

Content Warnings: mention of sexual violence

## **Assessing the Effectiveness of a Social Norms-Based Sexual Violence Prevention Digital Campaign on the UC Berkeley Campus**

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**Purpose:** DATASCI W241 Final Research Project

**In collaboration with:** PATH To Care Center at University of California, Berkeley

**Github Repository:** [https://github.com/swethapola/w241\\_socialnorms](https://github.com/swethapola/w241_socialnorms)

### **Abstract**

In conjunction with the prevention team at the PATH To Care Center (PTC) at the University of California, Berkeley, we experimentally assess the effectiveness of a sexual violence & sexual harassment (SVSH) prevention social media campaign on perceived social norms. Previous work has assessed social-norms based SVSH prevention campaigns which have physical presence on a college campus (ie: flyers, billboards). Thus, to better inform digital campaign efforts, we conduct a lab simulated social media scroll and find that a social-norms based graphic does cause a change in an individual's perception of campus-wide SVSH social norms.

### **Introduction**

#### *Social Norms*

Social norms have been standardly defined as the “rules and standards that are understood by members of a group, and that guide or constrain social behaviors without the force of law” (Cialdini, 1998). Social norms can vary between groups and

cultures and have the ability to shape individual behavior. In particular, the Social Norms Approach widely used public health is an approach operates on the premise that “individuals misperceive their peers’ behaviors and attitudes” and the misperceptions, which are either under- or over-estimations of socially accepted behaviors, can cause individuals to respectively, increase or decrease problem behaviours within the self (Dempsey, 2018). The Social Norms Approach has been applied to the domain of SVSH prevention and proven as effective (DeGue, 2014). For example, results from in-person longitudinal social norms programs for SVSH prevention on college campuses have provided grounds for funding and further execution of these programs (Mennicke, 2021). Further, there is an exorbitant amount of literature on the influence of digital campaigns, advertising, and marketing on perceived norms and consumer behavior. However, there is an apparent need for critical research in the specific domain of assessing the effectiveness and impact of digital campaigns on changing an individual’s perception of campus-wide SVSH social norms.

### *COVID-19 and Campus SVSH*

As a result of the COVID-19 pandemic, university prevention and care centers for survivors of SVSH have experienced multiple obstacles in converting prevention and survivor support advocacy services to digital formats. Meanwhile, rates of domestic violence, interpersonal violence, and other SVSH-related cases have spiked almost doubly, all over the country, particularly in college campus communities (Barlow, 2020). Being able to reach the campus community virtually and effectively is currently, and will continue to be a pressing need.

### *UC Berkeley PATH To Care Center*

This study was conducted in collaboration with the UC Berkeley PATH To Care Center. The PATH To Care Center at the University of California, Berkeley “leads efforts to transform our campus into a community that is free of sexual violence, sexual harassment, intimate partner violence, and stalking through prevention, advocacy, training, and healing.<sup>1</sup>” Over the past few years, PTC has run multiple SVSH prevention efforts<sup>2</sup>, including a #WeCare campaign involving the distribution of flyers and billboards showcased on the UC Berkeley campus<sup>3</sup>. Since the start of campus-wide remote instruction in March 2020, the campaign has shifted to exclusively running digitally via social media platforms which has created two novel challenges for the center. Firstly, there is a need to produce novel meaningful social media content that can create a lasting impression on an individual. Secondly, the program evaluation

tools<sup>4</sup> previously utilized to assess the effectiveness of a campaign also need to be shifted to align with the changed goals of a social media run campaign. Importantly, the current evaluation tool is non-experimental and causal inference cannot be made from the data captured from this survey. Since existing literature has not provided robust frameworks for the development of either of the two, we seek to expand the critical research necessary to progress the field forward in the digital, remote age.

### *UC Berkeley MyVoice Survey*

The UC Berkeley MyVoice survey<sup>5</sup>, conducted most recently in 2018, is conducted to invite UC Berkeley’s entire campus community to “share their experiences, beliefs, norms and knowledge regarding sexual violence and sexual harassment (SVSH)”. Notably, the MyVoice Survey captured responses from 18% of the entire undergraduate population.

A large component of the survey included a variety of questions assessing beliefs, attitudes, and norms around SVSH for: themselves and others around them. In Table 1 are reported figures for 4 of these measures. Column 2 reports: the percentage of UC Berkeley undergraduate participants who believe peers would be “Likely” or “Extremely Likely” to behave in accordance with the descriptor in column 1. Column 3 reports: the percentage of UC Berkeley undergraduate participants who believe they themselves would be “Likely” or “Extremely Likely” to behave in accordance with the descriptor in column 1.

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<sup>1</sup> PATH To Care Center [Home Page](#)

<sup>2</sup> [Here](#) you can find more information on PTC’s Prevention efforts.

<sup>3</sup> Examples of campus banners and billboards can be found in Appendix 1a.

<sup>4</sup> [Here](#) is a link to the current evaluation tool, which is a google form response, incentivized by a \$25 gift card drawing.

