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When I Learn the News is False: How Fact-Checking Information Stems the Spread of Fake News Via Third-Person Perception

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While fact-checking has received much attention as a potential tool to combat fake news, whether and how fact-checking information lessens intentions to share fake news on social media remains underexplored. Two experiments uncovered a theoretical mechanism underlying the effect of fact-checking on sharing intentions, and identified an important contextual cue (i.e., social media metrics) that interacts with fact-checking effects. Exposure to fake news with fact-checking information (vs. fake news without fact-checking information) yielded more negative evaluations of the news and a greater belief that others are more influenced by the news than oneself (third-person perception [TPP]). Increased TPP, in turn, led to weaker intentions to share fake news on social media. Fact-checking information also nullified the effect of social media metrics on sharing intentions; without fact-checking information, higher (vs. lower) social media metrics induced greater intentions to share the news. However, when fact-checking debunked the news, such an effect disappeared.

Keywords: Fake News, Fact-Checking, Third-Person Effect, Social Media Metrics, Sharing Intentions

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Social media have become a breeding ground for the massive diffusion of fake news. In social media, the ease of information dissemination with a quick click, the lack of conventional gate-keeping mechanisms (Al-Rawi, 2019), and people's trust in information from their social networks, as well as short pass lengths (Tandoc, 2019), create an environment where fake news can rapidly spread. The spread of fake news poses a significant challenge to democracies (Bennett & Livingston, 2018; Morgan, 2018) and individual decisions about health or other issues (Keim & Noji, 2011; Lewandowsky, Ecker, Seifert, Schwarz, & Cook, 2012).

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Facing this challenge, scholars and practitioners have discussed various means to combat the spread of fake news on social media, from media literacy programs (Jones-Jang, Mortensen, & Liu, 2019) to fact-checkers (Lewandowsky et al., 2012; Nyhan & Reifler, 2015). Indeed, news outlets and social networking sites have incorporated fact-checking features into their systems (Graves, Nyhan, & Reifler, 2016; Harrison, 2019). For instance, since December 2017, Facebook has provided fact-checking information in a "Related Articles" format underneath stories debunked by third-party fact-checkers (Smith, Jackson, & Raj, 2017). Unfortunately, however, the literature indicates that the effectiveness of fact-checking in correcting misbeliefs is questionable. Some studies found that fact-checking efforts had minimal effects on or even backfired in impacting news consumers' existing perceptions formed by fake news (see Walter & Tukachinsky, 2019).

While correcting a belief in misinformation is an important goal of fact-checking, a more fundamental question may be whether fact-checking can deter the spread of fake news. That is, although fact-checking may or may not correct a public misperception in the short term due to confirmation bias (Nickerson, 1998), fluency and familiarity (Berinsky, 2017), or an illusion of truth (Schwarz, Sanna, Skurnik, & Yoon, 2007), it may still discourage people from sharing fake news on social media. In this light, instead of focusing on the misbelief-correcting role, the current study focuses on the alerting role of fact-checking in deterring people's sharing of fake news. This approach is based on the intriguing but problematic nature of exposure to fake news; people generally do not realize that they are exposed to fake news until they are told so (Silverman & Singer-Vine, 2016). However, when they learn news is in fact false thorough fact-checking, they might show a decreased intention to share the news with their social networks. We aim to test this possibility.

At the same time, the psychological processes underlying the effect of fact-checking on individuals' intentions to share fake news on social media, if any, remain to be specified. For instance, realizing that they are reading fake news, which are notably undesirable media content, people may negate the influence of fake news on the self, while presuming that others would be influenced by it (i.e., third-person perception [TPP]). Such perception, in turn, may decrease individuals' intentions to share the news on social media, possibly because (a) they do not admit the influence of the news on themselves and thus decide not to promote it; or (b) they are concerned that more people would be influenced by fake news if the news spreads further. The current study empirically tests these theoretical possibilities.

