



# **Social Comparison And the Book of Faces**

CS 224C: NLP for Computational Social Science  
Zehua Li



## What is *Social Comparison*?

The process of thinking about information about one or more other people in relation to the self.



*Wood, Joanne V. What is social comparison and how should we study it? Personality and social psychology bulletin 22, no. 5 (1996): 520-537.*



# Social Comparison and Well-being

Social comparison can have positive or negative outcomes—inspiring people to exercise or change careers, or upsetting them when aspirations feel unattainable.



# Social Comparison and Well-being on Facebook

A person's propensity for social comparison mediates the link between social media use and lower well-being. In one study, **people with higher social comparison orientation reported spending more time on Facebook and being more negatively affected by what they saw there** than people with lower social comparison orientation.



## Research Objective

# Social Comparison and Facebook: Feedback, Positivity, and Opportunities for Comparison

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Better understand social comparison **worldwide** and the range of associated behaviors on social media.



## Research Design

Collect data from voluntary survey (predicted variable) + activity logs.

### Participants

Participants (N=37,729; 52% female; mean age 33.4) were recruited via an ad on Facebook targeted at a random sample of people in 18 countries: Brazil, Germany, Denmark, France, Great Britain, Indonesia, India, Japan, Korea, Mexico, Norway, Philippines, Sweden, Singapore, Thailand, Turkey, the United States, and Vietnam. Compared to people who were active on Facebook each month, respondents were on average 0.5 years older, 8% more likely to be female, and had 52% more friends (all comparisons  $p < 0.001$ ). To account for these differences, regression analyses control for country, gender, age, friend count and overall time spent, except where noted.



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**Sarah Bitter:** The most appealing aspect of this study to me is its inclusion of so many participants **from a variety of countries** (almost 40,000 participants from 18 countries).

### Participants

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**Why is it important to study people from various countries?**

**What are some other factors one should consider when choosing the survey population?**

# Research Design

Collect data from  
voluntary survey +  
activity logs.

Run regression to assess  
the strength of the  
relationship between  
observed characteristics  
and social comparison.

Predictor	Base Model			Model b			Model c		
	$\beta$	CI		$\beta$	CI		$\beta$	CI	
Intercept	-0.06	[-0.09, -0.03]	***	-0.06	[-0.09, -0.03]	***	-0.07	[-0.09, -0.04]	***
Age (years)	-0.12	[-0.14, -0.11]	***	-0.13	[-0.14, -0.11]	***	-0.13	[-0.14, -0.12]	***
Is female	-0.02	[-0.04, 0.00]		-0.02	[-0.04, 0.00]		-0.02	[-0.04, 0.00]	
Country (not shown)									
Friend count	0.10	[0.09, 0.11]	***	0.10	[0.09, 0.11]	***	0.08	[0.07, 0.09]	***
Time spent	0.02	[0.01, 0.03]	***	0.04	[0.02, 0.05]	***	0.04	[0.03, 0.06]	***
Feed posts viewed				-0.02	[-0.04, -0.01]	***	-0.01	[-0.03, 0.00]	
Prop. social posts viewed							0.05	[0.04, 0.07]	***

Table 2. A series of regressions was run to understand the relationship between feelings of social comparison and Facebook use. The base model controls for age, gender, country, friend count, and overall time spent. To understand the impact of a relevant variable such as the proportion of posts viewed that were social, an additional relevant control variable (feed posts viewed) was first added (Model b), and then Model c presents the addition of the variable of interest (proportion of social posts). All subsequent models in the paper follow a similar formula: Base model + relevant controls (specified in the paper) + variable of interest. (\*\*\*)  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ .

# Research Design

Collect data from voluntary survey + activity logs.

Run regression to assess the strength of the relationship between observed characteristics and social comparison.

Nourya Cohen: I would add that there's probably less data to be found on the people who are not active Facebook users at all, and maybe just check in once a month or so. I don't have the exact numbers, but I would assume **that's probably most Facebook users at this point.**

Predictor	Base Model			Model b			Model c		
	$\beta$	CI		$\beta$	CI		$\beta$	CI	
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# Hypotheses