<sup>5</sup> Read more about the MyVoice Survey [at this link](#).

Table 1.

Survey Question	Peers are “Likely to” or “Extremely Likely to”	Self is “Likely to” or “Extremely Likely to”
Challenge a colleague who made a sexist joke.	36%	57%
Redirect a conversation when a friend is condescending to others because of their sex or gender.	56%	77%
Get help when a friend/colleague is persistently contacting or following another person.	50%	77%
Stop a friend who is trying to have sexual contact with someone who is passed out.*	77%	91%

\* This last statistic has not been utilized in a previous official campus-wide campaign.

### Campaign Goals

The goals of a social norms campaign are to educate a group on what the true social norm statistic is. In Table 1, we define the perceived social norm as the figures reported in column 2, and the true social norm as the figures reported in column 3. Critically, in Table 1, the perceived social norm is lower than self-reported statistics on all 4 measures. Although the ideal self-reported statistic is high, behaviors in social situations are more likely to reflect the perceived social norm. By bringing an individual’s estimation of peer attitudes closer to true peer attitudes, the Social Norms Approach

posit that the individual’s own attitudes and behaviors will shift to reflect the social norm.

PTC selected to create graphics based on the first 3 statistics reported in Table 1 for the #WeCare campaign<sup>6</sup> because a majority of all populations (undergraduates, graduate students, staff, faculty) held prosocial views of others (“Likely” or “Extremely Likely”) and there was at least a 20 point gap between attitudes for self vs. perception of peers’ attitudes. These graphics served to educate the UC Berkeley undergraduate community on what the true social norms are. The effectiveness of the original #WeCare Campaign graphics is unclear, so we seek to experimentally assess the effectiveness of such a campaign.

### Research Question & Hypothesis

In this study, we assess: does exposure to a #WeCare campaign style graphic bring the perceived social norm on “likelihood to stop a friend who is trying to have sexual contact with someone who is passed out” closer to the true social norm?

We hypothesize that survey participants who were exposed to the treatment ad will perceive the norm closer to the true norm, compared to those in control. Additionally, we hypothesize that survey participants who were exposed to the treatment ad would be more willing to take direct action and choose to receive further education and involvement on sexual violence prevention on campus. In regards to differences between UC Berkeley students who started at Cal pre 2018 and post 2018, we expect that there would be a difference in their perception of the social norm associated with SVSH. Since the MyVoice Survey

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<sup>6</sup> Examples of #WeCare digital graphics can be found in Appendix 1b.

was conducted in 2018, we theorize that students who were exposed to MyVoice (ie: either heard of the survey or participated in the survey) in 2018 compared to those who started school at UC Berkeley after the study was conducted may differ. However, given that many undergraduate career paths are nonlinear (ie: starting before 2018 doesn't guarantee a student would have been enrolled for the semester MyVoice was rolled out), only 19% of the undergraduate population took MyVoice, and 2018 was long enough ago where salience of the survey may have diminished greatly, we don't expect any large differences from the results of the "year at Cal" demographic.

## Methods

### *Discussion of Potential Outcomes*

Table 2. Posttest control group design

Control - PTC graphic	Treatment - no PTC graphic
R X O	R - O
Randomly assigned (R)	Randomly assigned (R)
Treatment group (X)	Control Group (-)
Posttest observation (O)	Posttest observation (O)

### *Potential Outcomes*

Our treatment is a binary treatment that can be represented by  $T = \{0,1\}$ .

Each individual's potential outcome is  $Y_T$ , one for each value of the treatment:

$Y_1$ : Potential outcome of seeing the PTC graphic

$Y_0$ : Potential outcome of not seeing the PTC graphic

Only one of the potential outcomes can be observed for a particular individual, not both. The unobserved outcome for each individual is counterfactual. If an individual sees the PTC graphic, their counterfactual outcome is not seeing the graphic; if an individual does not see the PTC graphic and sees the generic graphic, their counterfactual outcome is seeing the PTC graphic.

### *Study Design*

We conducted this experiment through a Qualtrics survey where we block-assigned subjects to a treatment and control group. Both groups received a short questionnaire and a simulated social media scroll<sup>7</sup> within the survey. The treatment group was exposed to a newly constructed graphic<sup>8</sup>, designed to look like it had been sourced from the PATH To Care Instagram page. The graphic includes the 91% statistic about the percentage of UC Berkeley undergraduates who would stop a friend who is trying to have sexual contact with someone who is passed out. The statistic on this PTC graphic was a new statistic that was pulled from previous survey data, and was never seen before in previous PTC social media posts (to reduce bias if someone had seen the statistic before). The control group viewed an identical scroll except the PTC graphic was replaced with a generic UC Berkeley related ad.

### *Block Randomization Process*

The prevention team at the PATH To Care Center (PTC) had a specific interest in seeing how the results of individuals of different genders respond to treatment. In particular, we block randomized on those who identify as cis men and

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<sup>7</sup> Simulated scroll can be found in Appendix 2a.

