		-.011		.067	*	.060	*	.048		.058	
Other STEM Occupation	.013		-.007		.012		.019		.136	***	.206	***
University sector	.090	***	.106	***	.120	***	.096	***	-.161	***	-.135	***
Government sector	.069	**	.090	***	.031		.054	***	-.078	*	-.004	
Nonprofit sector	.000		.072	**	.023		.023		-.112	**	-.068	
K-12	-.013		-.027		-.004		.038		-.193	***	.072	
Other Sector	-.046		.012		-.080	*	-.060	*	-.060		-.291	***
Age	-.013	***	-.009	*	-.024	***	-.011	***	-.013	***	.008	
Core Tech work indicator	.001		.002		-.027	*	.002	*	-.093	**	-.087	***
Supervisory Status	-.005	**	.023		.066	***	-.022		-.059	**	-.173	***
Employer Size	-.010		-.002		.003		-.003		.009		-.005	
Parents' Highest education	.003	***	-.003		.006		-.007	**	-.003		-.015	**
Constant	2.934	***	2.231	***	3.781	***	2.557		2.709	***	1.899	***

Notes: N=25,324; * p<.05; ** p<.01; *** p<.001; two-tailed test. White is comparison category for race/ethnicity; men (cis and trans) and gender non-binary respondents are comparison category for women; engineering is comparison category for STEM field; for-profit is comparison category for sector. Models also include controls for professional society.

Table S3. Direct Effects of LGBTQ Status and Inequality Measures, and Indirect Effects of LGBTQ Status through Inequality Measures as Mediators, Predicting Health and Wellness Outcomes

Mediator: Career Opportunities	**Direct Effect:** LGBTQ→ Health Outcome (Coeff/signif)	**Direct Effect:** Career Opps→ Health Outcome (Coeff/signif)	**Direct Effect**: LGBTQ→ Career Opps (Coeff/signif)	**Indirect Effect:** LGBTQ→ Career Opps → Health Outcome(Coeff/Signif)
Outcome: Minor Health Problems	.266***	-.066***	-.192***	.013***
Outcome: Insomnia	.276***	-.086***	-.193***	.017***
Outcome: Stressed from Work	.372***	-.096***	-.193***	.019***
Outcome: Depressive Symptoms	.207***	-.112***	-.194***	.022***
Mediator: Career Resources	**Direct Effect:** LGBTQ→ Health Outcome (Coeff/signif)	**Direct Effect:** Career Resorc→ Health Outcome (Coeff/signif)	**Direct Effect**: LGBTQ→ Career Resorcs (Coeff/signif)	**Indirect Effect:** LGBTQ→ Career Resources → Health Outcome (Coeff/Signif)
Outcome: Minor Health Problems	.267***	-.093***	-.130***	.012***
Outcome: Insomnia	.276***	-.108***	-.132***	.014***
Outcome: Stressed from Work	.374***	-.146***	-.132***	.019***
Outcome: Depressive Symptoms	.211***	-.117***	-.132***	.015***
Mediator: Professional Devaluation	**Direct Effect:** LGBTQ→ Health Outcome (Coeff/signif)	**Direct Effect:** Prof. Deval→ Health Outcome (Coeff/signif)	**Direct Effect**: LGBTQ→ Prof. Deval (Coeff/signif)	**Indirect Effect:** LGBTQ→ Prof. Deval → Health Outcome (Coeff/Signif)
Outcome: Minor Health Problems	.260***	.135***	.179***	.024***
Outcome: Insomnia	.265***	.209***	.182***	.038***
Outcome: Stressed from Work	.361***	.219***	.181***	.034***
Outcome: Depressive Symptoms	.196***	.214***	.181***	.039***

Notes: N=25,324; * p<.05; ** p<.01; *** p<.001; two-tailed test. Direct and indirect effects produced from generalized structural equation models (GSEM) in Stata 14. All models include controls for the demographic, STEM field, employment sector, and job controls listed in Table S2, as well as controls for professional society.