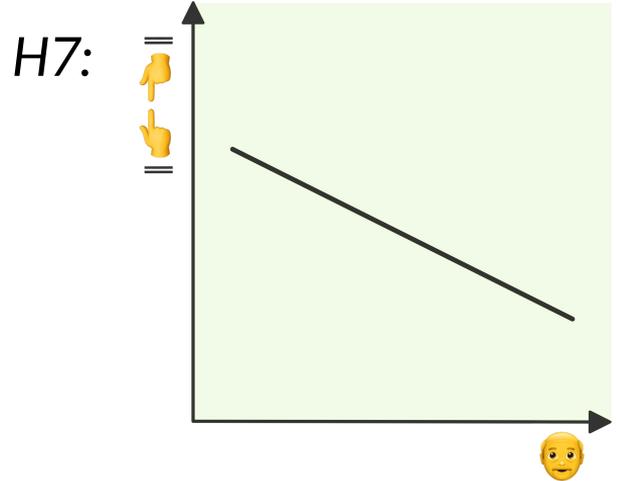
1. Frequency of social comparison on Facebook is positively correlated with: (a) time spent on Facebook; (b) network size; and (c) the proportion of content people view coming from friends or friends-of-friends.
2. People who see a greater proportion of posts with high feedback report more social comparison.
3. People who see a greater proportion of positive emotion in their News Feeds report more social comparison.
4. People who spend a greater proportion of time looking at profiles (and in particular, their own profile) report more social comparison.
5. People who view a larger proportion of social media content from demographically-similar others experience social comparison more often.
6. People who view a greater proportion of content from acquaintances rather than close friends experience social comparison more often.
7. Frequency of social comparison on social media decreases with age.
8. Women experience social comparison more often than men.

👉👉 Social Comparison   ⌚ Time spent on FB   👫 Friends   ☀️ Positivity  
 ❤️ Popularity   👁️ Check profile   😊 Acquaintance   🐶 BFF  
 👤 Similar demo   👁️ Different demo   📖 FB Posts

# Hypotheses

H1: ⌚, 👫, 📖  
 H2: ❤️, 📖   H3: ☀️, 📖  
 H4: ⌚, 👁️   H5: 📖, 👤  
 H6: 📖, 😊  
       📖, 😊, 👫

∝ 👉👉



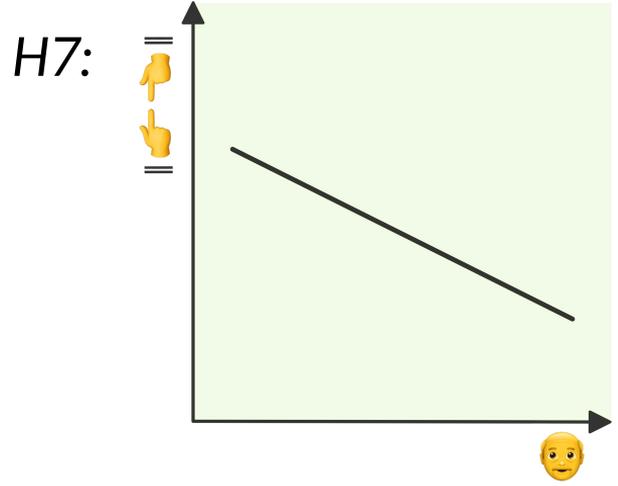
H8: 👉👉 👤 > 👉👉 👤

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## More Hypotheses?

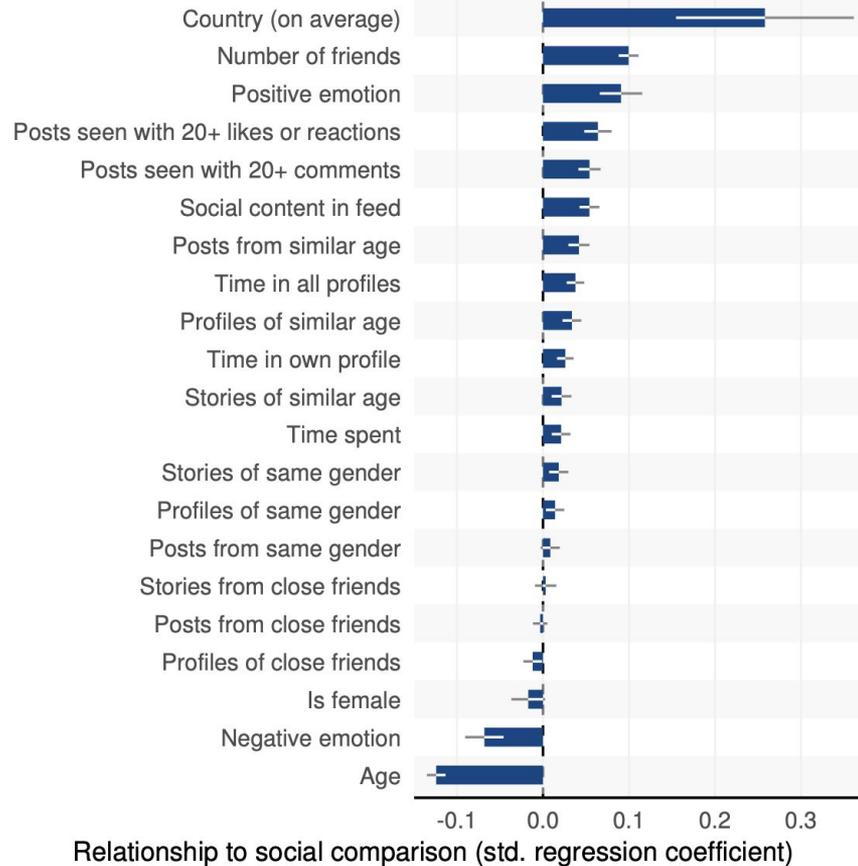
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 H6: 📖, 😊  
       📖, 😊, 👫