<sup>8</sup> Treatment ad and control ad figures included in Appendix 2b.

those who identify as non-cis men (ie: cis women, trans folks, non-binary folks, genderfluid, questioning, and others).

Secondly, we block randomize on “Year at Cal” to compare students who started after 2018 (1st years, 2nd years) to students who started prior to 2018 (3rd years, 4th years, 5th years and beyond). All measures are transfer student inclusive. After participants were put into blocks based on their gender and year, they were randomly assigned to control and treatment.

Figure 1a.

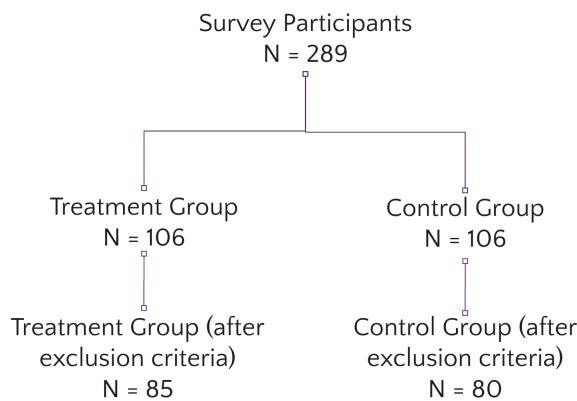


Figure 1a demonstrates the randomization process as well as sample size post exclusion criteria.

#### *Outcome Variables*

Our primary outcome variables of interest are measured through the following questions and their respective response choices:

##### 1. Recall

- a. Question: “Which of the following images do you recall seeing in the previous pages? You may choose more than 1 answer.”
- b. Response Choices: Multiselect, where 3 of the images were

actually shown, and 2 are distractors.

- c. This question measures compliance to treatment.

##### 2. SVSH Norm Outcome

- a. Question: “What percentage of UC Berkeley students do you think would stop a friend from trying to have sexual contact with someone who is passed out?”
- b. Response Choices: A scale from 0-100. The slider defaults to 0.
- c. This question measures a change in perceived social norm due to treatment, if any.

##### 3. Direct Action Outcome

- a. Question: “Would you like to receive more information about getting involved with any of the following efforts on campus? You may choose more than one.”
- b. Response Choices: Multiselect, where “Raise awareness about sexual violence and sexual harassment” is 1 among 4 other similarly worded choices on different topics. The 6th choice is “None of the above” and there was no forced response to this question.
- c. This question measures a behavioral effect of treatment, if any.

In order to decrease the salience of the SVSH Norm outcome, we bury the question among several other similarly worded questions<sup>9</sup> which ask the participant to communicate their

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<sup>9</sup> For a full list of questions, see Appendix 3.

thoughts on other related and unrelated campus social norms.

### *Demographic Covariates*

Demographic covariates are integral to our study because marginalized communities disproportionately experience SVSH and oftentimes, campus-wide norms do not apply into segments of the campus population. For example, those who are people of color, women, LGBTQ+, disabled, and/or low-income, may not believe the 91% reported “true” norm. Less belief in the treatment ad makes for less of (and potentially opposite) measured treatment effect.

In our study, we measure and discuss covariates of interest that we believe will have an effect on the outcome variable. We acknowledge that the measures we capture do not capture the full nuance of individual identities. However, we choose to leave out multiple demographic and identity-related questions as forcing a participant to disclose such information can produce unintended consequences such as breaking the participants’ sense of safety or anonymity.

#### 1. Gender

- a. Perceptions of social norms are highly variable between individuals of different genders due the cisheteropatriarchy<sup>10</sup>, rape culture, and other harmful structures.
- b. We hypothesize that the treatment may have a larger effect on cis men.

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<sup>10</sup> The cisheteropatriarchy describes the socio-political system where cisgender, heterosexual men hold power and authority over those of other sexual orientations and gender identities (ie: women, LGBTQ+ folks, trans/non-binary folks).

#### 2. Year at Cal

- a. 1st and 2nds years may have had less to no exposure to both the MyVoice Survey and to other #WeCare Campaign graphics
- b. Additionally, the novelty of university norms at UC Berkeley allows us to study the difference between their social norm perceptions compared to those who are new to UC Berkeley and those who have been at the university for at least 2 years

#### 3. Transfer Students

- a. Transfer students may have been exposed to different norms at other schools or universities, leading to different responses in our study
- b. Further, transfer students report less of a sense of belonging on campus, which creates a potential heterogeneous treatment effect within this population.

### *Attention as a Covariate*

We hypothesize that attention paid to the study may affect the magnitude of treatment manipulation, as well as treatment effect. Namely, the more attention a participant paid to the simulated social media scroll, the more likely they are to be treated. To operationalize Attention, we take an aggregate measure of time spent on the first two pages of the social media scroll (since the treatment is placed on the 3rd page, making time spent on the 3rd and 4th page a potentially bad control).

