

Country Differences in Social Comparison on Social Media

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Social comparison is a common focus in discussions of online social media use and differences in its frequency, causes, and outcomes may arise from country or cultural differences. To understand how these differences play a role in experiences of social comparison on Facebook, a survey of 37,729 people across 18 countries was paired with respondents' activity on Facebook. The findings were augmented with 39 in-person interviews in three countries. Social comparison frequency was more strongly predicted by country than by age, gender, and Facebook activity combined, indicating the importance of taking country into account when considering social comparison. Women's and men's experiences differed greatly between countries. Exposure to high feedback counts on friends' posts was associated with more frequent social comparison, but only in some countries. These findings suggest that design interventions that account for country differences may be more effective at reducing the negative outcomes of social comparison.

CCS Concepts: • **Human-centered computing** → **Social networking sites**.

Additional Key Words and Phrases: social comparison, country differences, cultural differences, Facebook, envy, social media, well-being

ACM Reference Format:

Justin Cheng, Moira Burke, and Bethany de Gant. 2020. Country Differences in Social Comparison on Social Media. *J. ACM* 1, 1, Article 1 (January 2020), 25 pages. <https://doi.org/10.1145/1122445.1122456>

1 INTRODUCTION

Social comparison, or the act of comparing oneself to others, is a fundamental social process [3, 71]. Research on online social media platforms such as Facebook suggest that social comparison on those platforms is associated with negative outcomes such as envy and depression [66, 72] as well as positive ones such as self-improvement [83, 85] and inspiration [50, 54]. But given that how people define themselves relative to others differs across countries and cultures [43, 59], such experiences of comparison are likely to vary around the world.

Past work suggests that general experiences of social comparison likely differ between countries [29, 31, 59, 82], but how this translates to differences in social media use and outcomes remains unclear. A majority of studies on social comparison and social media are limited to the US [16, 24, 45] or Germany [2, 48, 61], and cross-cultural comparisons are typically small-scale and limited to two countries [65]. A more comprehensive understanding of the relationship between social comparison and country or cultural differences may allow us to design interventions that better reflect people's diverse backgrounds and experiences.

The present work uses both quantitative and qualitative methods to understand how experiences of social comparison on Facebook differ by country. It combines a large survey on social comparison frequency comprising 37,729 people in 18 countries with server-logged activity data and interviews

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0004-5411/2020/1-ART1 \$15.00

<https://doi.org/10.1145/1122445.1122456>

of 39 people in three of these countries (India, Mexico, and the US, which had high, low, and medium rates of social comparison frequency respectively). The findings reveal that social comparison frequency varies substantially by country, and that country is a much stronger predictor of social comparison frequency than gender, age, and Facebook activity combined. Notably, gender has opposite effects in different countries: women experience more frequent social comparison in the West, particularly in the UK, while men experience more frequent social comparison in parts of Asia, particularly in India. Finally, social media use impacts people differently between countries: seeing many Likes or Reactions on friends' posts and spending more time viewing profiles is only significantly associated with more frequent social comparison in some countries. This indicates that design interventions to reduce social comparison such as hiding feedback counts may be more effective in some countries than others.

2 BACKGROUND

2.1 Social Comparison

Social comparison occurs when people evaluate themselves (e.g., their ability or opinions) relative to others [25, 71]. It can be upward (i.e., comparing oneself to someone better off), downward (i.e., comparing to someone worse off), or lateral (i.e., comparing to someone similar) [9, 71, 79, 83]; it can also have both positive and negative outcomes [71]. On one hand, social comparison can motivate self-improvement [83, 85]; on the other hand, it is associated with reduced self-esteem, greater negative affect, and depression [8, 11, 51]. Both upward and downward comparisons can result in positive and negative outcomes [10, 71], though outcomes are typically more negative for upward comparisons and more positive for downward comparisons [14, 30, 51, 74, 80]. But given that people prefer to make upward comparisons [28], negative outcomes may be more prevalent overall. People who frequently compare themselves to others [81] and people high in social comparison orientation (which includes measures of comparison frequency) [8] are also more likely to experience negative outcomes. Because of these factors, the present paper focuses on negative aspects of social comparison rather than positive ones and on measuring social comparison frequency, with a goal of informing social media design to mitigate negative outcomes.

2.2 Country Differences in Social Comparison

Experiences of social comparison may be affected by cultural differences [43], and thus may vary between countries. Culture influences a person's beliefs and actions [53] and affects an individual's relationship with their surrounding social environment [49]. For example, Eastern cultures tend to be more collectivistic and interdependent and may be more likely to engage in social comparison, while Western cultures tend to be more individualistic and independent and may be less likely to engage in social comparison [35]. Eastern cultures may emphasize social comparison more than Western cultures because of a greater concern about one's relative social standing [59]. Relatedly, cultures that emphasize modesty (e.g., Jante mentality in Scandinavia [13]) may also tend to report more social comparison, as modesty is positively correlated with collectivism and negatively with individualism. National cultures can also be analyzed at a more general level. Hofstede's cultural dimensions theory [36] proposes six cultural dimensions, some of which may be relevant to social comparison. For example, the "indulgence-restraint" dimension describes the extent to which an individual's behavior is regulated via social norms – these norms may influence the extent to which people compare themselves to others.

However, research on social comparison that expands beyond one country is uncommon, with the majority of studies conducted either in the US or in Germany (e.g., [2, 16, 24, 45, 48, 61]). Studies involving more than one country or culture have generally only compared two populations, typically

people of European heritage and people of East Asian heritage. For instance, Asian Canadians tended to make more frequent social comparisons and seek more upward social comparison than European Canadians [82]; social comparisons more strongly impact Asian Americans than European Americans among close ties [43]; Korean women reported significantly lower body satisfaction when being exposed to an underweight woman talking about weight (referred to as “fat talk”) vs. fat talk by an overweight woman, while US participants were not affected by the body size of the “fat talkers” [44]. A comparison of individualism/collectivism and self-esteem in China and the United States found that higher collectivism scores were associated with a greater desire to compare in general, an increased desire to make upward comparisons, and a decreased desire to make downward comparisons [18]. Other work found no differences in social comparison orientation among American and South Korean students [65]. One study involving five countries examined how differences in social comparison across countries may be explained by cultural factors such as power distance (i.e., people’s attitudes to power inequality) [31]. Nonetheless, these existing cross-country comparisons may not accurately represent the variation that may be observed with a larger set of countries, and differences observed when comparing people living in the same country may have been due to differences between one’s ethnicity and the mainstream culture rather than whether one holds a specific set of cultural values [37].

Apart from previous studies of cultural differences in social comparison, global variations in measures that correlate with social comparison (e.g., self-esteem [78], life satisfaction [42], and loneliness [27]) also suggest that country differences in social comparison are also likely to exist. Self-esteem is more strongly correlated with life satisfaction in the US and Canada than in India [21], and life satisfaction, in turn, is correlated with different predictors depending on country [5]. Loneliness may also arise from differences in cultural values [55]. Other measures such as gross domestic product (GDP) per capita may also be linked to variations in social comparison (e.g., GDP per capita is associated with life satisfaction [68], which in turn is associated with social comparison [42]). Taken together, these findings suggest the need for more comprehensive measurement of social comparison around the world, as well as its differing impact on well-being.

RQ1. How does social comparison frequency vary by country?

2.3 Gender, Age, and Social Comparison

Social comparison also varies with other demographic measures such as gender and age. Some research suggests it is higher among women than men [29, 31], potentially because of self-construal differences [32], though other research has reported null effects [16, 66]. Still, participants in these studies have tended to be from countries in the Global North (e.g., France [32] or the US [16, 66]). Recent work on an international sample found that social comparison frequency was instead higher among men than women [6], suggesting that these effects may not be consistent across countries. For instance, in many countries in the Global South, women form a smaller proportion of the labor pool and have less access to social media, and thus may have different kinds of social comparison targets and different frequencies of exposure to comparison-inducing experiences compared to men. Social comparison is also higher among younger than older people [29, 31]. Younger people are more susceptible to peer influence and social comparison, while older adults are more prone to self-comparison (comparing their current state to their past) [67, 70]. Nonetheless, relative differences in levels of social comparison for adolescents and adults may vary across countries.

RQ2a. How does the association between gender and social comparison frequency vary by country?

RQ2b. How does the association between age and social comparison frequency vary by country?