$\propto$  👉👉



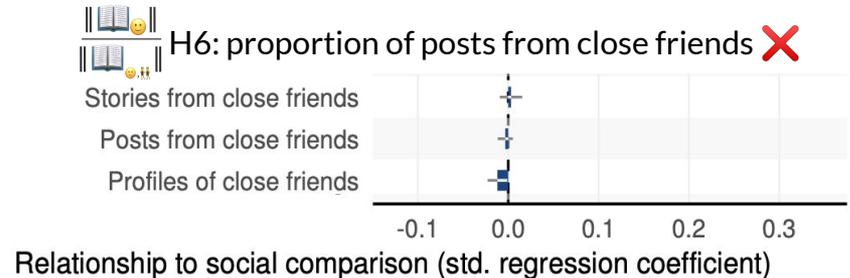
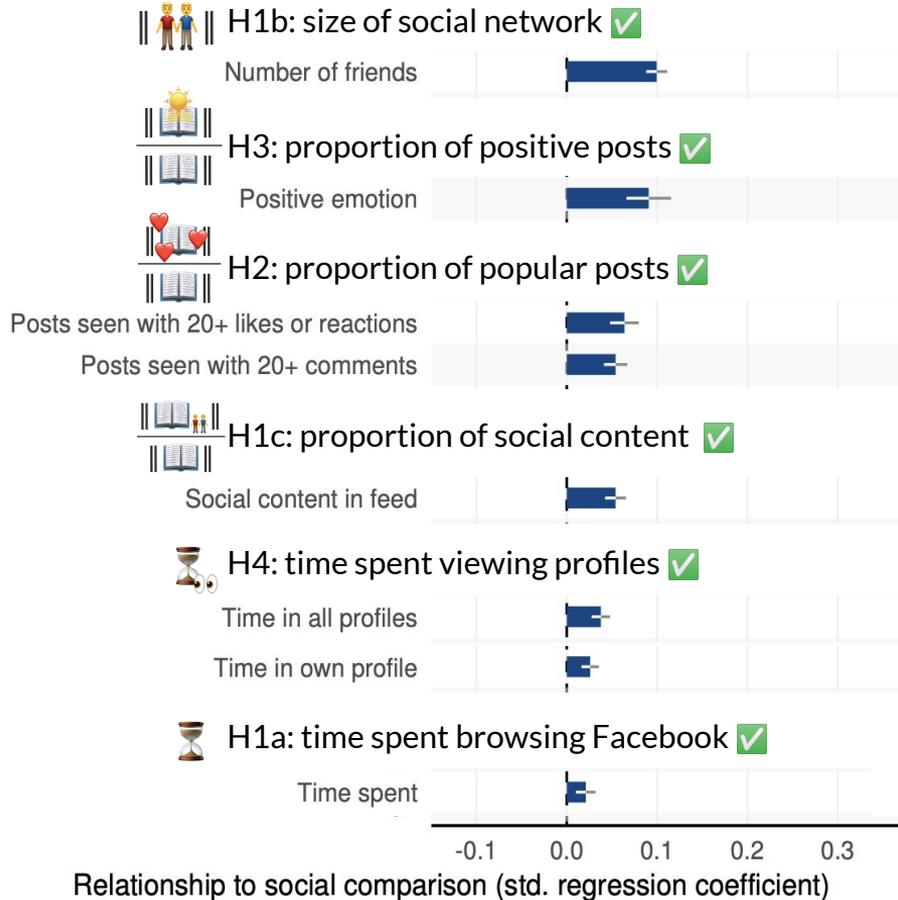
H8: 👉👉 👤 > 👉👉 👤