## Data

### Sample

We conducted the experiment through the UC Berkeley Xlab, which is an experimental social science laboratory on campus, through which “UC Berkeley students and staff are eligible to participate in Xlab studies and receive compensation that averages \$20 an hour”. We ran the survey over a period of 3 days and collected a total of 289 responses.

### Exclusion Criteria

A number of responses were dropped from the results of our study if they did not meet the following exclusion criteria:

1. Participant must be an undergraduate student at UC Berkeley.
2. Participant must have a response of “50” for the question: “Please drag the slider to 50 for this question.”
3. Participant must have answered the required gender question in a way that allows us to bin them into identifying as:
  - a. Cisgender Man
  - b. Not a Cisgender Man

Once the exclusion criteria was applied, the final dataset had a total of 165 responses.

### Operationalization of Outcome Variables

We operationalize the Recall outcome into a binary indicator column through the following method:

1. Successfully Recalled (1)
  - a. If the respondent was assigned to treatment and selected the treatment ad when asked to recall it

- b. If the respondent was assigned to control and selected the control ad when asked to recall it
2. Failed to Recall (0)
    - a. If the respondent was assigned to treatment and did *not* select the treatment ad when asked to recall it
    - b. If the respondent was assigned to control and did *not* select the control ad when asked to recall it

Next, we operationalize the SVSH Norm Outcome by taking the absolute difference between the true social norm (91) and the participant response for the question SVSH Norm Outcome.

Finally, we operationalize the Direct Action outcome into a binary indicator column through the following method:

1. 1, if “Raise awareness about sexual violence and sexual harassment” is chosen.
2. 0, if “Raise awareness about sexual violence and sexual harassment” is not chosen.

### Sample Demographics

Table 3.

Race	# Participants	% of Total
Asian	103	62.4
Black	3	1.81
Latino	15	9.09
Native Hawaiian or Pacific Islander	1	.606
White	35	21.2
Other	6	3.63
Prefer not to Answer	2	1.21

In this small sample size of data, we do not achieve a sample that is racially representative of the campus population.<sup>11</sup> We will consider potential issues with adding race as a covariate in our regressions because of it, and may not include it in the final equations.

### *Compliance to Treatment*

The results of the Recall outcome provides a measure of compliance. Table 4 displays a summary of the Recall outcome.

Table 4.

Condition	# Assigned	# Recall	Proportion Recall
Treatment	85	68	0.8000
Control	80	73	0.9125

Although we do not utilize the Recall outcome as a covariate, since it was measured after treatment and could be an effect of treatment itself, we utilize Attention as a proxy for Recall and choose to assess Recall as an outcome in a regression analysis on its own merit.

## Results

### *CLM Assumptions*

The CLM Assumptions that we evaluate are: IID Data, No perfect collinearity, Linear Conditional

Expectation, Homoskedastic errors, and Normally distributed errors.

1. IID Data: Our data consists of responses from individuals who participated through XLab. Based on the design of XLab and how surveys are distributed for participation credit, one individual and their responses cannot influence another individual taking the same survey. Therefore, we can say that each individual and response is independent from each other. XLab is through UC Berkeley, which means that both students and staff have access to various surveys that they can take. Based on this, we can assume the data is identically distributed as well, since it is likely that we would get a similar distribution of individuals if we re-did the experiment. We can say that the IID Data assumption is met.

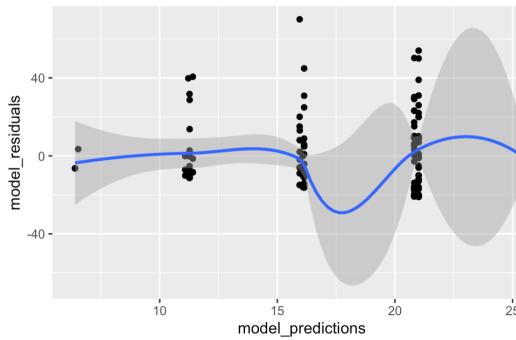
2. No perfect collinearity: When looking at our main model (where we consider the “outcome” variable regressed on treatment, gender, first and second years, transfer students, and the interaction between first and second years and transfer students), we want to check that the regressors are not collinear or near collinear. If we had near perfect collinearity, we would find large standard errors on the collinear features. Looking at our standard errors, most of them are small (around 2 to 3), but the standard error for transfer students is 5.8 and the interaction term standard error is 8.3. These are larger compared to the other coefficients, so we will proceed with caution, in case these are near collinear. We can also check the correlation between each of the regressors. We get values

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<sup>11</sup> [Here is a link](#) to UC Berkeley’s diversity dashboard which reports racial and ethnic breakdowns of the undergraduate population.

between -0.13 and 0.06, which aren't too high. If we had perfect collinearity between different regressors, the correlation between them would be much higher. There is a good chance that our model does not use collinear variables. If our data was perfectly collinear, the variables would not have a unique solution and we would not be able to generate estimates of the regression coefficients without dropping some variables.

