

Letters

RESEARCH LETTER

Internet Searches for Sexual Harassment and Assault, Reporting, and Training Since the #MeToo Movement

On October 15, 2017, following the public accusations of sexual harassment and assault against film producer Harvey Weinstein, actress Alyssa Milano encouraged victims to bring the taboo topic out of the shadows by sharing their own stories on social media. #MeToo was tweeted 300 000 times the day after Milano's post and generated widespread support with scores of accusations made against media, political, and business leaders, giving voice to previously unheard victims.¹ However, the

implications for the victims whose perpetrators are not public figures is unknown. To fill this knowledge gap, we examined how internet searches for sexual harassment and/or assault changed following #MeToo.²

Methods | We monitored the volume of Google searches originating from the United States that were indicative of sexual harassment and/or assault awareness (all searches including the term “sexual” and the terms “harassment” or “assault”) from January 1, 2010, through June 15, 2018. We further monitored the subset of these searches that focused on seeking resources for reporting of sexual harassment and/or assault (searches that also included “report” or “reporting”) and preventive training (searches that also included “train” or “training”). The search volumes were provided as a ratio of all Google searches (per 10 million), thereby adjusting for changes in Google usage over time. Raw search count estimates were inferred using Comscore estimates (<http://comscore.com>).

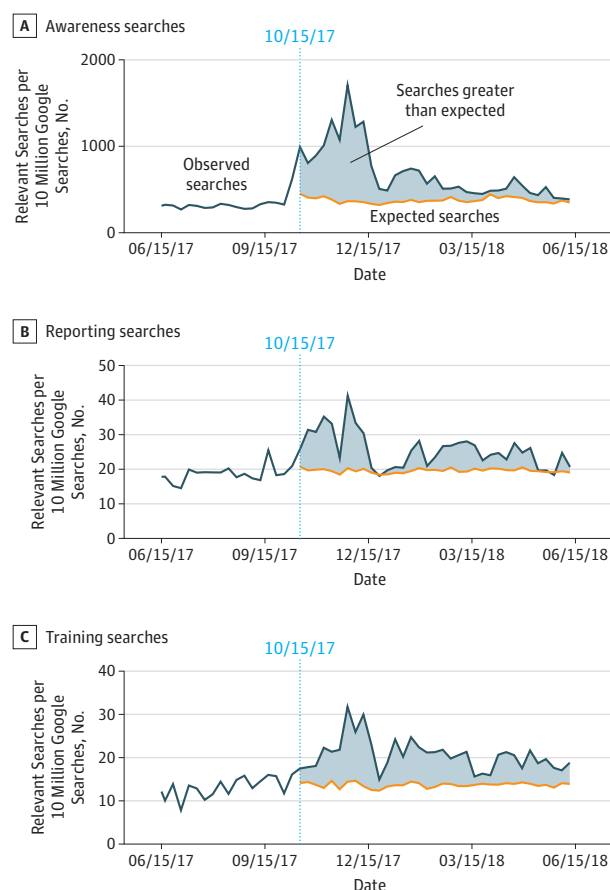
We compared observed search volumes after October 15, 2017, to the counterfactual scenario manufactured from predicted search volumes using the autoregressive integrated moving average (ARIMA) algorithm of Hyndman and Khandakar³ applied to weekly trends from January 1, 2004, to October 14, 2017 (before #MeToo). The ratio of observed and predicted volumes with bootstrapped confidence intervals (CIs) were computed using R, version 3.5.0 (R Foundation). Because these analyses were based on public aggregate data, institutional review board approval was not required.

Results | Sexual harassment and/or assault searches were 86% (95% CI, 60%-117%; $P < .001$) higher than expected from October 15, 2017, to June 15, 2018, reaching record highs (Figure). Moreover, observed searches remained higher than expected each week until 8 months after #MeToo began. In absolute terms, the post-#MeToo period corresponded with the greatest number of sexual harassment and/or assault searches ever recorded in the United States, with 40 to 54 million searches from October 15, 2017, to June 15, 2018.

Searches related to reporting and preventive training for sexual harassment and/or assault were 30% (95% CI, 23%-39%; $P < .001$) higher and 51% (95% CI, 43%-60%; $P < .001$) higher than predicted from October 15, 2017, to June 15, 2018. Both spiked weeks after #MeToo began and remained greater than expected for all weeks except 1.

Discussion | Despite the well-documented evidence that sexual harassment and/or assault has major public health implications,⁴ it has received little national attention. The #MeToo movement has prompted substantial interest in not only sexual harassment and/or assault, but also actionable outcomes for reporting and prevention.

Figure. US Google Searches for Sexual Harassment and/or Assault Awareness, Reporting, and Training



Weekly Google search volumes are shown. A, All searches that included the terms “sexual” and “assault” or “harassment.” B, The subset of searches that also included the terms “report” or “reporting.” C, The subset of searches that also included the terms “train” or “training.” The dashed vertical line in each graph indicates when #MeToo was first tweeted by Alyssa Milano on October 15, 2017.