# Findings



**Figure 2. Relationship between social comparison frequency and demographic and activity variables. Bars indicate standardized regression coefficients described in the text. The variables most strongly associated with social comparison are country, younger age, high friend count, viewing proportionally more positivity and less negativity, and viewing more feedback on others' posts.**

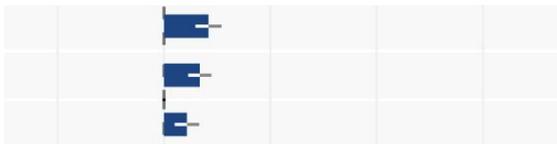
# Findings





## H5: Similar demographics — mixed results

Posts from similar age



People who view a larger proportion of social media content from others with similar **age** experience social comparison more often.

Stories of same gender

Profiles of same gender

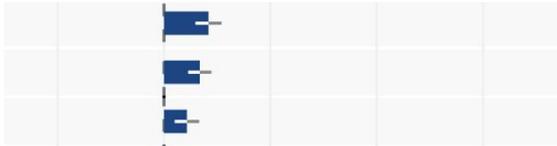
Posts from same gender

No relationship between the proportion of people someone saw of their own **gender** in their News Feed. In profiles and Stories, there was some evidence of a positive relationship.



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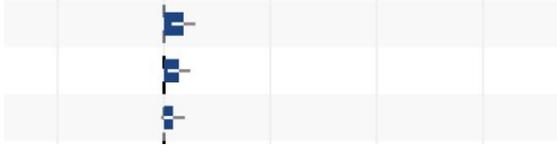


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Stories of same gender

Profiles of same gender

Posts from same gender



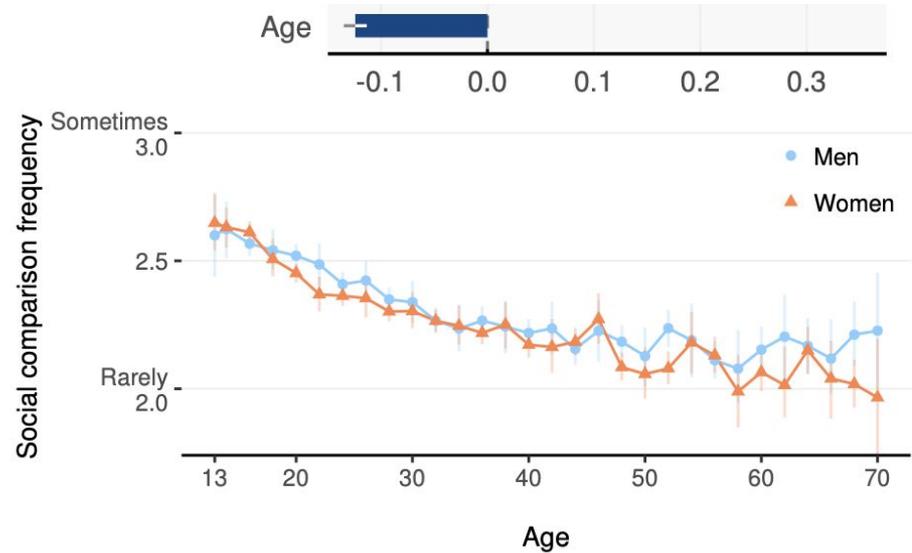
No relationship between the proportion of people someone saw of their own **gender** in their News Feed. In profiles and Stories, there was some evidence of a positive relationship.

Xiaoyuan Ni: The study revealed how the **product and interface design could improve user experiences** through being less affected by social comparison.

## H7: Age

Frequency of social comparison on social media decreases with age.

The younger you are, the more often you experience social comparison.