Table S3, Cont. Direct Effects of LGBTQ Status and Inequality Measures, and Indirect Effects of LGBTQ Status through Inequality Measures as Mediators, Predicting Health and Wellness Outcomes

Mediator: Comfort Whistleblowing	**Direct Effect:** LGBTQ→ Health Outcome (Coeff/signif)	**Direct Effect:** Whistleblowing → Health Outcome (Coeff/signif)	**Direct Effect**: LGBTQ→ Whistleblowing (Coeff/signif)	**Indirect Effect:** LGBTQ→ Whistleblowing → Health Outcome (Coeff/Signif)
Outcome: Minor Health Problems	.261***	-.098***	-.248***	.024***
Outcome: Insomnia	.266***	-.097***	-.238***	.023***
Outcome: Stressed from Work	.366***	-.106***	-.237***	.025***
Outcome: Depressive Symptoms	.202***	-.100**	-.238***	.024***
Mediator: Social Exclusion	**Direct Effect:** LGBTQ→ Health Outcome (Coeff/signif)	**Direct Effect:** Social Exclusn → Health Outcome (Coeff/signif)	**Direct Effect**: LGBTQ→ Social Exclusn (Coeff/signif)	**Indirect Effect:** LGBTQ→ Social Exclusion → Health Outcome (Coeff/Signif)
Outcome: Minor Health Problems	.258***	.094***	.189***	.018***
Outcome: Insomnia	.266***	.121***	.189***	.023***
Outcome: Stressed from Work	.362***	.125***	.190***	.024***
Outcome: Depressive Symptoms	.200***	.130***	.189***	.025***
Mediator: Harassment	**Direct Effect:** LGBTQ→ Health Outcome (Coeff/signif)	**Direct Effect:** Harassment → Health Outcome (Coeff/signif)	**Direct Effect**: LGBTQ→ Harassment (Coeff/signif)	**Indirect Effect:** LGBTQ→ Harassment → Health Outcome (Coeff/Signif)
Outcome: Minor Health Problems	.271***	.116***	.067***	.008***
Outcome: Insomnia	.271***	.173***	.067***	.012***
Outcome: Stressed from Work	.371***	.184***	.067***	.012***
Outcome: Depressive Symptoms	.206***	.116***	.067 ***	.008***

Notes: N=25,324; * p<.05; ** p<.01; *** p<.001; two-tailed test. Direct and indirect effects produced from generalized structural equation models (GSEM) in Stata 14. All models include controls for the demographic, STEM field, employment sector, and job controls listed in Table S2, as well as controls for professional society.

Table S4. Direct Effects of LGBTQ Status and Inequality Measures, and Indirect Effects of LGBTQ Status through Inequality Measures as Mediators, Predicting Intentions to leave STEM Job and STEM Profession