3. Linear Conditional Expectation: If this condition is satisfied, we should see a linear relationship between the predictions and residuals in the plot. Looking at our individual variables in our model does not make sense because they are each indicator variables. However, when we look at the overall model predictions and residuals, we get a plot that looks like this:

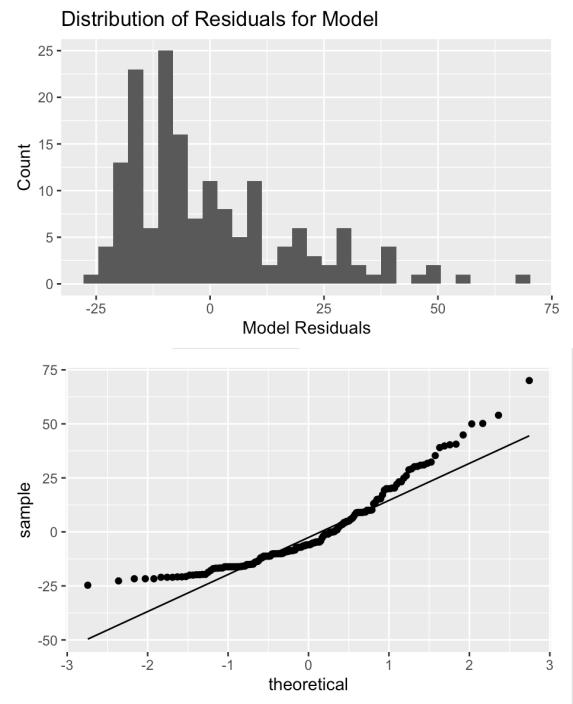


We see a nonlinear relationship in the plot above. There is a linear relationship in the first half of the plot but in the second half, the plot curves around the value of 15 for the prediction. Therefore, this assumption is not met and we do not have linear conditional expectation.

4. Homoskedastic errors: To evaluate homoskedastic errors, we can run the Breusch-Pagan test. This will test if the

errors variances are equal. When running this test, we get a p-value of 0.8476. This is a large p-value (greater than 0.05 which is our typical cutoff), so we can fail to reject the null hypothesis that the error variances are all equal. Our data does have homoskedastic errors, so the error variance is the same for all parts of the x range. This condition is satisfied.

5. Normally distributed errors: To evaluate this assumption, we will want to plot a histogram of the errors and see what the distribution looks like. When plotting our residuals, we get a distribution that is slightly skewed with a right tail. As an additional check, we can look at the qqplot and see how normal the residuals are. We get a curved plot (ideally we would have a linear relationship). Therefore, the data does not have normally distributed errors. We may want to be careful since this assumption is not satisfied, which is something to keep in mind when determining the practical significance of our model results.



	<i>Dependent variable:</i>				
	outcome				
	(1)	(2)	(3)	(4)	(5)
treatment	-4.361 (2.970)	-4.383 (2.976)	-15.342*** (5.908)	-4.660 (2.977)	-15.380** (5.973)
gender			-1.531 (6.087)		-2.537 (6.206)
first_second_year				-5.728* (3.328)	-4.689 (3.314)
transfer				-10.792** (4.695)	-10.005** (4.582)
page_times		-0.020 (0.033)	-0.021 (0.036)	-0.009 (0.033)	-0.013 (0.035)
treatment:gender			14.334** (6.903)		14.015** (6.981)
first_second_year:transfer				6.958 (7.308)	5.634 (7.381)
Constant	21.137*** (2.186)	22.344*** (2.879)	23.569*** (6.473)	25.439*** (3.022)	27.111*** (6.515)
Observations	165	165	165	165	165
R <sup>2</sup>	0.013	0.015	0.058	0.054	0.089
Adjusted R <sup>2</sup>	0.007	0.003	0.034	0.025	0.048
Residual Std. Error	19.035 (df = 163)	19.074 (df = 162)	18.775 (df = 160)	18.866 (df = 159)	18.635 (df = 157)

Table 5.

### Regression Interpretation

Table 5 above represents the following regression:

Outcome =  $\beta_0 + \beta_1 \text{treatment} + X_i \gamma + e_i$   
 where  $X_i$  is a vector of controls and Outcome is the SVSH Norm Outcome. We decided to model five different regressions where our outcome variable of SVSH Norm was regressed on treatment, gender, the interaction between treatment and gender, if someone was a first or second year, if someone was a transfer student, the interaction between first and second year and transfer, and page timings for the

first two pages before treatment (as a measure of attention).

Looking first at our baseline model (1), if a survey participant was in the treatment group, there is an associated 16.76 difference from our goal value of 91, which was the statistic presented in the treatment graphic. If someone was in control, this difference value would be 21.137 according to the regression.

Model (3) and (5) involve the interaction between treatment and gender. In both regressions the treatment coefficient and the interaction term are significant at the 0.05 level and 0.01 level

respectively. Adding this interaction term means that the effect of the treatment on our outcome variable is different for each value of gender (cis man and non cis man).