2.4 Social Media and Social Comparison

The way that people use social media—such as how large a friend network they accrue, how much time they spend on the platform, and how passively they spend their time—impacts their experiences of social comparison [2, 6, 46]. Comparisons on social media platforms tend to be upward [78], likely because people tend to present themselves more positively there [76]. As one study put it, on social media people “are happier and hav[e] better lives” [16]. Social comparison on social media has been associated with negative outcomes such as lower self-esteem [77, 78], worse body image [23, 41], and depression [52, 61, 66, 84]. In past experiments, exposure to upward comparison and having high social comparison orientation both led to lower self-esteem after social media sessions [77, 78]. Yet the causal direction more generally is unclear; some work suggests that comparisons on Facebook lead to depression [24, 66], while other work suggests that depression leads to more frequent social comparison (but not the converse) [61]. Nonetheless, social comparison on social media can have positive outcomes as well. For example, on Instagram, more frequent comparison has been associated with greater inspiration [50, 54].

Two features of social media appear consistently in the literature as potential triggers for social comparison: feedback counts on others’ posts, and highly curated personal profiles. Seeing relatively large volumes of feedback on others’ posts has been associated with jealousy and envy [17, 47, 64], and exposure to large numbers of Likes and Reactions or comments has been associated with more frequent social comparison on Facebook [6]. In particular, Likes, being quantitative, may cause people to value them more as a signal [78]; a “Like paradox” (i.e., that people’s friends tend receive more Likes than they do) [62] may further exacerbate this effect, leading people to overestimate their friends’ popularity and thus feel worse. Yet seeing friends succeed can also spur joy – in one recent study, roughly one-third of people who felt worse about themselves because of a comparison-inducing Facebook post still felt “very” happy for the poster [6]. Thus, the impact of seeing high feedback counts may be mixed, and cultural differences such as collectivism or competitiveness may also moderate this impact.

RQ3a. In which countries is seeing high volumes of feedback on others’ posts associated with greater social comparison frequency?

Social media profile viewing and curation have also been associated with social comparison. Profiles are a place in which people have the flexibility to present the best versions of themselves, an archive of the content they’ve chosen to share and their past interactions with others. Viewing others’ profiles, therefore, may elicit unrealistic comparisons. For example, in past experiments, seeing the Facebook profiles of attractive others increased the likelihood that participants perceived themselves more negatively [2, 33, 78]. Furthermore, people more prone to comparison may focus on their own profiles as well, editing them to present themselves in the best light and comparing how they present themselves in their profiles to how others do it [17, 22]. Cultural norms may also moderate the impact of profile viewing on social comparison. For example, in more collectivist countries, people may not want their profiles to stand out as much, and thus the degree of difference between profiles might be reduced, reducing potential comparison.

RQ3b. In which countries is spending proportionally more time viewing profiles associated with greater social comparison frequency?

Overall, little cross-cultural research has studied social comparison on social media and has generally focused on differences between a few countries. The present work examines how social comparison frequency differs internationally across 18 countries, and how the relationship between social comparison frequency and both demographics and Facebook use varies by country.

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- On Facebook, how often do you observe what other people are doing to decide how you should act?
 - On Facebook, how often do you compare your own accomplishments to the accomplishments of other people?
 - On Facebook, how often do you think about how you present yourself to other people?
 - On Facebook, how often do you feel worse about yourself after comparing yourself to someone else?

Never, Rarely, Sometimes, Often, Always

Table 1. Social comparison frequency scale (Cronbach's alpha = 0.75).

3 METHODS

To understand the relationship between social comparison, behavior on Facebook, and country, responses from a voluntary on-platform survey on social comparison were combined with server logs of survey participants' activity on Facebook. All survey and behavioral data were de-identified and analyzed in aggregate, and no individual-level data were viewed by the researchers. Interviews were conducted to complement this data. Findings from interviews have been translated to English where applicable and de-identified to ensure anonymity. An internal research board reviewed the study's design ethics and privacy practices prior to its start.

3.1 Survey

In November 2018, participants were recruited using an ad on Facebook targeted at a random sample of active Facebook users 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. Countries were primarily selected for having larger numbers of active Facebook users or for being mentioned in prior literature on social comparison (e.g., South Korea [44] and Scandinavian countries [13]). Out of 55,418 people who began the survey, 37,729 (52% female; mean age 33.4) completed it. On average, respondents were 0.5 years older, 8% more likely to be female, and had 52% more friends compared to people who were active on Facebook during that time period. Respondents had used Facebook for an average of 27.1 of the 28 days prior to the survey. To account for response bias, responses were weighted by age, gender, and time spent to represent people in each country who used Facebook monthly.

The survey comprised a four-question social comparison frequency scale (Cronbach's alpha = 0.75, Table 1). This scale, which was also used in [6], was adapted from instruments used in past literature [29, 60]. Questions were converted from agree-disagree to frequency response choices to reduce acquiescence bias [58], the phrase "On Facebook" was added to the beginning [66], and stems were simplified to facilitate translation. While one question was intended to measure an outcome of social comparison ("How often do you feel worse about yourself after comparing yourself to someone else?"), a factor analysis suggested that a single factor was more appropriate, so the scale comprised all four questions. The order of questions was randomized and the survey was translated into the participant's language. A factor analysis confirmed that treating all four questions as measuring a single factor was appropriate (RMSEA = 0.05). Tests of measurement invariance (configural, metric, scalar, residuals) suggest that these questions were generally measuring the same construct in different countries (Δ RMSEA < 0.04, Δ TLI < 0.02, Δ SRMR < 0.02) [56].

3.2 Server Logs of Facebook Use

Survey participants' responses were combined with counts of their activities on Facebook for the prior four weeks. All data were aggregated and de-identified after joining. Participants' friend count and the total time (in minutes) they spent on the platform were included as controls in models where noted. Two main activities shown to be associated with social comparison in prior research were the focus of the present study: feedback volume and profile views.

Feedback volume. The analysis included the proportion of other people's posts that participants viewed that received 20 or more Likes or Reactions (one-click forms of feedback, such as a heart or a sad face). It also included the proportion that received 20 or more comments. Results were quantitatively similar with other cutoffs (1, 10, and 50 pieces of feedback).

Profile views. The analysis included the proportion of time on Facebook that people spent viewing their own profile or other people's profiles.

Bayesian hierarchical models [4, 19] were used to examine how country moderates the relationship between social comparison frequency and demographic and behavioral variables. Bayesian statistics, as opposed to frequentist statistics, may be less likely to be misinterpreted – for example, a (Bayesian) 95% credible interval is one that contains the true value with 95% probability given data from some experiment; a (frequentist) 95% confidence interval is one that contains the true value 95% of the time if the same experiment is run repeatedly. Further, taking a Bayesian approach allows future work to directly incorporate the estimates presented in this work to obtain even more precise estimates [38]. As such, means and 95% credible intervals of model coefficients (i.e., the combined population-level and group-level effect) are reported, as opposed to confidence intervals and p -values reported in frequentist analyses. Nonetheless, corresponding frequentist hierarchical models were used to verify the findings. For comparability, all continuous variables were standardized – a coefficient of -0.3 would correspond to a 0.3 standard-deviation decrease in social comparison frequency for a one-standard-deviation increase in the variable of interest.

3.3 Interviews

In February and March 2019, 39 people were interviewed (59% female, average age 35) in 3 countries – India (16), Mexico (10), and the US (13). These countries were selected to be representative of countries with high, low, and medium rates of social comparison frequency, respectively (Figure 1). In India, participants were interviewed in Chennai and Delhi; in Mexico, in Mexico City; and in the US, in Menlo Park and Los Angeles. Interview participants were selected using responses to a screener survey about social comparison: Participants responded that they “Sometimes”, “Often”, or “Always” felt worse about themselves after comparison to someone else on Facebook, or they responded “Yes” when asked if they had seen a post by someone else on Facebook in the past two weeks that had made them feel worse about their own life in comparison and that it made them feel “Somewhat”, “Quite a bit”, or “A great deal” worse. Each interview lasted approximately 60 minutes and was conducted in the participant's native language (Hindi, Tamil, Spanish, or English). The interview was semi-structured and included questions about participants' recent experiences of social comparison on Facebook and in their everyday lives. All participants voluntarily signed a research participation agreement agreeing to be interviewed, videotaped, and having their responses used in analyses. All quotes in this paper have been paraphrased and de-identified to respect participants' privacy.