Richard Sweeney @the\_youths · Oct 28, 2021

No matter how you slice it, by age, race, or gender, life satisfaction fell significantly for every group of young Americans between 2010 and 2017

### Changes in Life Satisfaction, 2010-2017

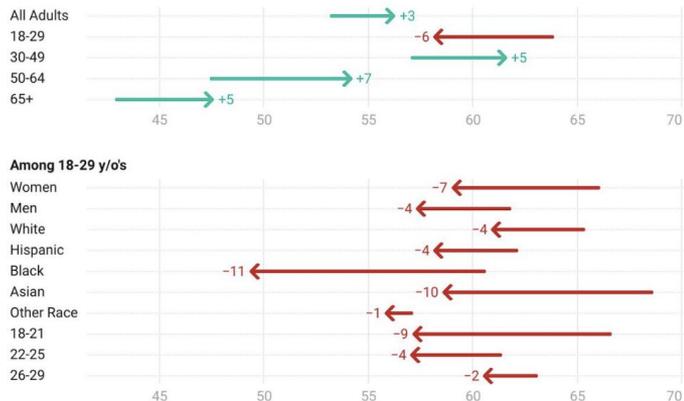


Chart: Richard Sweeney · Source: Gallup Daily Tracking Poll · Created with Datawrapper

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Richard Sweeney @the\_youths · Oct 28, 2021

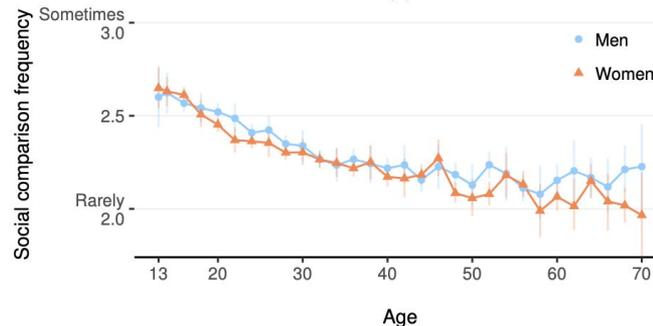
While the rise of Trump is a key part of this story, these trends were in motion before he announced his run.

Expanded social media use and an increased awareness of police violence may account for the initial decrease in the early 2010s

### Changes in Life Satisfaction Before Trump (2010-2014)

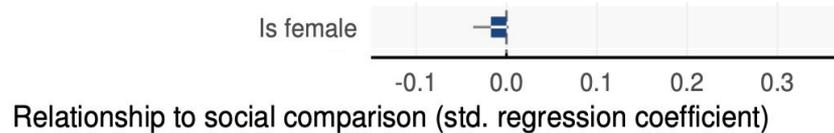


# H7:



## H8: Gender

In a regression controlling for age and country, there was no difference between women and men in reported frequency of social comparison.





## H8: Gender

Roberto Lobato Lopez: Their follow-up paper shows said [country-level gender] differences and they have such a high variance that I wonder what is the point of the aggregated analysis. There is a big difference between “there's no difference of social comparison effect by gender” and “there is a BIG difference of social comparison effect by gender by country.”