It is also not known whether the fact-checking effect, if any, interacts with other contextual cues provided in social media, such as social media metrics (i.e., the number of likes and shares). Social media metrics could play a concerning role in the era of fake news, given that fake news often receives a large number of likes and shares due to its novelty or sensationality (Vosoughi, Roy, & Aral, 2018). However, fact-checking information that discredits fake news might address such a concern; when people learn the news that has been liked and shared many times is in fact

false information, they may be less likely to be swayed by heuristic cues when processing the news.

Against this backdrop, the current study advances extant literature in the following aspects. First, we examine whether fact-checking information accompanying fake news decreases news consumer's intentions to share the news on social media. Second, we elucidate a novel psychological mechanism driving the effect of fact-checking on sharing intentions. Specifically, using the lens of third-person effect (TPE), we investigate how fact-checking information influences the perceived influence of fake news on the self and others and how such a perception, in turn, affects individuals' intentions to share the news on social media. To our knowledge, this is the first study to examine the perceptual processes that underlie the sharing of fake news while focusing on the role of fact-checking. In particular, we offer a unique perspective that stems from recognizing the difficulty of discerning the veracity of information when presented as *news* in the post-truth era. Lastly, we address how fact-checking information mitigates the effect of social media metrics in shaping individuals' presumptions of media influence and subsequent sharing intentions. In so doing, two experiments with different topics were conducted to enhance the robustness and generalizability of the findings.

Fake news and third-person effect

TPE is a well-documented tendency to presume a greater influence of media messages on others than on the self and thus to take actions to deter such an influence (Davison, 1983). The theory can be broken down into perceptual and behavioral components. The perceptual component, referred to as TPP, simply refers to the self-other asymmetry in one's perception of media influences (Sun, Pan, & Shen, 2008). For instance, people presumed that others were more easily influenced by violent or misogynistic lyrics from rap music than themselves (McLeod, Eveland, & Nathanson, 1997). Similarly, when asked to estimate the influence of pornography, a majority of U.S. adults believed that others were under greater influence than themselves (Gunther, 1995).

TPP is particularly prominent when people perceive media messages to be socially undesirable (Sun et al., 2008). Given that fake news is seen as potentially harmful (Barthel, Mitchell, & Holcomb, 2016), a small but growing number of studies have documented the effect of fake news on TPP, generally indicating that TPP persists in the context of fake news (Jang & Kim, 2018; Ştefănită, Corbu, & Buturoiu, 2018). When asked to presume the influence of fake news on the self and others, participants reported that others are more influenced than themselves, demonstrating classic TPP (Ştefănită et al., 2018). In another study, both Democrats and Republicans presumed that fake news would have greater impacts on outgroup party members than their own party members (Jang & Kim, 2018). While both studies suggest that people perceive fake news negatively and thus presume greater media influence on others than the self, their survey-based measures

(e.g., "how much would the exposure to fake news affect (a) you and (b) others?") suffer from the fact that participants cannot always know whether they were exposed to fake news unless they actively fact-checked themselves. Furthermore, given that people often label real news that does not align with their political views as fake news (Egelhofer & Lecheler, 2019), a survey-based approach cannot distinguish participants' exposure to fake news from exposure to the news they do not want to believe. To address these issues, the current study employs an experimental design in which fact-checking information ensures that participants learn the news stories they read were false.