Research questions were discussed by the researchers prior to the interviews taking place, and potential themes discussed following their conclusion. In-depth field notes were written on each participant, recording direct quotes and researcher observations of the participant's experiences of social comparison. These notes were recorded by three separate researchers and reviewed by

one of the three researchers. Researchers used affinity clustering to identify patterns and common themes, and then sourced interview transcripts for quotes emblematic of themes identified through clustering. Interview transcripts and field notes were also reviewed by two of the researchers for evidence relating to each research question, for the discussed themes, and to identify other emergent themes. Themes were subsequently refined over multiple discussions and passes over the interview transcripts, and are reported below alongside the quantitative findings. The qualitative data presented in this paper should not be interpreted as being representative of all members of their respective societies, given the small sample size. Rather, these themes are intended to complement the quantitative analyses by providing an exploration into the societal and contextual factors that may contribute to the varied frequency and intensity of reported comparison across countries.

3.4 World Bank Data

To complement trends revealed in the interviews about how country moderates the relationship between gender and social comparison frequency, data from the World Bank on the proportion of women in the labor force at the country level was included [1].

4 RESULTS

The findings are described in four parts: (1) how social comparison differed by country, and how country moderated the relationship between social comparison and (2) gender, (3) age, and (4) Facebook use. In each part, we present quantitative results from the survey and then discuss relevant interview themes in more depth. The analysis focuses primarily on understanding differences between countries – a discussion of how these may relate to cultural and socioeconomic differences can be found in Section 5.1. Results presented in this section are from Bayesian hierarchical models (with the exception of Figure 2). Qualitatively similar results were obtained using frequentist hierarchical models.

4.1 Top-Level Country Differences

Social comparison frequency varied substantially by country. On average, respondents reported somewhat infrequent social comparison on Facebook ($M = 2.4$ on a 5 point scale, about halfway between "Rarely" and "Sometimes"). Yet social comparison frequency varied substantially between countries (Figure 1, all mean values weighted by age, gender, and time spent to represent people in each country who use Facebook monthly). In fact, country was a more important predictor of social comparison frequency than all other variables in the present study. The variance in social comparison frequency explained by country was greater than that explained by age, gender, friend count, and time spent on Facebook combined ($R^2 = 0.076$ vs. 0.044 in separate OLS models, Figure 2).

The interviews suggested several possible factors that may account for these country-level differences in reported social comparison frequency: differences in perceptions of societal change, perceptions that others intended to elicit jealousy, and use of positive framing (RQ1). Among the countries where interviews were conducted, social comparison frequency was highest in India ($M = 2.68$), moderate in the US ($M = 2.28$), and lowest in Mexico ($M = 1.96$). Next, we describe each of these factors that may contribute to differing frequencies of reported comparison in India, the US, and Mexico.

Perceptions of societal change. Nearly all interview participants in India said social comparison, on the whole, had increased throughout their lives. Some of this increase may be related to experiences changing with age (described in Section 4.3), but many participants also attributed it

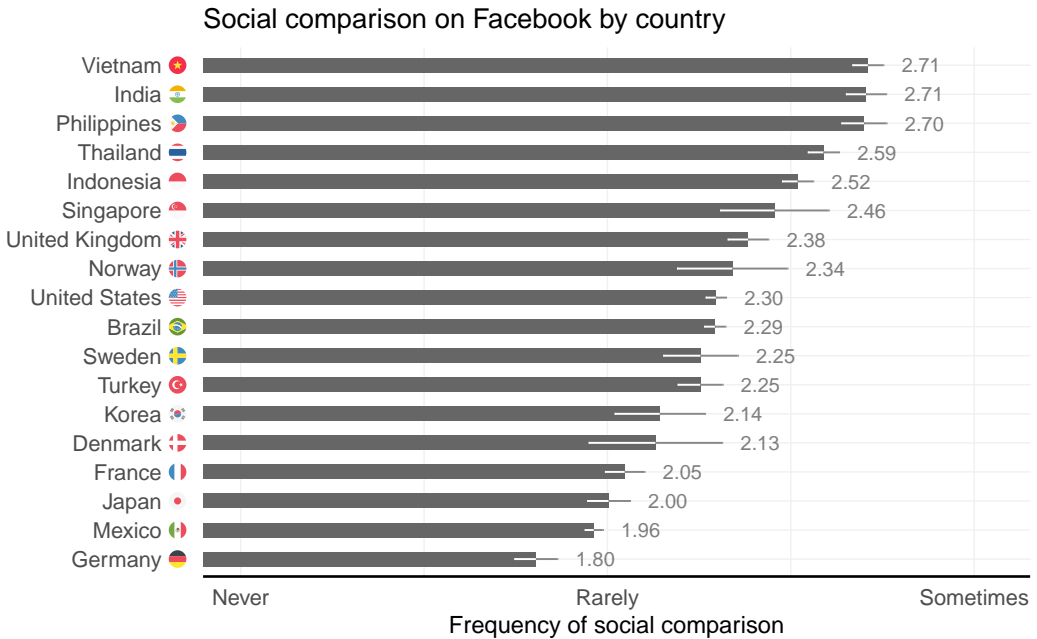


Fig. 1. Social comparison on Facebook is most frequent in Vietnam and least frequent in Germany. All values were weighted by age, gender, and time spent to represent people in each country who use Facebook monthly. Error bars represent 95% confidence intervals.

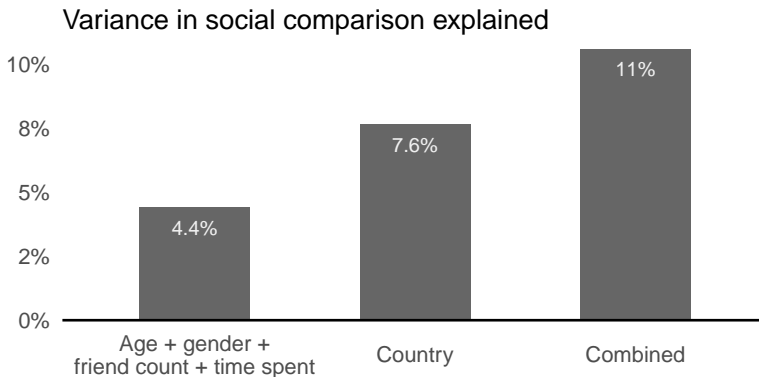


Fig. 2. Country was a more important predictor of social comparison frequency than other demographic or behavioral variables. Country accounted for 7.6% of the variance in an OLS model of social comparison frequency, roughly twice as much variance explained by age, gender, friend count, and time spent on Facebook combined. Adding country to these other variables explained about 11% of the variance in social comparison frequency.

to a combination of rapid socioeconomic improvement, the increasing prevalence of social media, and a prevailing attitude of not wanting to fall behind. In contrast, most participants in the US and in Mexico said social comparison had decreased throughout their lives.

“There’s more social comparison now because there are more opportunities for people to show off their status. Lots of people are chasing ways to display their status. The bar keeps rising, too. Now, you need a high-end car - not just any car - to have status. It’s the same way with technology – technological advances also make us feel jealous. Being jealous is what’s in fashion now.” (Male, 35-44, India)

“People have gotten so much more dependent on Facebook, sharing photos anytime they travel anywhere and even when they go out to eat. Sometimes they post to show off, sometimes to grow their follower counts. Social comparison has gone up in the last few years.” (Female, 45-54, India)

Perceptions that others intended to elicit jealousy. Many interview participants in India said that they believed other people posted on Facebook to make others jealous. This theme did not emerge among participants in Mexico or the US – no participants there mentioned that they thought that others posted photos or tagged them to intentionally elicit jealousy from them.

“They make posts not to share joy with others, but to make other people feel bad.” (Female, 35-44, India)

“I think he’s trying to make me jealous, that’s why he tagged me in this picture. It’s all about showing off where they’ve been and the things they’ve gotten to do.” (Male, 18-24, India)

Use of positive framing. Interview participants in Mexico (and the US, to a lesser extent) tended to frame their experiences of comparison more positively (e.g., mentioning that they wanted others to be successful regardless of how they felt or that comparison motivated them to improve themselves). Several also expressed that they only wanted to see the positive on social media.