Search trends are only proxies for engagement, and sentinel surveillance (such as surveys) will clarify these early findings. However, our findings demonstrate the power of grassroots movements to respond to large-scale public health crises. These results suggest that #MeToo may have reduced the stigma of sexual harassment and/or assault as more seek help.⁵

Public health investments in preventing sexual harassment and/or assault is disproportionately small compared with the scale of the problem,⁶ in part because the problem is hidden from the public. With millions more persons than ever voicing their needs months after #MeToo began, public health leaders should respond by investing in enhanced prevention training and improving resources for survivors.

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1. Zacharek S, Dockerman E, Edwards HS. Time person of the year: the silence breakers. *Time*. 2017. <http://time.com/time-person-of-the-year-2017-silence-breakers/>. Accessed August 2, 2018.

2. Ayers JW, Althouse BM, Dredze M. Could behavioral medicine lead the web data revolution? *JAMA*. 2014;311(14):1399-1400. doi:10.1001/jama.2014.1505

3. Khandakar Y, Hyndman RJ. Automatic time series forecasting: the forecast package for R. <https://www.jstatsoft.org/article/view/v027i03>. Accessed July 29, 2018.

4. Breiding MJ, Smith SG, Basile KC, Walters ML, Chen J, Merrick MT. Prevalence and characteristics of sexual violence, stalking, and intimate partner violence victimization—national intimate partner and sexual violence survey, United States, 2011. *Morbidity and mortality weekly report*. 2014. <https://www.cdc.gov/mmwr/preview/mmwrhtml/ss6308a1.htm>. Accessed July 23, 2018.

5. Kennedy AC, Prock KA. "I still feel like I am not normal": a review of the role of stigma and stigmatization among female survivors of child sexual abuse, sexual assault, and intimate partner violence. *Trauma Violence Abuse*. 2016;7(9):8-21. doi:10.1177/1524838016673601

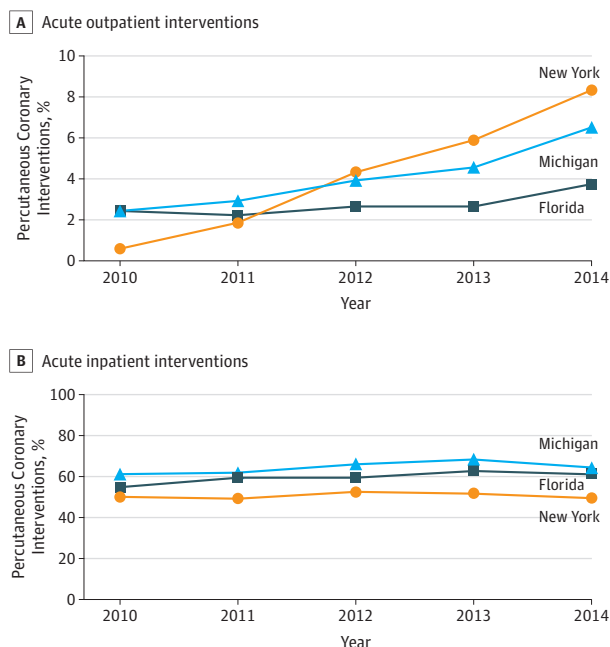
6. Waechter R, Ma V. Sexual violence in America: public funding and social priority. *Am J Public Health*. 2015;105(12):2430-2437. doi:10.2105/AJPH.2015.302860

Temporal Trends in Unstable Angina Diagnosis Codes for Outpatient Percutaneous Coronary Interventions

Recent health care policy initiatives have focused on reducing misuse or overuse of expensive cardiovascular procedures. The appropriate use criteria (AUC) for coronary revascularization were released in 2009 with the aim of reducing inappropriate percutaneous coronary interventions (PCIs).¹ In addition, national efforts to provide hospitals with information about their performance on PCI appropriateness began in 2011.²

Since these initiatives were enacted, the volume of PCIs performed for nonacute indications in the United States has declined, as have rates of PCIs considered inappropriate.^{3,4} Some have declared this a policy success—that the fewer inappropriate PCIs performed nationally reflect better selection of patients likely to experience improved outcomes. However, it may be that these initiatives incentivized physicians to classify patients with stable chest pain as having unstable angina (UA) to meet AUC. To explore this possibility, we examined trends in PCIs coded for acute indications in the outpatient setting in 3 large and geographically dispersed states.

Figure 1. Proportion of Percutaneous Coronary Interventions (PCIs) Coded for Acute Indications in the Outpatient and Inpatient Settings



A, Acute outpatient PCIs. B, Acute inpatient PCIs. Proportions reflect PCIs coded for acute indications in the outpatient setting, or PCIs coded for acute indications in the inpatient setting, divided by total PCIs (acute and nonacute in both outpatient and inpatient settings) for each state by year.