To establish a baseline of the impact of fact-checking information, this study first examines how fake news is evaluated when the news is debunked by fact-checkers, as compared to when there is no fact-checking information (i.e., the information appears to be legitimate news). In doing so, we employed the concept of perceived news quality. Perceived news quality refers to a cognitive and affective assessment of the news story, not a response to the argument in the news story (Slater & Rouner, 1996). The discussion on the elements of a good news story focused on two major dimensions: message credibility and journalistic quality. The key attributes of a high-quality news story include accuracy, objectivity, believability, informativeness, fairness, truthfulness, and writing quality (Slater & Rouner, 1996; Sundar, 2000). Previous studies found that when there is no sign or red flag indicating the news is false, individuals evaluated the news to be more credible and accurate (Clayton et al., 2019; Pennycook, Bear, Collins, & Rand, 2020) than when the news was discredited, which is a potentially worrying perception when the "news" is, in fact, fake. Indeed, identifying fake news is a greater challenge than one might assume; while 84% of American respondents said they were very confident or somewhat confident in identifying fake news (Barthel et al., 2016), studies found that most Americans failed to recognize fake news and even believed such false information to be true (Silverman & Singer-Vine, 2016). If so, fact-checking could play an important role in alerting people that the news they read is false and thus is not credible, accurate, or informative. It leads to our first hypothesis:

> H1: Those who viewed a news story with debunking fact-checking information will report lower perceived quality of the news than those who viewed the news story without fact-checking information.

Then how would fact-checking alter people's presumption of media influence? While clearly perceivable negative media content such as pornography may induce classic TPP (Gunther, 1995), we argue that the self-other discrepancies may be subdued when people do not recognize that they are reading fake news. In other words, when the "fakeness" of news is not detected, fake news is viewed as a legitimate news story, which does not necessarily provoke much greater media influence on others than on the self. In contrast, when the falsehood of the news is clearly detected through fact-checking, individuals may believe that such harmful media

content would fool others but not themselves, leading to greater TPP. Hence, we propose the following hypothesis:

> H2: Those who viewed a news story with debunking fact-checking information will report greater TPP than those who viewed the news story without fact-checking information.

Asymmetry in the presumed media influence on the self and others entails behavioral consequences, referred to as the behavioral component of TPE. While extant literature has predominantly focused on restrictive actions, such as support for censorship, as the behavioral outcomes (McLeod et al., 1997; Tewksbury, Moy, & Weis, 2004), a growing body of research has noted other types of behaviors, such as corrective, promotional, and resistance actions (Barnidge & Rojas, 2014; Chung, 2019; Chung, Munno, & Moritz, 2015; Jang & Kim, 2018). For instance, greater TPP led to stronger intentions to leave comments (Chung et al., 2015), greater support for media literacy intervention (Jang & Kim, 2018), and weaker intentions to share the media messages on social media (Chung, 2019).

Amongst them, the current study focuses on social sharing intentions (i.e., intentions to share the media content on social media), which is a form of promotional action. Prior research found that people tend to share a news story that they agree with or approve of, with the intention of promoting the story to their social networks (Fox, Cruz, & Lee, 2015; Oeldorf-Hirsch & Sundar, 2015). In the context of this study, when people presume that the self is not influenced by fake news but others are (i.e., greater TPP), they might be less likely to agree with or approve of the news and thus less likely to share the news with their social networks. It is also possible that people would be concerned about others being influenced by fake news and thus be less likely to promote the news. Indeed, recent studies found that the magnitude of TPP was negatively associated with social sharing intentions; the greater TPP was, the weaker the social sharing intention became (Chung, 2019; Chung et al., 2015). Based on this reasoning, we propose the following hypothesis:

> H3: Increased TPP as a function of fact-checking (H2) will mediate the influence of fact-checking on social sharing intentions, such that those who viewed a news story with debunking fact-checking information will report weaker intentions to share the news on social media than those who viewed the news story without fact-checking information.

Interaction of fact-checking and social media metrics

News is not shared in a vacuum; news sharing occurs within the intricate architecture provided by various platforms. Social networking sites, in particular, put an emphasis on social endorsements; most social networking sites aggregate the number of likes, shares, and comments a certain post has received and generate social media metrics. Displayed underneath social media posts, social media metrics

provide information about how popular or viral the specific post is (Chung, 2019; Stavrositu & Kim, 2014).