“I try to overcome the situation by trying to be better at my own work. I still care, but I try to improve on the things that I like doing and that I’m good at.” (Female, 18-24, Mexico)

“I get inspired and happy when I see what other people post on Facebook. It motivates me to work really hard so that someday I’ll be able to accomplish what they’ve posted about. I try to avoid getting jealous of what other people have, because I don’t think jealousy ever leads to anything positive.” (Female, 25-34, Mexico)

“The reason I go to social media is to find motivation, so I don’t want to see things that make me feel sad when I go there.” (Female, 35-44, Mexico)

It’s not clear whether this positive framing reflected a country-level difference in how people reacted to social media content or social desirability bias (i.e., a willingness to admit to being affected by envy or social comparison).

Despite the differences above, one commonality across the three countries stood out: that the targets of comparison in all three countries tended to people similar in age.

Targets of comparison tended to be close in age. Supporting prior research that found that social comparison frequency on Facebook was correlated with seeing more content from others similar in age [6], the people that interview participants compared themselves to tended to be friends (e.g., from their current or previous time in school) similar in age.

“I have a friend from college who looks amazing in her photos – it doesn’t seem like she’s gained any weight and her complexion looks amazing. I’ve gained a lot of weight since college, so I feel jealous when I see those pictures.” (Female, 25-34, India)

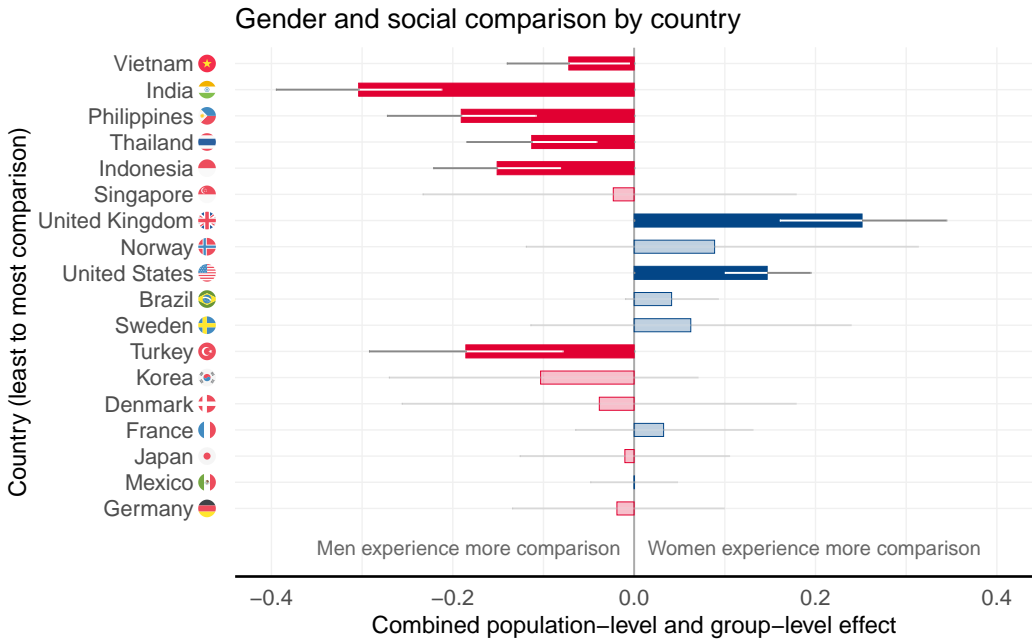


Fig. 3. In many parts of Asia, particularly India, men reported experiencing more frequent social comparison than women. In other parts of the world, particularly the UK and US, women reported experiencing it more frequently than men. Lighter bars indicate cases where 95% credible intervals include zero.

“I see a friend posting things that make it seem like she has the best life. I don’t get it. She didn’t do well in school, so how can she be living so well now?” (Female, 25-34, US)

“One of my former classmates is now living in a different country, which I would love to be doing. Sometimes I think the amount of time I spend looking at her pictures and lifestyle on Facebook is bad for me.” (Male, 35-44, Mexico)

4.2 Country and Gender

To estimate the country-specific effect of gender on social comparison frequency, a Bayesian hierarchical model with country as a group-level effect was used to predict social comparison frequency. Age, gender, time spent, and friend count were allowed to vary by country.

Some previous studies suggest that women experience more social comparison than men [29, 31], while others suggest the opposite [6]. Our findings suggest that the directionality of the relationship between gender and social comparison frequency differs by country (RQ2a). Figure 3 shows the associated combined population-level and group-level estimates for gender by country. In many parts of Asia, particularly India, men reported experiencing more frequent social comparison than women ($M = -0.30$, 95% CIs $[-0.40, -0.21]$). In other parts of the world, particularly the UK, women reported experiencing it more often than men ($M = 0.25$, 95% CIs $[0.16, 0.34]$).

Contrary to the survey findings, in which people reported their own personal experiences of comparison, in India, both male and female interview participants said that they thought women experienced more social comparison overall. We hypothesize this may be because men keep feelings of comparison to themselves rather than talking about it with others – which may then perpetuate

both the belief and the norm. We identified other factors in line with the finding that men experience social comparison more than women in India, as follows.

Men in India may experience more pressure than women to provide for their families. In our interviews, some of the men who were the primary wage-earners in their families described the stress of comparing themselves to others based on how adequately they felt they were able to support their families:

“My wife sees things on Facebook that make her feel like our lifestyle isn’t good enough. It ruins the whole mood in my house when she gets this way. She refuses to talk to me and I feel like I’m not good enough. I start hating myself. I’m already upset with the way things are going at work and this just adds to it. Because my wife sees these things on Facebook, I feel like I need to work overtime in order to meet her expectations.”
(Male, 35-44, India)

Country-level indicators of the proportion of women in the work force appear to support this idea, that social comparison is more frequent among men in countries where men make up a disproportionate part of the labor force. Figure 4 shows the relationship between World Bank data on the proportion of the labor force that is female [1] and whether women or men experience more frequent social comparison. There is a significant correlation between the gender-difference estimates derived above and the proportion of women in the labor force ($r = 0.70$). In line with these hypotheses, a smaller proportion of women in India hold jobs outside the home compared with women in the United Kingdom: women account for only 22.1% of the labor force in India but 46.7% in the UK. The observed gender differences in social comparison frequency may also be associated with differences in gender norms, given the latter’s association with the proportion of the labor force that is female [63]. Still, simply holding a job outside of the home – regardless of gender – may also increase the opportunities to compare oneself with others, which could explain why women experience more frequent comparison in countries where a higher proportion of women are in the labor force.

Restrictions on freedom. While women in India reported less frequent social comparison than their male counterparts, our quantitative and qualitative findings indicate that women in India nonetheless experience high levels of social comparison. A type of comparison we heard uniquely in India arose from women in socially conservative families feeling heavy familial or societal restrictions that resulted in a lack of freedom. They compared their freedom to others’.

“When I see other people posting pictures of themselves out and about on Facebook, I’m reminded that I’m not allowed to make posts like that in my house. I have no freedom here.” (Female, 25-34, India)

“When I see my friends posting pictures of their kids on Facebook, something I’m not permitted to do, it makes me wonder why I can’t do the same.” (Female, 18-24, India)

No interview participants in the US or Mexico reported others disallowing them to post on Facebook or other comparisons stemming from restrictions on freedom.