Mediator: Career Opportunities	**Direct Effect:** LGBTQ→ Leaving Outcome (Coeff/signif)	**Direct Effect:** Career Opps → Leaving Outcome (Coeff/signif)	**Direct Effect**: LGBTQ→ Career Opps (Coeff/signif)	**Indirect Effect:** LGBTQ→ Career Opps → Leaving Outcome (Coeff/Signif)
Outcome: Thought abt Leaving Job	.106**	-.317***	-.198***	.063***
Outcome: Intend to Leave Prof	.077	-.114***	-.202***	.023***
Mediator: Career Resources	**Direct Effect:** LGBTQ→ Leaving Outcome (Coeff/signif)	**Direct Effect:** Career Resources → Leaving Outcome (Coeff/signif)	**Direct Effect**: LGBTQ→ Career Resorcs (Coeff/signif)	**Indirect Effect:** LGBTQ→ Career Resources → Leaving Outcome (Coeff/Signif)
Outcome: Thought abt Leaving Job	.123**	-.244***	-.133***	.032***
Outcome: Intend to Leave Prof	.092*	-.023***	-.123***	.004*
Mediator: Professional Devaluation	**Direct Effect:** LGBTQ→ Leaving Outcome (Coeff/signif)	**Direct Effect:** Prof Deval → Leaving Outcome (Coeff/signif)	**Direct Effect**: LGBTQ→ Prof. Deval (Coeff/signif)	**Indirect Effect:** LGBTQ→ Prof. Deval → Leaving Outcome (Coeff/Signif)
Outcome: Thought abt Leaving Job	.067**	.394***	.183***	.072***
Outcome: Intend to Leave Prof	.079	.096***	.202***	.019***
Mediator: Comfort Whistleblowing	**Direct Effect:** LGBTQ→ Leaving Outcome (Coeff/signif)	**Direct Effect:** Whistleblowing → Leaving Outcome (Coeff/signif)	**Direct Effect**: LGBTQ→ Whistleblowing (Coeff/signif)	**Indirect Effect:** LGBTQ→ Whistleblowing → Leaving Outcome (Coeff/Signif)
Outcome: Thought abt Leaving Job	.135***	-.245***	.231***	.058***
Outcome: Intend to Leave Prof	.084	-.040***	.245***	.010***
Mediator: Social Exclusion	**Direct Effect:** LGBTQ→ Leaving Outcome (Coeff/signif)	**Direct Effect:** Social Exclusion → Leaving Outcome (Coeff/signif)	**Direct Effect**: LGBTQ→ Social Exclusion (Coeff/signif)	**Indirect Effect:** LGBTQ→ Social Exclusion → Leaving Outcome (Coeff/Signif)
Outcome: Thought abt Leaving Job	.100**	.262***	.193***	.051***
Outcome: Intend to Leave Prof	.076	.748***	.206***	.015***
Mediator: Harassment	**Direct Effect:** LGBTQ→ Leaving Outcome (Coeff/signif)	**Direct Effect:** Harassment → Leaving Outcome	**Direct Effect**: LGBTQ→ Harassment (Coeff/signif)	**Indirect Effect:** LGBTQ→ Harassment → Leaving Outcome (Coeff/Signif)
Outcome: Thought abt Leaving Job	.129***	(Coeff/signif)	.067***	.031***
Outcome: Intend to Leave Prof	.085	.054**	.066***	.004*

Notes: N=25,324; * p<.05; ** p<.01; *** p<.001; two-tailed test. Direct and indirect effects produced from GSEM in Stata 14. All models include controls for the demographic, STEM field, employment sector, and job controls listed in Table S2, and controls for professional society.

Table S5. Focal Coefficients and Significance Levels from Regression Models Predicting Outcome Measures with Interaction Terms between LGBTQ Status and Gender Identity, Race/Ethnicity, and Age (included in models separately)

	LGBTQ x Women (cis & trans)	LGBTQ x Transgender & Gender Non-binary	LGBTQ x Black	LGBTQ x Latinx	LGBTQ x Asian	LGBTQ x NAAPI	LGBTQ x Age
Career Opportunities	.063	-.182	-.205	-.186 *	-.017	-.177	-.001
Career Resources	.009	.004	-.088	.079	-.185	-.286	-.005
Whistleblowing comfort	-.052	.094	-.280	.072	-.145	.471 *	-.003
Professional Devaluation	-.068	.111	.179	-.004	.098	.415 *	-.001
Social Exclusion	-.020	-.133	.178	.055	.068	-.023	-.002
Harassment	.027	.047	.091	.032	.129 *	-.012	-.001
Minor Health Problems	-.113	.327 *	.182	-.120	-.147	-.287	-.003
Insomnia	.060	.089	.287	-.076	.012	-.022	-.005 *
Stressed from Work	-.024	.482 **	.300	.041	-.019	.286	-.003
Depressive Symptoms	.056	.388 ***	.245 +	-.017	-.053	.278	-.011 **
Thought about Leaving	.029	.423 *	.008	-.069	.235	.083	-.001
Intentions to Leave Prof.	.031	.083	.107	.151	.060	.213	.011 *

Notes: N=25,324; * p<.05; ** p<.01; *** p<.001; two-tailed test. NAAPI=Native American Asian Pacific Islander. Interaction term coefficients produced from OLS or logit models predicting each outcome (as appropriate). Interaction terms were included in the models separately. To protect confidentiality of gender non-binary respondents, we created a combined category of transgender and gender non-binary individuals for the interaction analysis in the second column above. All models include controls for the demographic, STEM field, employment sector, and job controls listed in Table S2, as well as controls for professional society.