## H8: Gender

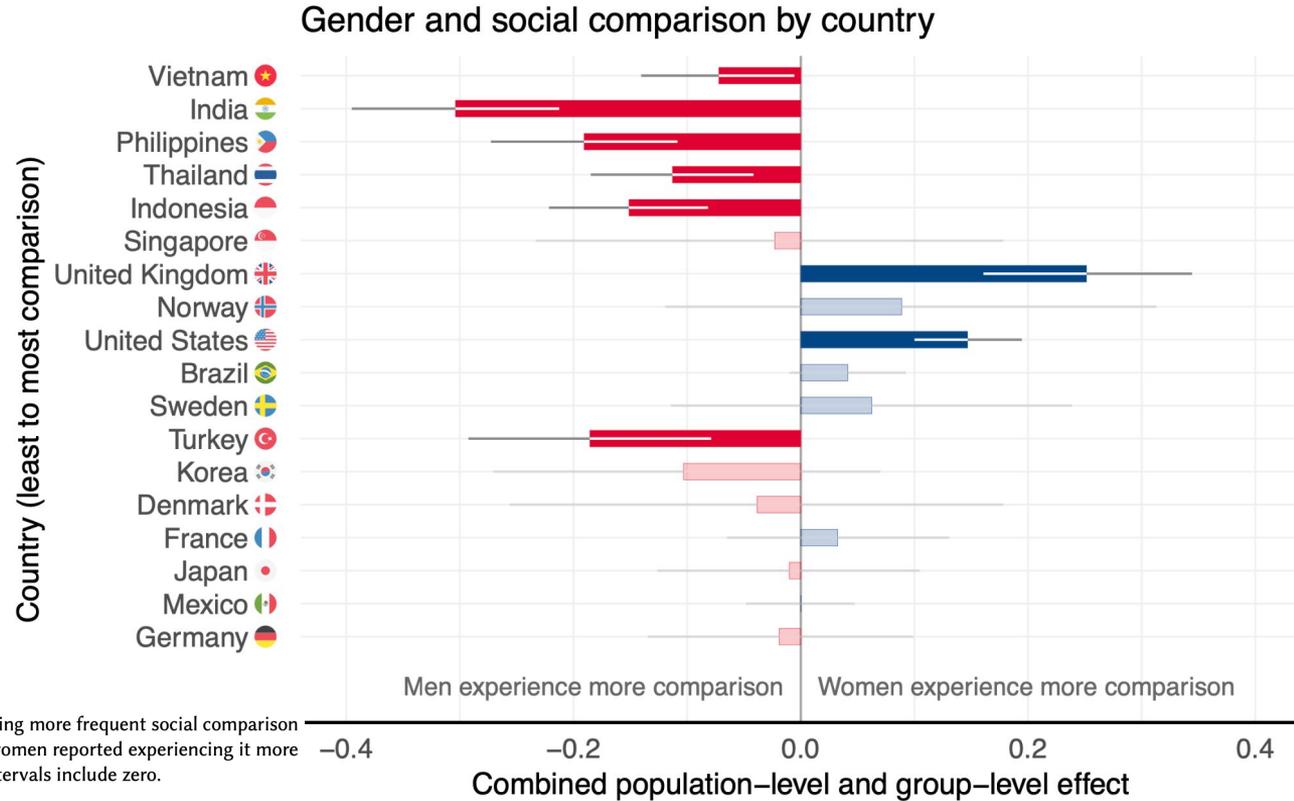
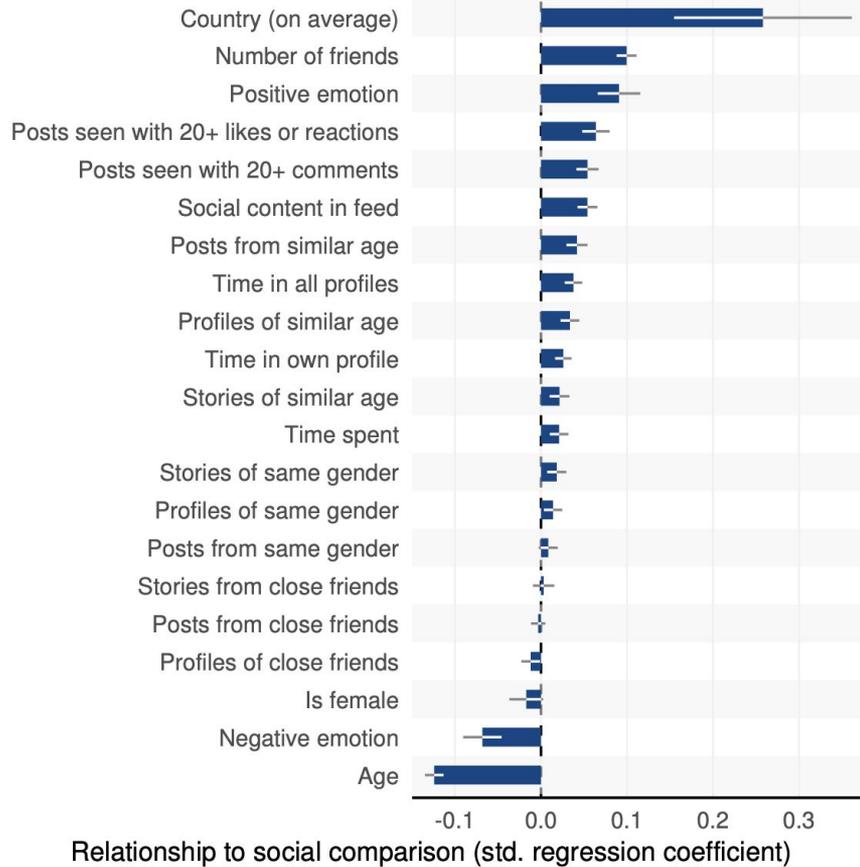


Fig. 3. In many parts of Asia, particularly India, men reported experiencing more frequent social comparison than women. In other parts of the world, particularly the UK and US, women reported experiencing it more frequently than men. Lighter bars indicate cases where 95% credible intervals include zero.