4.3 Country and Age

To estimate the country-specific effect of age on social comparison frequency, the same Bayesian hierarchical model from the previous sub-section was used. Previous work has generally agreed that social comparison decreases with age [12, 69]. Similarly, the present findings indicate that in most countries, social comparison is indeed most frequent among teens and young adults. However, there are country differences in the strength of the relationship between age and social comparison frequency (Figure 5, RQ2b). The association of age with social comparison frequency was strongest

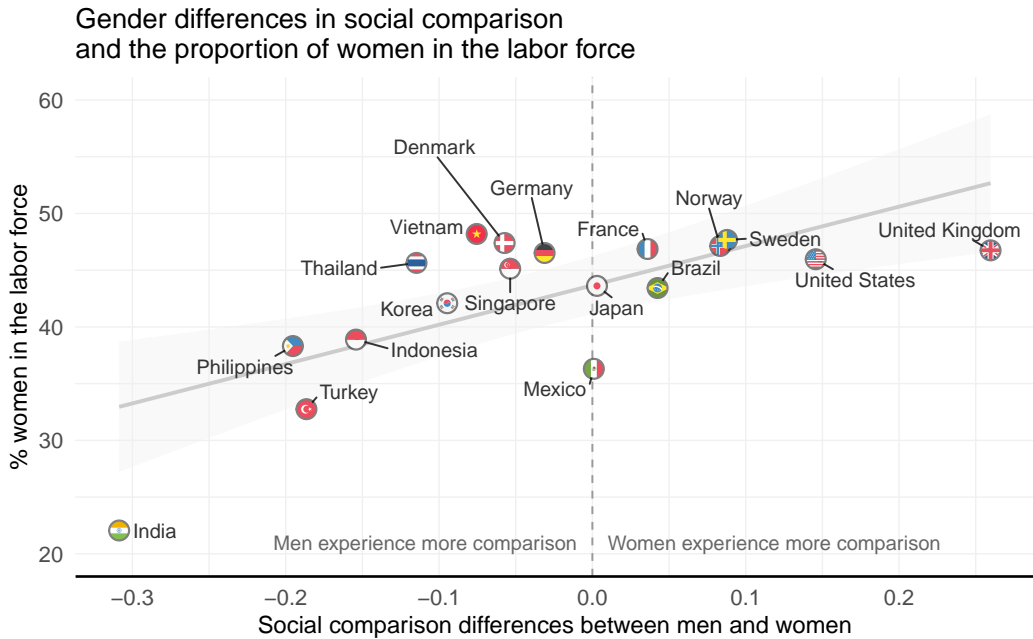


Fig. 4. There was a strong correlation between the gender differences in social comparison frequency observed in each country and the percentage of women in the labor force ($r = 0.70$). In countries where women made up a larger proportion of the labor force, women also experienced social comparison more often than men.

in the Philippines ($M = -0.23$, 95% CIs $[-0.28, -0.18]$) and weakest in Korea ($M = 0.00$, 95% CIs $[-0.09, 0.10]$). It was also stronger in Mexico (-0.17 , 95% CIs $[-0.20, -0.14]$) and the US ($M = -0.14$, 95% CIs $[-0.17, -0.12]$) compared to India ($M = -0.10$, 95% CIs $[-0.15, -0.06]$). Consistent with these findings, 3 out of 10 interview participants in Mexico (and 5 out of 13 in the US) said that social comparison had increased over the course of their lives, compared to 15 out of 16 participants in India.

Most interview participants in Mexico and the US reported their lives improving and perspectives broadening as they got older. Some participants in both countries felt that over the years, their own lives had improved or become more stable. They attributed their decreased feelings of comparison with their increased personal satisfaction with their lives.

“I don’t have as much reason to compare myself to other people now. I think it comes both from getting better at things myself, and from maturing emotionally so that negative things don’t get to me as much.” (Male, 35-44, US)

Others said that with age, they had learned better ways to cope with feelings of comparison, including learning to take a broader perspective on others’ achievements and internalizing the knowledge that all people have struggles, even if it doesn’t always appear that way.

“I’ve gotten more mature with age, and so I don’t compare myself to other people as much. When you grow up you realize what people have to go through to get to where they are – that they didn’t just get there overnight. Now, when I see things like that, I’m able to reason with myself so I don’t feel as bad.” (Male, 35-44, Mexico)

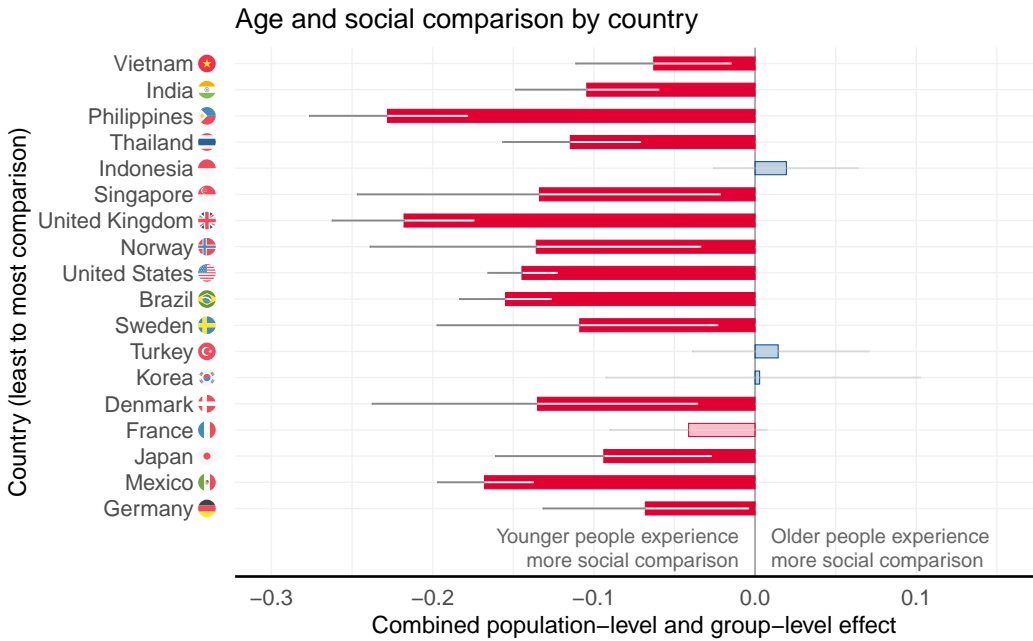


Fig. 5. In most countries, social comparison frequency was highest among teens and young adults. Younger age was most strongly related to social comparison in the Philippines, the UK, and Mexico. Lighter bars indicate cases where 95% credible intervals include zero.

In contrast, most interview participants in India reported increased uncertainty as they got older. They attributed their increased feelings of comparison to the fact that their lives had been more structured when they were young. As an adult, the sheer volume of opportunities and freedom exhibited by others increased their feelings of comparison. Rapid economic growth or increasing exposure to the rest of the world may also have contributed to present-day adults in India might feel more comparison than they did when they were teens, because they have a wider window of potential comparison targets.

“Now I compare myself to other people more than I used to. I think it’s because of how much freedom we all have now. Back when I was in school, no one had freedom, so we were all in the same boat. Now people are going places and there is so much to choose from, so social comparison has grown.” (Male, 18-24, India)

“With Facebook, we see people wearing many different types of fashionable clothes all the time. Back in school, people would wear regular clothes most of the time and only dress up for fancy occasions.” (Female, 35-44, India)

4.4 Country and Facebook Use

Previous work suggests that seeing greater amounts of feedback on friends’ posts and spending more time viewing profiles increases social comparison frequency [6]. To test how these effects differed between countries, three Bayesian models were created based on the “base” Bayesian model from Section 4.2, each adding one variable of interest. One model adds the proportion of posts survey participants viewed with many Likes and Reactions to the base model. Another adds the

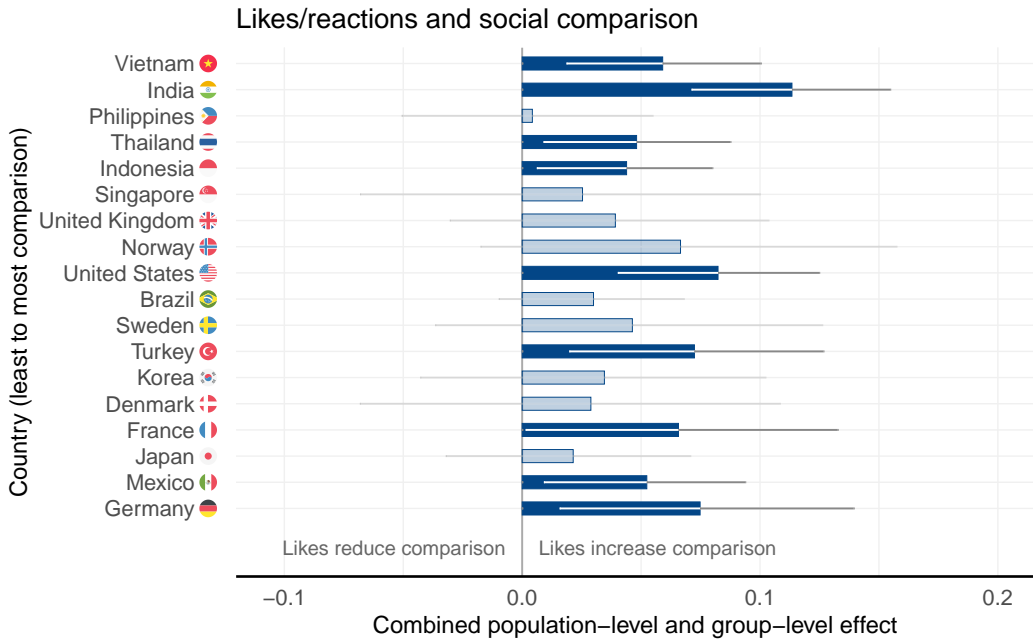


Fig. 6. In many countries such as India and the US, seeing a greater fraction of posts that have high numbers of Likes or Reactions was associated with more frequent social comparison. Lighter bars indicate cases where 95% credible intervals include zero.

proportion of posts participants viewed with many comments to the base model. The third model adds the proportion of time participants spent viewing profiles to the base model.