Social media metrics are particularly pertinent to the current study, because fake news is often accompanied by a large number of likes, shares, and comments. A recent study found that fake news stories spread significantly farther, faster, deeper, and more broadly than did true news stories, due to virality on social media (Vosoughi et al., 2018). This then begs the question of how such an aggregate heuristic cue changes the context in which news consumers process fake news and fact-checking information, particularly in relation to TPE.

One thing to note is that the perceived popularity implied in social media metrics is a distinct concept from the perceived media exposure that has typically been used in classic TPE research (Eveland, Nathanson, Detenber, & McLeod, 1999; Gunther & Storey, 2003; Tal-Or, Cohen, Tsfati, & Gunther, 2010). Referring to the perception that many people watched or read the media content (Eveland et al., 1999), perceived exposure does not include others' reactions to the message (e.g., endorsement, approval). For instance, a news article on the front page may suggest greater reach than an article on an internal page (Tal-Or et al., 2010), but we cannot know how the article was received by readers. In contrast, social media metrics provide post-exposure information. The fact that a news article was liked or shared by others not only suggests that the article reached many people, but also that those people approved of or endorsed it (Chung, 2019; Stavrositu & Kim, 2014).

In this light, the current study examines how social media metrics affect TPP and social sharing intentions, and how such effects are moderated by fact-checking information. Studies found that social media metrics affect individuals' estimates of media influence on the self and others in the opposite direction from the effects of perceived exposure (Chung, 2019; Stavrositu & Kim, 2014); those who read a news story with high social media metrics (i.e., large number of likes and shares) reported the self as being similarly influenced by the story as others, while those who read the story with low social media metrics reported classic TPP (Stavrositu & Kim, 2014). Another study found that exposure to a news article with a large number of social media metrics even eradicated TPP, as compared to exposure to an article only or an article with lower social media metrics: individuals presumed similar or even greater media influence on the self than others (i.e., first-person perception) when the news story was liked or shared by many people. Reduced TPP or first-person perception, in turn, led to a greater intention to share the news on social media (Chung, 2019). The bandwagon effect, referring to a phenomenon whereby people follow the majority opinion (Simon, 1954) provides a theoretical explanation for why high social media metrics reduce TPP and subsequently increase social sharing intentions. The bandwagon effect postulates that when a stance or an item demonstrates high popularity, individuals tend to follow the trend (e.g., "if many people think this story is good, I should think so, too"; Sunstein, 2006). In the context of this study, the fact that many people liked and shared the news may signal that the news was widely accepted by others. This information, in turn, may make

individuals jump on the bandwagon by approving the news, thus presuming greater media influence on themselves.

However, previous studies have elucidated the effect of social media metrics only in the context of legitimate news (positive or neutral content), and little is known about how individuals process social media metrics when reading fake news (negative content). It is possible that high social media metrics put a positive tag to the target message and thus decrease TPP (i.e., increasing the perceived media influence on the self as compared to others), subsequently enhancing sharing intentions. However, this effect may manifest only when people do not know the news is fake. Once they learn that the news is false through fact-checking, the whole positive package (i.e., legitimate news + others' endorsement) turns into a negative package. That is, social media metrics now signal the alarming popularity of harmful content, leading to decreased sharing intentions. Hence, the effect of social media metrics on TPP and social sharing intentions may disappear upon exposure to fact-checking information. Based on this logic, we propose the following hypothesis:

> H4: The effect of social media metrics on TPP and social sharing intentions will be moderated by fact-checking information, such that the effect will be attenuated when the news is debunked by fact-checking information.

Study 1

Method

Participants

A total of 261 participants (157 men; M age = 38.36; SD = 10.10)[1] were recruited from Mechanical Turk (MTurk), a crowd-sourcing platform. Participants were self-selected into the MTurk database and received $1 for participating in this online experiment. Participants were randomly assigned to one of two conditions: either viewing the news with or without debunking, fact-checking information. A series of analysis of variance (ANOVA) and Chi-square tests found no significant demographic differences between conditions ($p = .840$ for age; $p = .154$ for gender; $p = .378$ for income; $p = .223$ for education; $p = .247$ for ethnicity). Thus, randomization was deemed successful.