Now that we know what factors correlate with social comparison and to what extents, the authors proposed several measures to mitigate its harmful effects.

**Comparison Reduction:** hide feedback counts, filter triggering content & raise intentionality.

**Harm Reduction:** support well-being, educate, normalize sharing difficult moments & inspire.

**What measures should we take to mitigate comparison's harmful effect?**

**What are some factors that we should take into consideration when weighing these measures?**

# *Social Influence*

```
graph TD; A[Social Influence] --> B[Emotion Contagion]; A --> C[Strong Tie v. Weak Tie]; A --> D[Social Comparison];
```

*Emotion Contagion*

*Strong Tie v. Weak Tie*

*Social Comparison*



*Emotion Contagion*



*Strong Tie v. Weak Tie*



*Social Comparison*



*Emotion Contagion*

*Strong Tie v. Weak Tie*

*Social Comparison*



... Facebook was selected as a platform for its size and variety of experiences, but other social media platforms may differ in the size and type of networks people cultivate, the synchronicity of communication, and the comparison-inducing topics that people share. Thus, **not all results may generalize to other platforms.**



*Emotion Contagion*

*Strong Tie v. Weak Tie*

*Social Comparison*



Mike Hardy: I'm *sure* that is the best reason these Facebook employees chose Facebook for the study.

... Facebook was selected as a platform for its size and variety of experiences, but other social media platforms may differ in the size and type of networks people cultivate, the synchronicity of communication, and the comparison-inducing topics that people share. Thus, **not all results may generalize to other platforms.**