Looking at Model (3), people who identify as cis men and are in treatment have approximately a 21 point difference from our goal value whereas people who identify as cis men and are in control have around a 22 point difference from our goal value. For cis men, being in treatment and seeing the treatment graphic helps to bring them 1 point closer to the true norm. This is compared to people who are non cis men: people in treatment have approximately an 8 point difference from our goal value while people in control have an estimated difference of 23 points. The difference between treatment and control for non cis men is quite large and seems to be significant. With non cis men in treatment, we are able to bring them 15 points closer to the norm value of 91 as compared to control. We can see the same pattern happening in Model (5) as well, but with added coefficients for transfer students and first/second year students.

In the last two regressions models (4) and (5), the transfer coefficient is significant. In both regressions, the coefficient is negative which means that transfer students tend to be closer to the goal of 91 as compared to non-transfer students.

#### *Power Analysis*

To assess the results of our experiment and see how confident we are in the conclusions drawn from the results, we will do some power analysis. To conduct a power analysis test, we can start by conducting a t-test on our model: outcome ~ treatment. Using this t statistic, we get a value of 0.0132 for our Cohen's d. Using this to run a power test, we end up with power of 0.0508 at the 0.05 significance level. Usually, a higher statistical

power of a test means that there is a lower probability of making a false negative error. In our case, we have a very low power. This means that we could be at risk of making Type II errors, which are false negatives. Based on the power of our test, we could be making incorrect conclusions about our experiment. A way to correct for this would be to increase our sample size, perhaps with additional funding and resources. A larger sample size could make an effect easier to detect and this would therefore increase the statistical power of our experiment.

## **Discussion**

#### *Practical Significance*

In our full model (5) and one of the partial models (3), we hit statistical significance for the treatment coefficient. The other models (1), (2), (4), are not statistically significant but the p-value is at a place where we think our study has real practical significance (p-value is around 0.11). All models report that we were able to bring the entire treatment group closer to the true norm by 4 or 5 points (and the baseline was 21 points away). We believe that, for seeing 1 social media post for a few seconds, this is a decently sized treatment effect. This effect of treatment is emphasized in models (3) and (5) where the treatment coefficient is significant. We see a valuable difference in perception based on if someone was in the control group or the treatment group.

#### *Heterogeneous Treatment Effects*

As previously discussed, marginalized communities disproportionately experience SVSH. Therefore, we remain critical that although MyVoice, and we as researchers, have docked what the "true" statistic is, this may not be true for all

communities on campus. In some, it may be higher, and in some lower. Thus, participants from marginalized communities on campus may be less likely to even believe the true statistic, let alone, change their perceived norm based on one campus wide statistic.

We frame our analysis with respect to community-level differences and make note of this very real potential heterogeneous treatment effect. Some subjects in our pilot study mentioned, “If I don’t believe in a statistic, I feel attacked by it because it’s not reflective in my experience, so I’m going to report a really low measure when I’m asked about it again.” This is a deeply insightful qualitative finding that points to all the nuance we have yet to study.

### *Generalizability*

Due to an imbalance of our class distribution for gender (cis men vs non cis men) and imbalance in our race/ethnicity representation in the survey as shown in Table 3, we may not be able to generalize this study to the overall UC Berkeley campus population. Though we did find that the results of our experiment were significant and that the PTC treatment graphic did change an individual’s perception of campus-wide SVSH social norms, we would want to conduct the same experiment on a larger scale with a more representative population. Additionally, after further studies and research is conducted on our study, we would hope to generalize it to other social media campaigns if our results seem significant.

The fact that we were able to see a positive shift in behavior and perception of a social norm from this experiment is encouraging. On a larger population, we may be able to generalize better and see a larger treatment effect of the social media graphic.

### *Recommendations + Next Step + Limitations*

There are some limitations to our study as it is designed currently; ideally we would be able to improve on this in the future and analyze the results.

- (1) Power: We found that our experiment had very low power, which could potentially invalidate the results. Given more funding and resources, we could take this experiment further and sample a larger group of people to combat low power. Further, we could experiment with the other multiple kinds of interventions that PTC does (ie: workshops, training, video resources, etc).
- (2) Bad Controls: As part of designing survey questions, we had participants go through the survey scroll (and see the treatment or control graphic) and afterwards they were asked a series of questions related to recall, SVSH Norm, and direct action. Unfortunately, since these are collected after someone has been exposed to treatment or control, we are not able to add these variables as covariates in our regression, as these would make bad controls. We are potentially missing out on valuable information due to the fact that we cannot add bad controls into our regression. In the future, we could think about ways to convert these into something that would be useful in our analysis beyond using Attention as a proxy.
- (3) Covariates with Small Sample Size: As mentioned previously, we have a small sample size for our experiment. We were considering adding more covariates to our regression (for example race) but there

were concerns about the consequences of if we could add more covariates into our regression with a small sample size. In particular, we believe it would be harmful to make a generalization about an entire racial demographic on campus based on the results of a few individuals who happen to identify with that racial category. This is a limitation because we have information about our participants and their behavior but we are not able to fully analyze all of it due to the small sample size.