4.4.1 Seeing High-Feedback Posts. Seeing a greater proportion of posts with 20 or more Likes or Reactions was associated with more frequent social comparison in all countries, particularly in India ($M = 0.11$, 95% CIs [0.07, 0.15]) and the US ($M = 0.08$, 95% CIs [0.04, 0.12]) (Figure 6, RQ3a). Multiple interview participants in India and the US described how seeing feedback on others' posts elicited negative feelings.

"I get so jealous when I see positive comments on someone else's posts. Seeing likes and comments feels like salt on a wound." (Male, 18-24, India)

"When I see people I respect get a lot of likes, I think about other people looking at how many likes my own posts get. I'm happy for people when I see lots of likes on their posts, but at the same time, it makes me feel inferior to them." (Female, 25-34, US)

In India, interview participants also described competing with each other for Likes:

"I do actually feel kind of good when I see that my friend's photos don't get a lot of likes. If that were to happen I might call her up to ask why she didn't get any. We've had competitions in the past where we would each post photos of ourselves and see who gets the most likes." (Female, 25-34, India)

By contrast, interview participants in Mexico ($M = 0.05$, 95% CIs [0.01, 0.09]) said they were not especially affected by the feedback counts on other people's posts. Several noted that Like counts simply reflected how many Facebook friends one had.

“Well, I know that she has a big family, so I just think that there are more people who are able to see the posts she makes.” (Female, 25-34, Mexico)

Seeing a greater proportion of posts with 20 or more comments was also associated with more frequent social comparison in most countries (not shown), and this effect was strongest in India ($M = 0.13$, 95% CIs [0.09, 0.16]), Turkey ($M = 0.11$, 95% CIs [0.07, 0.15]), and Brazil ($M = 0.09$, 95% CIs [0.05, 0.14]). Some Indian interview participants explained that seeing comments on others’ posts affected them more because posting comments required more effort than Liking.

“Seeing a lot of comments on someone else’s post makes me feel worse than seeing a lot of likes. People can just add a like with a click, but comments are more valuable because they come from the people who know you better.” (Male, 25-34, India)

In the US, seeing posts with many comments was not associated with more frequent social comparison ($M = 0.01$, 95% CIs [-0.04, 0.05]), contrasting with the effect of seeing posts with many Likes or Reactions, which were more strongly associated with social comparison frequency. However, qualitative findings were mixed: some US interview participants mentioned paying less attention to comments, while others said that Likes and comments were equally affecting.

“Reading through comment threads isn’t worth my time - it’s just a bunch of people adding their own un insightful thoughts. I try to avoid reading them.” (Male, 35-44, US)

“If I’m already feeling bad about a post, seeing that a lot of other people have liked or commented on it feels like a whole mass of people rising up against me. What hurts most is when there’s a lot of them, regardless of whether I know them or not.” (Female, 25-34, US)

Overall, design interventions to reduce visibility of high feedback counts on others’ posts, as has been proposed in previous research [6], may be more successful at reducing social comparison in the US and India, and less successful in countries where feedback counts were not strongly associated with social comparison frequency (e.g., the Philippines or Japan). Nonetheless, some interview participants were not in favor of removing feedback counts, even though they felt upset by the numbers. These participants explained that feedback was an important social signaling mechanism that helped them figure out what to pay attention to or what others thought.

“Likes are necessary - they help me figure out if I’m right or wrong about what I think.” (Female, 35-44, India)

Alternatives such as capping feedback counts on others’ posts or providing more context may be preferable to removing high like counts altogether if the value of the signal to others outweighs its negative impact.

4.4.2 Profile-Viewing. Spending proportionally more time viewing profiles was associated with more frequent social comparison in all countries, with stronger associations in countries including India ($M = 0.05$, 95% CIs [0.02, 0.08]) and Mexico ($M = 0.05$, 95% CIs [0.03, 0.07]). By contrast, profile time was a less important driver of social comparison frequency in the US ($M = 0.02$, 95% CIs [0.00, 0.05]) (Figure 7, RQ3b). The variation in this strength of association may arise from differences in how profiles are perceived. In India and Mexico, interview participants typically mentioned visiting profiles for the purposes of comparison (e.g., to their own profiles):

“Whenever I look at someone else’s profile I end up looking at mine too and then comparing the two. I get pretty jealous when I see all of their pictures.” (Female, 25-34, India)

“When I go to my peers’ profiles, I think of it as a way to assess how I’m doing in life. We have similar backgrounds, so I think about why I haven’t been able to achieve

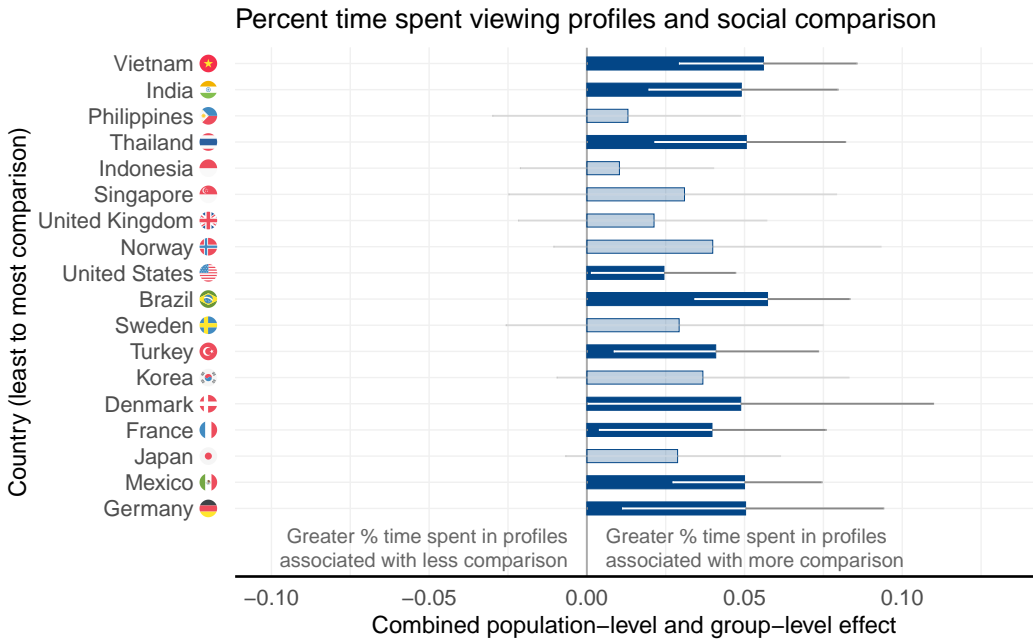


Fig. 7. Spending proportionally more time viewing profiles was more strongly associated with social comparison frequency in some countries than others. Lighter bars indicate cases where 95% credible intervals include zero.

things that they have. It helps me think through what I could be doing differently.”
(Female, 35-44, Mexico)

Interview participants in the US also reported feeling worse by comparison with others when viewing profiles, but also acknowledged more often that profiles (and Facebook more generally) were presenting curated selves:

“Sometimes you can tell when someone’s just showing off, especially if you know them in real life and know the stuff they post doesn’t really match how they actually live. But even so, I still do make those comparisons at times – should I have had kids like she did?” (Female, 35-44, US)

“The way you create your profile on Facebook is how you’re presenting yourself to the world, just like on LinkedIn.” (Male, 18-24, US)

“You can’t tell what’s really going on for someone just based on what they post online. There are people who make their lives seem so good on social media, but then you see them in person and you can tell they’re actually miserable. I feel sorry for them.” (Male, 25-34, US)

US interview participants also mentioned looking back at their own profiles to reminisce rather than to compare:

“Looking at my own profile and going back throughout the years makes me feel good, I realize that I’m actually not doing so bad.” (Female, 25-34, US)

“There are times when I look back at my profile and think about all of the amazing places I’ve gone. That makes me feel really grateful for everything I do have.” (Male, 35-44, US)

5 DISCUSSION

The present work shows how differences in geography as well as cultural norms and values may influence experiences of social comparison and how they play out on social media. Though the present work is an initial attempt at understanding how and why experiences of social comparison differ around the world, the findings nonetheless suggest that a “one-size-fits-all” approach to mitigate negative outcomes of social comparison is unlikely to succeed, and that designers should take into account differences in norms, the intersection between technology and rapid economic development in a region, and women’s roles in society. In this section, we discuss how country differences may relate to cultural and socioeconomic differences, in addition to proposing potential avenues of research, and suggest the ways in which design implications may vary internationally.