*Emotion Contagion*

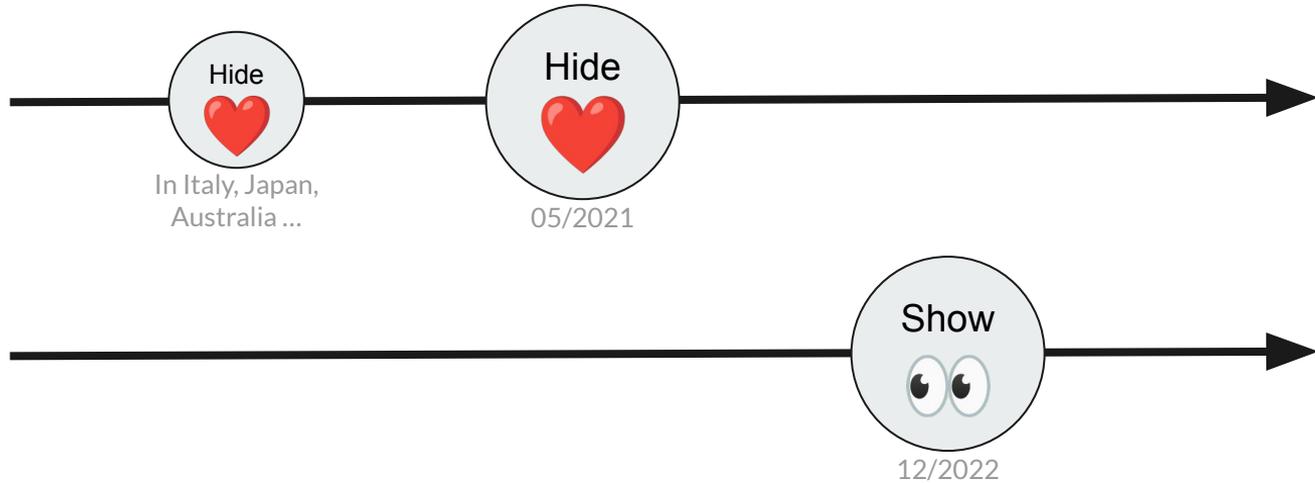
*Strong Tie v. Weak Tie*

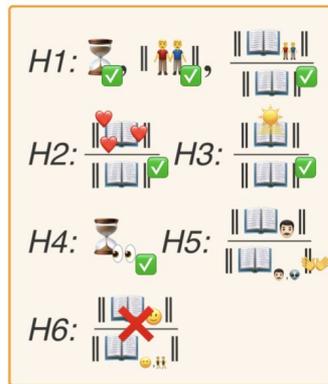
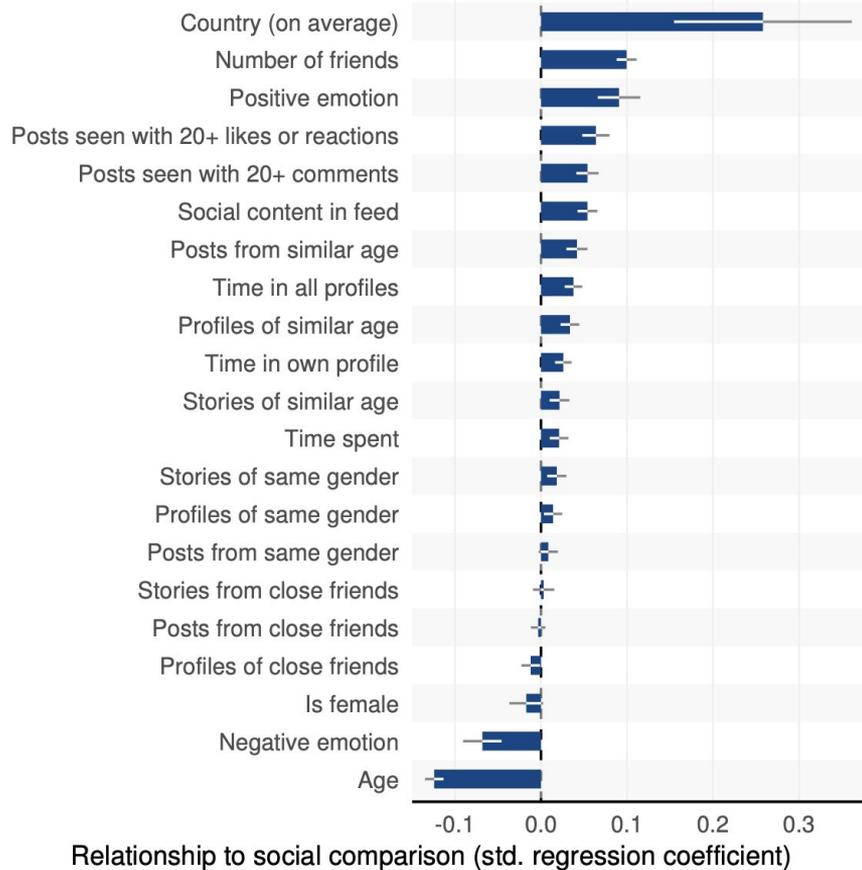
*Social Comparison*



# Research Design: Meta, Twitter

How to take advantage of these changes and evaluate the effect of social comparison and its mitigation measures on Instagram or Twitter, as an insider? As an outsider?

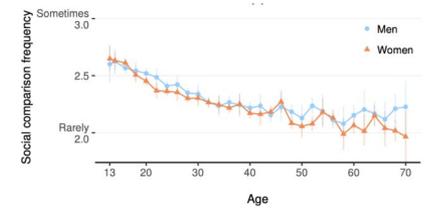




Time spent on FB   Friends   Positivity  
 Check profile   Acquaintance   BFF  
 Similar demo   Different demo   FB Posts

$\propto$  || ||

H7:



H8: || || > || ||

**Figure 2. Relationship between social comparison frequency and demographic and activity variables. Bars indicate standardized regression coefficients described in the text. The variables most strongly associated with social comparison are country, younger age, high friend count, viewing proportionally more positivity and less negativity, and viewing more feedback on others' posts.**

 Time spent on FB  
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 Check profile  
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# Findings

H1:   ||   ,   ||  

H2:    ||  ||  ||  ||  

H3:   ||  

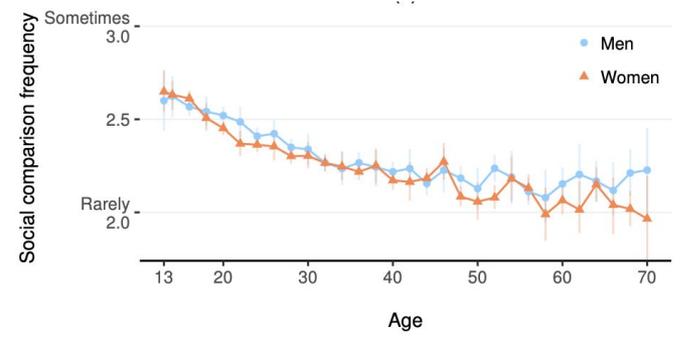
H4:    ||   ||   

H5:   ||   

H6:   ||  ||   

∞ ||   ||

H7: 



H8:  ||   ||  || > ||   || 