Table S6. Focal Coefficients from Regression Models Predicting Inequality Measures with Interaction Terms between LGBTQ Status and STEM Field and Employment Sector (included in models separately)

	LGBTQ x Life Sci	LGBTQ x Physical Sci	LGBTQ x Comp Sci & Math	LGBTQ x Other STEM	LGBTQ x University	LGBTQ x Gvmt	LGBTQ x K-12	LGBTQ x Nonprofit	LGBTQ x Other Sector
Career Opportunities	.022	.030	-.016	.025	-.098	-.080	.163	.178	.062
Career Resources	-.080	.047	.034	.096	-.178 *	-.130	.212	.214	-.241
Whistleblowing comfort	-.150	-.120	-.161	-.175	.145 *	-.239 *	-.262	.074	-.005
Professional Devaluation	-.135 *	-.024	.035	-.076	.087	.111	.022	-.056	-.133
Social Exclusion	-.063	.031	.044	-.172 *	.049	.105	-.141	-.141	-.075
Harassment	-.003	-.061	-.012	.091	-.001	.028	-.063	-.052	-.071
Minor Health Problems	-.016	-.087	.141	-.014	.056	.111	-.184	.079	-.050
Insomnia	.097	-.086	.017	-.014	-.041	-.143	-.275	.063	-.001
Stressed from Work	.136	.009	.146	.139	.064	-.037	-.038	-.102	.205
Depressive Symptoms	.111	-.069	.029	-.006	.056	-.032	-.004	-.027	-.005
Thought about Leaving	-.082	-.039	-.015	.034	.108	.149	-.090	-.078	-.111
Intentions to Leave Prof.	-.138	-.070	-.086	-.107	-.191 *	-.153	-.382	-.199	-.096

Notes: N=25,324; * p<.05; ** p<.01; *** p<.001; two-tailed test. Interaction term coefficients produced from OLS or logit models predicting each outcome (as appropriate). All models include controls for the demographic, STEM field, employment sector, and job controls listed in Table S2, as well as controls for professional society.

Table S7. OLS and Logistic Regression Models Predicting Career Outcomes, Devaluation, Marginalization, Health and Wellness Difficulties and Intentions to Leave among LGBTQ STEM Professionals Only, with Demographic Measures and Controls

	Career Opportunities		Career Resources		Whistleblowing comfort		Professional Devaluation		Social Exclusion		Harassment	
Transgender & Gender Nonbinary	-.263		-.299		-.139		.278	*	.229		.170	
Women (cis & trans)	-.089		-.124		-.207	**	.189	***	.083		.141	**
Black	-.374		-.072		-.609	**	.445	**	.447	*	.074	
Hispanic/Latinx	-.189		.031		-.050		.022		.048		.072	
Asian	-.257	*	-.187		-.257	*	.258	**	.107		.162	*
NAAPI	-.335		-.548		.251		.599	**	.176		.047	
Life Sciences	-.026		-.034		-.145		-.102		.065		-.114	
Physical Sciences	-.006		.098		-.014		.036		.086		-.081	
Computer Sci & Math	-.026		-.133		-.163		.102		.099		-.007	
Other STEM Occupation	-.135		.062		-.071		.075		-.031		.137	
University sector	-.115		-.353	**	-.273	*	.204	*	.149		.071	
Government sector	-.062		-.331	**	-.440	***	.172		.182		.147	*
Nonprofit sector	.128		.333	*	-.033		.072		-.001	***	.033	
K-12	.041		.125		-.362		.067		-.063		-.091	
Other Sector	.211		.098		-.187		.177		.036		.077	
Age	.007	*	-.005		-.003		-.001		-.002		-.003	
Core Tech work indicator	-.035		.270	**	-.080		-.003		.026		-.114	***
Employer Size	-.021		-.011		.008		.054	**	.019		.021	
Parents' Highest Ed	.010		-.045	*	-.032		-.009		.002		-.005	
Constant	3.873	***	4.33	***	2.529	***	1.673	***	1.891	***	1.132	***

Notes: N=1,006; * p<.05; ** p<.01; *** p<.001; two-tailed test. Transgender and gender non-binary status is combined in a single category to protect confidentiality. Logistic regression was used to predict the dichotomous harassment measure; OLS regression was used to predict all other outcomes. All models include controls for professional society.