5.1 Country, Culture, and Socioeconomic Differences

While the present work generally discusses differences between countries, examining how these differences relate to cultural and socioeconomic factors may be useful, as these vary both between and within countries.

Cultural differences. Hofstede’s cultural dimensions theory [36] is one useful framework to relate these country-level differences to differences in culture. The framework distinguishes six orthogonal cultural dimensions. While the present work does not have a sufficient number of countries to rigorously investigate each dimension, our findings are somewhat consistent with prior work on two of these dimensions: “individualism-collectivism” and “indulgence-restraint.”

Prior work suggests a link between the “individualism-collectivism” dimension and social comparison, where people who live in countries whose cultures are more collectivistic may be more likely to engage in social comparison than those who live in countries whose cultures tend to be more individualistic [35]. Corroborating these findings, in our data, Asian countries (e.g., Vietnam, India, the Philippines, Thailand, and Indonesia), whose cultures tend to be more collectivistic, tended to have higher average social comparison frequency than Western countries (e.g., the US, France, and Germany), whose cultures tend to be more individualistic [36]. Outliers do exist – people in South Korea, whose culture tends to be collectivistic, reported lower social comparison frequency than people in other countries with more individualistic cultures (e.g., the US and the UK).

The “indulgence-restraint” dimension measures the degree to which people are socialized (i.e., taught to control their desires). As social comparison is a key component of socialization [57], people in countries that emphasize restraint and social order over indulgence and self-gratification may be more likely to report social comparison. In support of this hypothesis, the present findings suggest that people in countries whose cultures have been found to be more restrained (e.g., Vietnam and India) tend to report more frequent social comparison than people in countries whose cultures have been found to be more indulgent (e.g., Mexico and France) [36].

Socioeconomic differences. Factors such as gross domestic product (GDP) per capita or income inequality may also account for differences in social comparison frequency reported across countries. For example, social comparison frequency may be lower in countries with higher GDP per capita, because higher GDP per capita increases life satisfaction [68], and greater life satisfaction can help buffer against some of the negative outcomes of social comparison [42]. Some research also suggests that social comparison may be greater when there is greater income inequality [15].

There is some evidence that social comparison may be related to GDP per capita: social comparison frequency is generally lower among countries in the Global North (e.g., Japan and Germany) than countries in the Global South (e.g., Vietnam and India), though exceptions exist (e.g., Mexico, which has lower GDP per capita and lower social comparison frequency than the US). The trend for social comparison and national income equality at the national level is less clear (e.g., Brazil has high income inequality but social comparison frequency is moderate), but an association may exist at a more local level.

Overall, the relationships discussed above are suggestive of an association between social comparison frequency and both cultural and socioeconomic factors, but the findings do not lend themselves to easy summaries: We cannot say that Facebook use affects social comparison similarly in broad geographic categories such as the Global South (e.g., India and the Philippines differ substantially when considering the impact of Likes, Figure 6). The relative effect of cultural vs. socioeconomic factors also remains unknown. Future work may benefit from surveying individuals about their cultural and social values and socioeconomic status to understand the direct relationship between social comparison and cultural or socioeconomic differences.

Differences within national borders. The present study is also limited by treating responses within a country as homogeneous, when numerous differences exist within a single country between regions or between people with different backgrounds. Both the survey data and interviews indicated strong within-country differences, as well, though there may not have been enough statistical power in the former to draw strong conclusions within any given country. For example, Figure 8 shows how social comparison frequency varied by state in the US and by state or union territory in India. In the US, people in Missouri experienced social comparison most often and people in Florida experienced it least often ($M = 2.47$ vs. $M = 2.12$, $p < 0.001$), but there were not obvious geographic trends. The present study only included interview participants from California ($M = 2.23$), so understanding the variation across states remains valuable future work. Similarly, in India, experiences of social comparison in the Northern and Southern states differed substantially. For example, survey participants in Uttar Pradesh (a Northern state) reported more frequent comparison than participants in Tamil Nadu (a Southern state) ($M = 2.90$ vs. $M = 2.54$, $p < 0.001$). Interviews supported the idea of social comparison being worse in the North. For example, women in Delhi (India's capital, which borders Uttar Pradesh, $M = 2.69$) mentioned envying the freedom that other women had, including wearing jeans or being able to hold jobs outside the home. This came up less frequently and with lower intensity in Chennai (the capital of Tamil Nadu).

“Growing up, my family never really prepared me to have a career - it wasn't part of their conservative mindset. I know I'm as capable as my friends who do have jobs, so I get jealous of them.” (Female, 25-34, Delhi, India)

5.2 Design Considerations

The broadest implication of the present work is that a design intended to mitigate social comparison in one region may not work in another. Thus, designers should test ideas in multiple regions around the world to ensure that they don't counteract the intended purpose. For example, one could imagine a design intervention such as a rotating writing prompt to encourage posting a wider variety of life experiences, including negative ones, could provide more context and elicit empathy to mitigate negative outcomes of social comparison. However, interview participants in Mexico said they visited Facebook to be motivated, not to be brought down by negative content from others. In contrast, participants in the US felt more conflicted – they wanted to share what they were doing but were also aware of the potential negative consequences for others. And participants

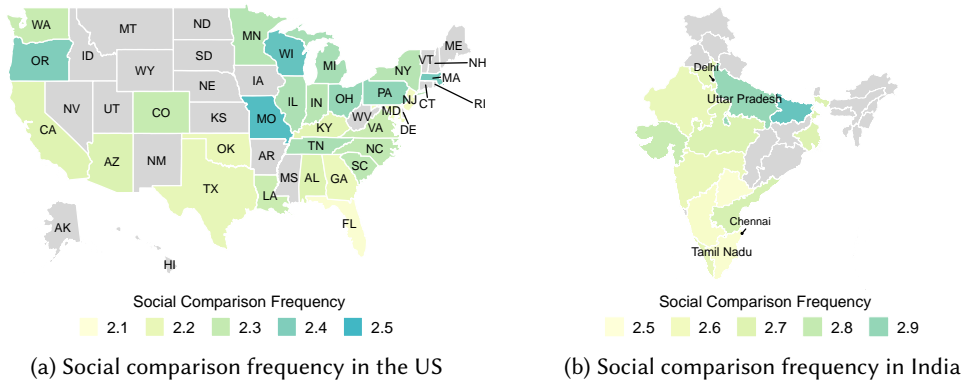


Fig. 8. Social comparison frequency varied by state in the US and in India. States and union territories in gray had fewer than 100 responses.

in India felt like others posted with the intention of eliciting jealousy, and some were even pleased at the thought that their social media posts would make others feel worse by comparison. Taken together, such an intervention that encourages the sharing of negative feelings might cause viewers in Mexico to feel worse and viewers in India to be less receptive to it if they felt that posters still intended to make them feel worse. Further, past research indicates that compared to European Americans, Asians and Asian Americans prefer implicit support – being in the company of others but not disclosing problems explicitly [73]. Thus, people in India may also be hesitant to discuss difficult aspects of their lives on social media. General guidelines as well as more specific design ideas are discussed below, including how their impact might vary internationally.