1 Although some meta-analyses found strong effect sizes for the perceptual component of TPE (e.g., Paul, Salwen, & Dupagne [2000], $r = .50$; Sun et al., [2008]; $r = .65$), others focusing on the behavioral component of TPE found much more modest effects (e.g., Xu & Gonzenbach [2008], median $r = .15$; 95% CI, .12–.20). Given our focus on the behavioral outcome, there could be power concerns for both studies. Our power calculations showed that sufficient power was achieved for both studies ($1 - \beta > .99$ for both studies; Study 1, $N = 261$, $r_{\text{TPP-Behavior}} = -.535$; Study 2, $N = 398$, $r_{\text{TPP-Behavior}} = -.297$; both calculations assumed two-tailed testing with $\alpha = .05$). We thank an anonymous reviewer for bringing our attention to this point.

Design and procedure

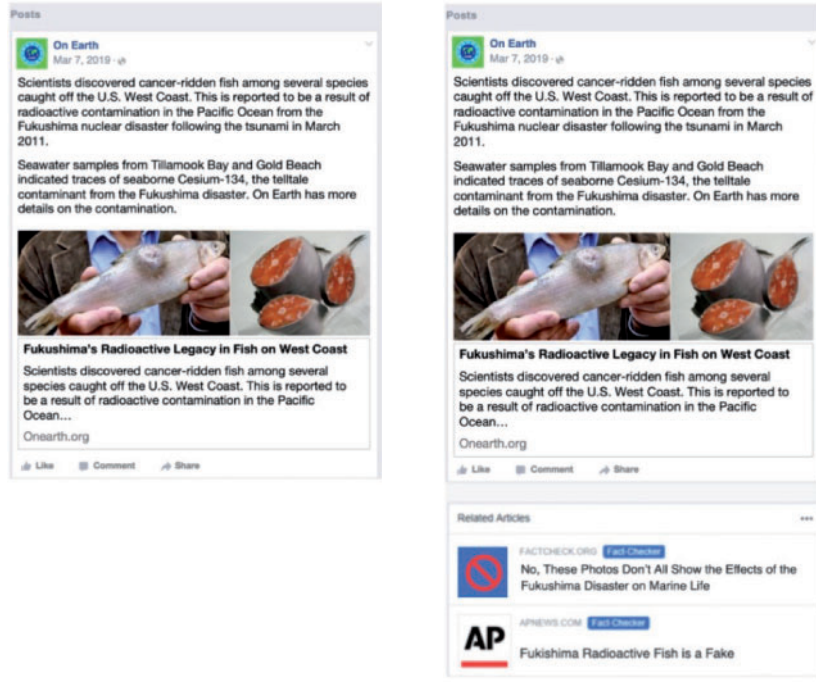
Upon providing online consent, participants completed a pretest questionnaire that asked about their news consumption on social media, concern for nuclear radiation, prior exposure to the posted news, and frequency of sharing news on social media.[2] Participants then read a fake news story about Fukushima nuclear radiation that was sampled from false information circulating on social media but was slightly modified for clarity (see Figure 1 for stimuli). The story was presented as a Facebook post by a fictitious environmental organization, *On Earth.* The posting started with a paragraph summarizing scientists' findings about cancer-ridden fish due to radioactive contamination. It then mentioned the radioactive contaminant detected in the fish, with pictures of the fish as well as a link to a more detailed story. In the fact-checking condition, headlines from FactCheck.org ("no, these photos don't all show the effects of Fukushima disaster on marine life) and The AP Fact Check ("Fukushima radioactive fish is a fake") were displayed beneath the posting. We presented two fact-checkers to (a) boost the power and visibility of this manipulation, since a single fact-check might be less noticeable than two presented together; and (b) control for any potential effect of preexisting attitudes toward any specific fact-checking organization. After seeing the story, participants filled out a posttest questionnaire that measured the perceived quality of the news story, perceived influence of the story on the self and others, and intentions to share the news story on social media. Then they were debriefed that the story was false information circulating online.