Table S7, Cont. OLS Regression Models Predicting Career Outcomes, Devaluation, Marginalization, Health and Wellness Difficulties and Intentions to Leave among LGBTQ STEM Professionals, with Demographic Measures and Controls

	Minor Health Problems		Insomnia		Stressed from Work		Depressive Symptoms		Thought about Leaving Job		Intentions to Leave Prof.	
Transgender & Gender Nonbinary	.216		.154		.359	*	.452	***	.149	*	.071	
Women (cis & trans)	.185		.190	***	.281	**	.032	***	.083		.141	**
Black	-.084		.125		.057		.139	**	.447	*	.074	
Hispanic/Latinx	-.297	*	-.153		-.170		-.149		.048		.072	
Asian	-.408	***	-.102		-.366	**	-.044	**	.107		.162	*
NAAPI	-.166		-.066		.316		.326	**	.176		.047	
Life Sciences	.204		.123		.221		.148		.065		-.114	
Physical Sciences	-.065		-.059		.150		.051		.086		.081	
Computer Sci & Math	.136		.053		.030		.077		.099		-.007	
Other STEM Occupation	.177		.081		.246		.069	*	-.031		.137	
University sector	.151		-.004		.108		.159	*	.149		.071	
Government sector	.166		.040		-.031		-.012		.182		.147	*
Nonprofit sector	.180		.150		.014		.117		-.001	***	.033	
K-12	-.084		-.288		-.126		.135		-.063		-.091	
Other Sector	.104		.070		.147		.058		.036		.077	
Age	-.017	***	-.014	***	-.029	***	-.015	***	-.002		-.003	
Core Tech work indicator	.109		.033		-.047		.014		.026		-.114	
Employer Size	-.004		.001		.037		.033		.019	*	.021	*
Parents' Highest Ed	-.021		-.013		.013		-.006		.002		-.005	
Constant	3.482	***	2.639		4.493	***	3.335	***	1.891		1.132	***

Notes: N=1,006; * p<.05; ** p<.01; *** p<.001; two-tailed test. Transgender and gender non-binary status is combined in a single category to protect confidentiality. Logistic regression was used to predict the dichotomous harassment measure; OLS regression was used to predict all other outcomes. All models include controls for professional society.

Table S8. OLS and Logistic Regression Models Predicting Education Level, Hours Worked, Core Technical Work, and Work Dedication Measures, by LGBTQ Status and Controls.

	Highest Degree			**Hours Worked per Week**			**Does Core Technical Work as Primary Work Responsibility**			**Puts in a Great Deal of Effort Beyond What's Required of Job**			**Work is an Important Part of Personal Identity**		
	Coeff	p	SE	Coeff	p	SE	Coeff	P	SE	Coeff	p	SE	Coeff	p	SE
LGBTQ	-.060		*.036*	.213		*.379*	.002		*.069*	-.050		*.027*	.018		*.028*
Women (cis & trans)	-.057	**	*.017*	-1.091	***	*.180*	-.336	***	*.069*	.003		*.013*	.082	***	*.013*
Black	.168	**	*.048*	1.142	*	*.514*	-.198	*	*.033*	.229	***	*.038*	-.193	***	*.038*
Hispanic/Latinx	.049		*.034*	.254		*.365*	.074		*.097*	.125	***	*.026*	.055	*	*.027*
Asian	.370	***	*.024*	.620	*	*.257*	.546	***	*.065*	.087	***	*.018*	.079	***	*.019*
NAAPI	-.173	*	*.074*	1.117		*.785*	-.396	*	*.045*	.071		*.057*	-.068		*.058*
Life Sciences	.283	***	*.044*	.430		*.470*	.317	***	*.156*	.122	***	*.034*	.072	*	*.034*
Physical Sciences	.349	***	*.030*	-.614		*.323*	.140	*	*.084*	.057	*	*.023*	.050	*	*.024*
Comp Sci & Math	-.007		*.039*	-.513		*.418*	-.058		*.059*	.049		*.030*	-.056	*	*.031*
Other STEM Occupation	-.264	***	*.027*	.125		*.295*	-1.145	***	*.076*	.043	*	*.021*	-.054	***	*.021*
University sector	1.221	***	*.022*	2.402	***	*.244*	-.256	***	*.062*	.011		*.017*	.293	***	*.017*
Government sector	.534	***	*.025*	-.721	**	*.265*	-.222	***	*.040*	.033		*.019*	.096	***	*.019*
Nonprofit sector	.692	***	*.035*	-.128		*.375*	-.115		*.046*	.008		*.027*	.188	***	*.027*
K-12	-.188	***	*.046*	6.274	***	*.491*	-4.121	***	*.067*	.264	***	*.035*	.403	***	*.036*
Other Sector	.334	***	*.043*	-7.102	***	*.457*	.472	***	*.505*	.166	***	*.033*	.212	***	*.034*
Age	.011	***	*.001*	-.082	***	*.006*	-.020	***	*.080*	.000	***	*.005*	.013	***	*.000*
Core Tech work indicator	.333	***	*.016*	-1.027	***	*.171*	---		---	.005	***	*.000*	.001	***	*.004*
Supervisory Status	.175	***	*.015*	5.796	***	*.162*	-.420	***	*.001*	-.062	***	*.012*	.010	***	*.003*
Employer Size	.016	***	*.004*	.447	****	*.048*	.075	***	*.029*	.213	***	*.012*	.018		*.028*
Parents' Highest Edu	.057	***	*.004*	.051		*.040*	.027	***	*.009*	-.013	***	*.003*	.082	***	*.013*
Constant	4.930	***	*.064*	42.848	***	*.736*	-1.155	***	*.151*	-.014	***	*.003*	3.324	***	*.048*