Consider demographic differences by country. Consistent with prior research, teens in the present study experienced more frequent social comparison than adults (Figure 5). However, the degree varied by country, with some countries showing no difference in social comparison frequency between teens and adults. In India, adult interview participants cited rapid socioeconomic development as a force that increased comparison over their lifetimes, and felt that they experienced more social comparison than they did in their youth. The survey data from India, while cross-sectional, are roughly consistent: adults experienced as much social comparison as teens. Thus, while much prior research indicates the need to address comparison among teens [52, 67], country-specific factors should be taken into account and designs should not discount the difficulties that adults experience as well. And while previous research indicates that social comparison is higher among women than men [29, 31], the present results indicate that it depends on the country, and may particularly relate to the extent to which women are part of the workforce and to restrictions on women’s freedom. Overall, public-awareness campaigns (e.g., that show people ways to better control what they see on Facebook) should include spokespeople that are popular among a broad range of age groups, and perhaps target different messages to female and male audiences. Further, offering a variety of filters for topics that may more likely to trigger social comparison for younger and older people and for men and women (based on additional research) that vary by country may be helpful.

Reduce visibility of feedback counts. Past research has suggested reducing the visibility of quantitative feedback markers, such as Like counts [6]. Facebook and Instagram have announced that they are considering variants of this idea [20, 26]. The present research supports this idea, though the impact on social comparison is likely to be higher in India and the US, and lower in the Philippines or Japan (Figure 6). As such, if researchers tested hiding Like counts only in East Asia, they might not observe

the potential magnitude of the benefits to people in other parts of the world. The present work also found that comments contributed more to comparison in India, Brazil, and Turkey, suggesting that those countries may benefit more from changes to how comments are presented.

Despite these findings, Likes and comments are a fundamental part of relationship maintenance on social media [7, 62], and interview participants in the present study often reflected on their value as a social signal – knowing what to pay attention to. In India, participants generally did not like the idea of hiding Likes or comments, despite the quantitative evidence that high Like counts were linked to more negative outcomes there. Any change to the presentation of Like or comment counts should incorporate some of the social signal value and relationship maintenance functionality (e.g., naming *who* liked or commented on a post, rather than *how many* people did) and take into account people’s feedback to ensure the design is appropriate around the world. Providing mechanisms that allow people to hide or re-rank comments may also help.

Discourage excessive profile viewing. Many interview participants reflected on how viewing others’ profiles triggered jealousy and how there was pressure to ensure that their own profiles were on par. Supporting this observation, in all surveyed countries, the percentage of time survey participants spent viewing Facebook profiles was associated with more frequent social comparison, more so in Vietnam and Brazil. An intervention to nudge people away from profiles – their own or others’ – after they have spent substantial time on them may be most effective in reducing social comparison in these regions. For example, a pop-up could remind people to take a break if they have been scrolling through others’ profiles for more than a half hour. Still, interview participants in the US frequently noted that viewing their own profiles triggered reminiscing. US researchers have similarly demonstrated boosts in self-affirmation from viewing one’s own profile [75]. Thus, this kind of design intervention may be counterproductive there, or should only redirect people from spending disproportionate time on others’ profiles but not their own. In other words, reminders that others’ profiles are highlight reels may still be helpful in most countries.

Our findings also have implications for future international research on social comparison. Given that country accounted for such a large proportion of variance explained, and that demographic factors such as gender had opposite effects in different countries, we recommend verifying globally-observed effects at the country level, as well as effects observed at the country level in multiple other countries.

5.3 Limitations and Areas for Additional Research

Myriad differences distinguish people around the world and influence their experiences of social comparison. The present work is limited in that it collects country-level average data, but cannot speak to broader cultural differences. Despite the large sample size, with only 18 countries, there are few representatives of any specific cultural dimensions (such as collectivism) to make robust claims about culture. Experiences of social comparison also vary widely between individuals within a country, so these country-level averages also neglect individual differences. Furthermore, regions with smaller numbers of Facebook users are not represented in the present data (e.g., African countries), and among the countries that are included, active Facebook users may not represent the general population. We hope these country-level data will inform additional international research on cultural differences in social comparison.

The present study is also limited by other sampling biases. Though survey responses were reweighted by age, gender, and time spent when comparing social comparison frequency across countries, other response biases may exist. For instance, survey and interview responses are subject to recall bias, in which more difficult experiences are more memorable [39]. Interviews were only conducted with people who said that they experienced social comparison more frequently than

“Rarely” or had recently experienced social comparison. Therefore, social comparison frequency may be overestimated and quotes may reflect more serious instances. Yet designing for more extreme cases often benefits everyone, and as the present study suggests, social comparison is a global concern.

Other country-level factors or network effects may also moderate the observed effects. For example, people who live in a country where the average Like or Reaction counts are higher may be less affected by seeing a greater proportion of content with multiple Likes or Reactions; people whose friends spend more time browsing profiles may also be affected differently by a given proportion time spent browsing profiles. Exploring these potential confounding effects (e.g., in more complex models that account for such additional covariates) remains future work.

Survey results are correlational. We cannot distinguish the degree to which Facebook use causes social comparison or social comparison causes Facebook use. Other underlying factors may explain both; social comparison among women was associated with the fraction of women in the workforce, but may also be associated with life expectancy and other economic indicators. The interviews help to explain causality but additional research is needed to disentangle the effects of potential contributing factors. And while differences in the relationship between social comparison frequency and age and gender exist among countries, experiences of the resulting negative outcomes may still be worse for women [34, 52].

The association between Facebook use and social comparison frequency was small, suggesting that platform design changes, such as those suggested above, may have only a small impact because social comparison is a more fundamental human process. Yet small individual impact, when scaled to the billions of people who use social media regularly, can result in meaningful population-level impact.

The present study does not examine the content or topics of posts. Interview participants frequently mentioned travel, appearance, career and family achievements, and material possessions as topics that spurred comparison. Understanding the extent to which different topics are associated with social comparison across countries would be valuable future work.

The present work focuses on Facebook, but social comparison may differ on other platforms based on the nature of the relationships (e.g., whether connections are known friends, strangers, or celebrities), the channel (e.g., private, synchronous chat vs. public, asynchronous forums), and the visual affordances (e.g., a platform that focuses on images may trigger more comparisons around body image or beauty more than a text-based chat platform would). Cultural influences in motivations for use may also result in social comparison differing on other social media platforms [40].

Finally, between-country differences in social comparison are likely to vary over time. In India, interview participants cited the rapid pace of change as contributing to social comparison, but social comparison may decrease as people adjust to these changes.

6 CONCLUSION

Social comparison is a universal phenomenon; the present study demonstrates that people around the world experience it. Yet country and culture are rarely taken into account in the corpus of social comparison research – with some exceptions (e.g., [31, 35]). Country was a stronger predictor of a person’s experience of social comparison frequency than any other variable in the present study: more than age, gender, how much time they spent on Facebook, and how many Facebook friends they had combined. The degree to which social media influenced experiences of social comparison varied by country; design interventions accounting for country differences may be more effective at reducing the negative outcomes of social comparison.

ACKNOWLEDGMENTS

We would like to thank Alex Dow, Lada Adamic, and Jennifer Guadagno for their feedback and support, as well as our reviewers for their helpful suggestions.

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A SURVEY RESPONSES BY COUNTRY

| Country | # Respondents | % Female | Mean Age |
|----------------|---------------|----------|----------|
| Brazil | 5560 | 60.6 | 32.7 |
| Denmark | 129 | 58.1 | 41.1 |
| France | 1309 | 54.9 | 37.4 |
| Germany | 851 | 47.6 | 38.8 |
| India | 2518 | 22.6 | 29.0 |
| Indonesia | 2705 | 42.0 | 31.1 |
| Japan | 934 | 41.1 | 41.3 |
| Korea | 328 | 46.0 | 25.9 |
| Mexico | 6158 | 51.5 | 28.8 |
| Norway | 161 | 59.0 | 42.7 |
| Philippines | 1956 | 60.1 | 28.5 |
| Singapore | 160 | 56.2 | 37.8 |
| Sweden | 277 | 51.6 | 43.7 |
| Thailand | 2582 | 54.1 | 32.7 |
| Turkey | 1310 | 28.6 | 35.3 |
| United Kingdom | 1672 | 58.8 | 40.2 |
| United States | 6260 | 59.6 | 41.9 |
| Vietnam | 2859 | 49.3 | 24.6 |

Table 2. Survey respondents by country