Main measures

To measure the perceived quality of news, participants were asked to indicate how well the following words described the news story (Chung, 2017; Slater & Rouner, 1996; Sundar, 2000): accurate, believable, clear, comprehensive, factual, fair, informative, important, objective, well-written, and biased (the latter was reverse coded;

2 Participants' news consumption on social media was measured with the following question: "in a typical day, how much time do you spend reading news on social media?" (1 = never/almost never, 2 = less than 30 minutes, 3 = less than an hour, 4 = 1–2 hours, 5 = more than 2 hours; $M = 2.41$; $SD = 1.01$). Participants indicated their existing concern for nuclear radiation on a 0 to 100 scale (0 = not concerned at all, 100 = very much concerned; $M = 39.05$; $SD = 33.15$). In order to avoid a potential priming effect, concern for other risks (e.g., carcinogen, chemicals, microplastics) was measured at the same time. Prior exposure to the given fake news was measured by asking participants whether they had heard about or seen the news story before (1 = no, 2 = not sure, 3 = yes; $M = 1.27$; $SD = .61$). To assess the frequency of sharing news on social media, participants indicated how often they share news on social media (1 = never, 7 = all the time; $M = 3.01$; $SD = 1.85$).

(**a**)



(**b**)

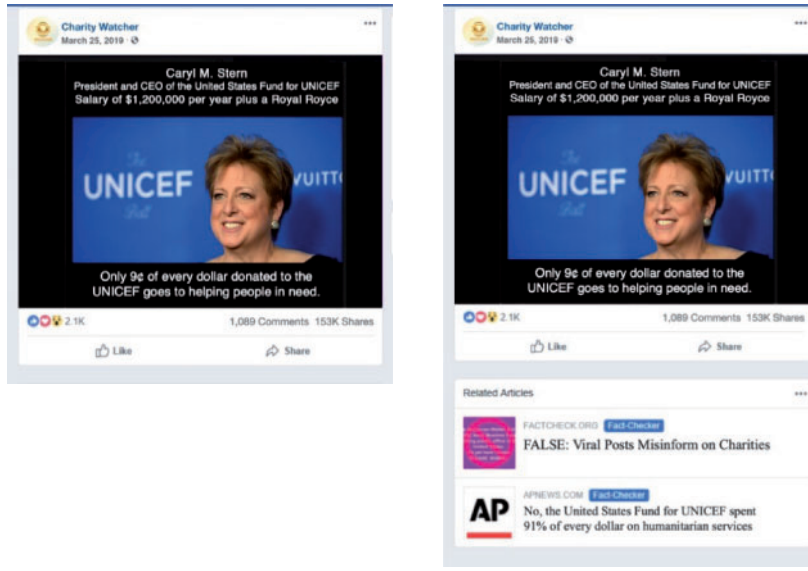


Figure 1 Sample stimuli. (a) Study 1; (b) Study 2.

1 = described very poorly, 7 = described very well; $M = 4.23$; $SD = 1.59$; Cronbach's $\alpha = .96$). A higher mean score indicates higher evaluations of the news quality.

To assess the perceived influence of the news story on the self, participants answered the following questions: "the story had an influence on me," "the story made me more concerned about the issue," and "the story made me take the issue more seriously" (1 = not at all, 7 = very much; $M = 3.80$; $SD = 2.13$; $\alpha = .98$). Perceived influence on others was measured using the same three items, with "me" replaced by "average people" ($M = 4.54$; $SD = 1.48$; $\alpha = .96$). Then, a TPP indicator was computed by subtracting perceived influence on the self from perceived influence on others ($M = 0.73$; $SD = 1.76$).