Notes: N=25,324; * p<.05; ** p<.01; *** p<.001; two-tailed test. White is comparison category for race/ethnicity; men and gender non-binary respondents are comparison categories for women; engineering is comparison category for STEM field; for-profit is comparison category for sector. Models also include controls for professional society. Model predicting whether respondent does core technical work as their primary work activity uses logistic regression; all other outcome measures are predicted with OLS regression.

Table S9. Coefficients and Standard Errors for LGBTQ Coefficient in Regression Models With and Without Control for Job Satisfaction, Predicting Each Focal Outcome.

	LGBTQ Coefficient without Job Satisfaction control			**LGBTQ Coefficient with Job Satisfaction control**		
	Coeff		**SE**	**Coeff**		**SE**
Career Opportunities	-.105	***	*.027*	-.057	*	*.025*
Sufficient Resources	-.089	**	*.033*	-.035		*.034*
Whistleblowing Comfort	-.151	***	*.031*	-.104	***	*.029*
Professional Devaluation	.137	***	*.023*	.093	***	*.020*
Social Marginalization	.171	***	*.025*	.132	***	*.024*
Harassment	.049	**	*.018*	.042	*	*.017*
Minor Health Problems	.206	***	*.030*	.190	***	*.029*
Insomnia	.246	***	*.028*	.226	***	*.028*
Stressed	.260	***	*.031*	.233	***	*.030*
Unable to Control	.242	***	*.030*	.210	***	*.029*
Difficulties Piling Up	.265	***	*.029*	.234	***	*.028*
Thought about Leaving Job	.163	***	*.041*	.087	*	*.036*
Plans to leave Occupation	.164	***	*.041*	.137	**	*.044*

Notes: N=25,324; * p<.05; ** p<.01; *** p<.001; two-tailed test. All models include controls for the demographic, STEM field, employment sector, and job controls listed in Table S2, as well as controls for professional society. Logistic regression used to predict dichotomous harassment measure; all other models use OLS regression.

Table S10. Effect Sizes of Mean Differences between LGBTQ and Non-LGBTQ Respondents on Outcome Measures

Effect Sizes	
Career Opportunities	.218
Career Resources	.124
Whistleblowing Comfort	.228
Professional Devaluation	.255
Social Marginalization	.250
Harassment	.129
Minor Health Problems	.365
Insomnia	.381
Stressed	.462
Depressive Symptoms	.371
Thought about Leaving	.205
Intentions to Leave Profession	.110

Note: Columns above represent Cohen's *d* effect sizes [*d*=difference in means / pooled standard deviation] on differences in means on each inequality measure between LGBTQ and non-LGBTQ respondents.

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