### *Gratitude*

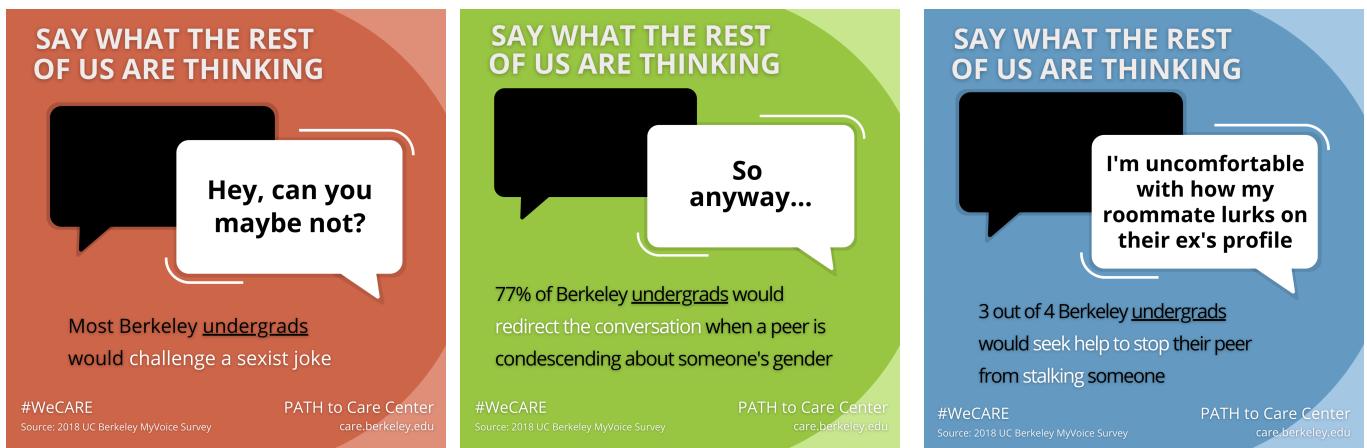
We thank the PATH To Care Center for their continued efforts in SVSH prevention, advocacy, and healing on campus as well as for their support with this project. We hold deep gratitude for Liat Wexler and Melissa Kwon for their guidance and mentorship throughout the course of this project.

## Appendix 1: #WeCare Campaign

*Appendix 1a.* Examples of UC Berkeley campus banners and billboards run through the #WECare Campaign.

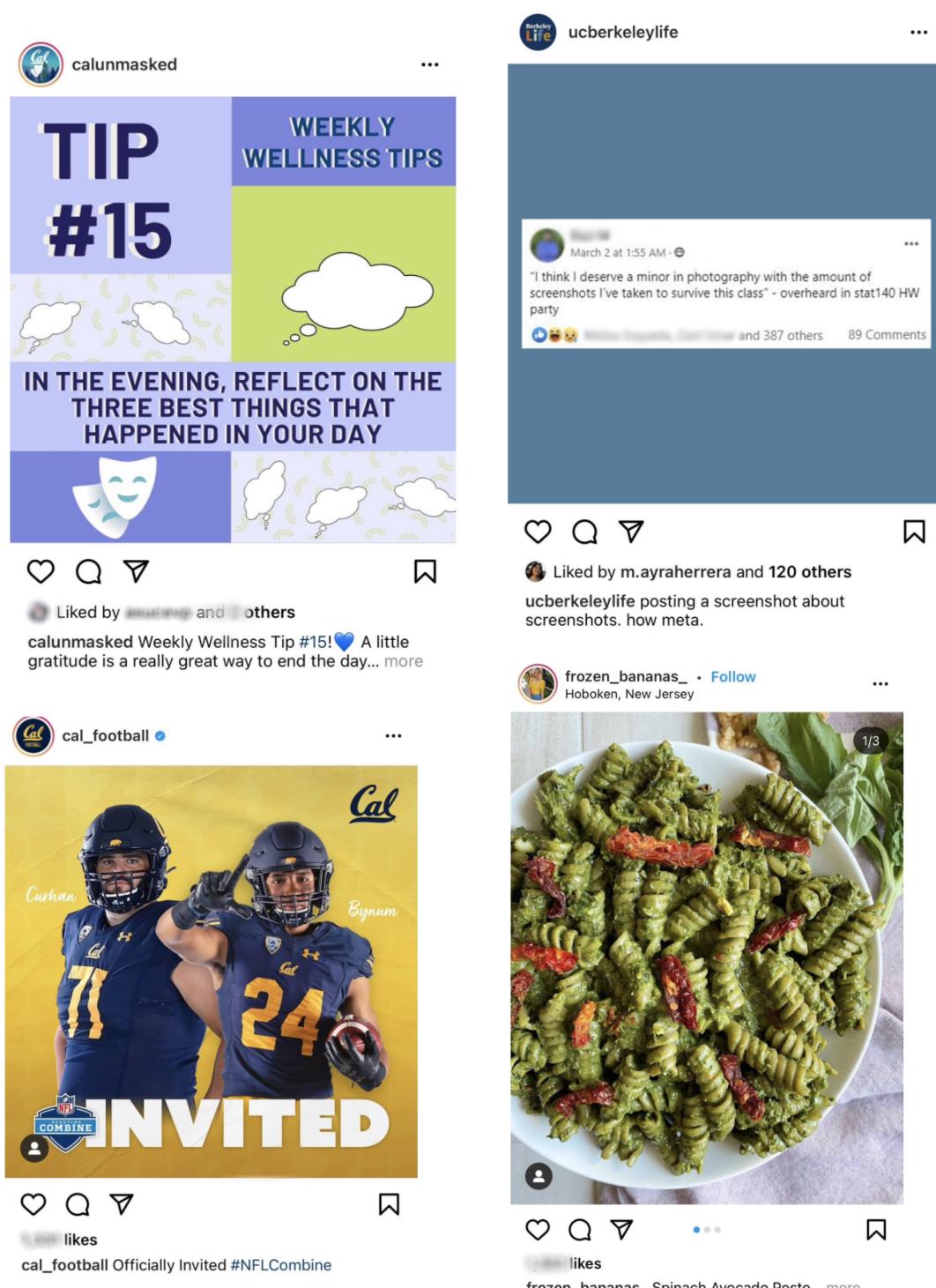


*Appendix 1b.* Examples of #WeCare digital graphics.



## Appendix 2: Study Design

Appendix 2a. Examples of 1st page social media scroll



Appendix 2b. Examples of control ad (left) and treatment ad (right)

cal\_student\_store

Cal STUDENT STORE

Graduation Stole  
Class of 2021

11 likes

cal\_student\_store Graduation is just around the corner, and the Class of 2021 Graduation Stole is waiting for you! 🎓 Want more options... [more](#)

SAY WHAT THE REST OF US ARE THINKING

hey, that's not okay

91% of Berkeley undergrads would stop a friend who is trying to have sexual contact with someone who is passed out

#WECARE  
Source: 2018 MyVoice Survey

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pathtocareucb Say what the rest of us are thinking! Most Berkeley undergraduate and graduate students as well as faculty and staff would seek help to stop a peer... [more](#)

### Appendix 3: Outcome Measures

Outcome Question	Response
How much do you think social media affects how you perceive the UC Berkeley undergraduate community?	Slider 0-100
How likely are you to attend an UC Berkeley event advertised on instagram?	Slider 0-100
Which of the following images do you recall seeing in the previous pages? You may choose more than 1 answer.	Multi-select from 5 posts seen on the previous pages (treatment and control ads shown for their respective groups)
What percentage of UC Berkeley students do you believe would support a friend who is seeking mental health services at Counseling and Psychological Services at the University Health Services Tang Center?	Slider 0-100
What percentage of UC Berkeley students do you think would text a friend to call them out for not abiding by California state social distancing mandates?	Slider 0-100
Please drag the slider to 50 for this question.	Slider 0-100
What percentage of UC Berkeley students do you think would call out a demeaning comment towards women made by a peer in class?	Slider 0-100
What percentage of UC Berkeley students do you believe would support a friend in forming healthy eating habits?	Slider 0-100
What percentage of UC Berkeley students do you think would stop a friend from trying to have sexual contact with someone who is passed out?	Slider 0-100
Would you like to be contacted about the results of the study? Please note: we will preserve your UC Berkeley email address if you choose to be contacted.	Yes or No Select
Would you like to receive more information about getting involved with any of the following efforts on campus? You may choose more than one.	Multi select from the following options: Raise awareness about student mental health needs Raise awareness about sexual violence and sexual harassment Raise awareness about healthy eating habits Raise awareness about safe partying practices Raise awareness about environmental sustainability on campus None of the above

## References

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- [2] Dempsey Robert C., McAlaney John, Bewick Bridgette M. (2018) *A Critical Appraisal of the Social Norms Approach as an Interventional Strategy for Health-Related Behavior and Attitude Change*. *Frontiers in Psychology* (p. 2180). Frontiers In Psychology.
- [3] DeGue, Sarah. (2014) *Preventing Sexual Violence on College Campuses: Lessons from Research and Practice*. Time. Division of Violence Prevention, Centers for Disease Control and Prevention.
- [4] Mennicke, A., Kennedy, S. C., Gromer, J., & Klem-O'Connor, M. (2021). *Evaluation of a Social Norms Sexual Violence Prevention Marketing Campaign Targeted Toward College Men: Attitudes, Beliefs, and Behaviors Over 5 Years*. *Journal of Interpersonal Violence*, 36 (7-8), NP3999–NP4021.  
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- [5] Barlow, Rich (2020). *Pandemic Has Led to a Dramatic Increase in Students Seeking Help Says BU's New Sexual Assault Response & Prevention Center Director*. Boston University, BU Today.