For intentions to share the news story on social media, participants indicated the degree to which they agree with the following statements (Lee & Ma, 2012): "I intend to share the news story via social media," "I expect to share the news story via social media," and "I plan to share the news story via social media." (1 = strongly disagree, 7 = strongly agree; $M = 2.75$; $SD = 2.17$; $\alpha = .99$). Higher scores indicated a greater intention to share the story on social media.

Study 1 Results

Manipulation check

To ensure that the experimental manipulation performed as intended, participants were asked to indicate to what extent they agreed with the following statement: "the news story was fact-checked by a third party" (1 = strongly disagree, 7 = strongly agree). An independent-sample t-test showed that participants in the fact-checking condition ($M = 5.29$; $SD = 1.96$) indicated that the news story was fact-checked more than those in the non–fact-checking condition ($M = 3.36$; $SD = 1.99$; $t[259] = 7.91$; $p < .001$). Hence, the manipulation was deemed successful.

Hypothesis tests

To examine whether reading a news item with debunking fact-checking information (vs. without fact-checking information) leads to lower evaluations of news quality (H1), we ran a one-way ANOVA. Results found that those who read the news without fact-checking information perceived the news to be more credible ($M = 4.68$; $SD = 1.39$) than those who read the news with debunking fact-checking information ($M = 3.74$; $SD = 1.68$; $F[1, 259] = 24.20$; $p < .001$; partial $\eta^2 = .09$). Hence, H1 was supported.

To test whether reading the news with debunking fact-checking information leads to greater TPP as compared to reading the news without fact-checking information (H2), we first ran a one-way ANOVA, and found that those who read the news with debunking fact-checking information reported greater TPP ($M = 1.04$; $SD = 1.70$) than those who read the news without fact-checking information ($M = 0.43$; $SD = 1.78$; $F[1, 259] = 8.04$; $p = .005$; partial $\eta^2 = .03$). While this result

itself rendered support for H2, we additionally ran a 2 (fact-checking status: news without fact-checking information vs. news with debunking fact-checking information) x 2 (perceived influence: self vs. others) mixed-model repeated-measures ANOVA to identify what drives the change in TPP. We focused on two possibilities: (a) people do not admit the influence of the news on themselves and thus decide not to share the news; or (b) they are concerned that more people would be influenced by fake news if the news spreads further. We found a significant interaction between fact-checking and self-other ratings for media influence ($F[1, 259] = 8.04$; $p = .005$; partial $\eta^2 = .03$). In the non–fact-checking condition, participants perceived that others ($M = 4.51$; $SD = 1.54$) were influenced by the news more than themselves ($M = 4.08$; $SD = 2.05$), but the discrepancy between the self-other rating was moderate. In contrast, in the fact-checking condition, TPP greatly increased; participants perceived that the news had much greater influence on others ($M = 4.56$; $SD = 1.42$) than the self ($M = 3.52$; $SD = 2.18$; see Figure 2a). Data suggest that the increased TPP is largely due to reduced media influence on the self, rather than increased media influence on others. Implications of this finding are further discussed in the discussion section.

To examine whether increased TPP as a function of fact-checking information leads to weaker intentions to share the news on social media (H3), a simple mediation test was run using a PROCESS macro, with fact-checking status as an indirect variable (Independent variable (IV); 0 = news without fact-checking information, 1 = news with debunking fact-checking information), TPP as a mediator, and social sharing intentions as a direct variable (dependent variable (DV); Hayes, 2013, Model 4). The analysis revealed that fact-checking information decreased social sharing intentions via TPP (indirect effect = −0.39; bootSE = 0.14; 95% bias-corrected 5000 bootstrap CI, −.66 to −.13; $R^2 = 0.28$; $F[1, 259] = 7.35$; $p = .007$; see Figure 3a). Hence, H3 was supported.

Study 2

Study 1 examined how fact-checking information influences individuals' presumptions of media influence on the self and others and, subsequently, their intentions to share the news on social media. Study 2 replicated and extended Study 1 by incorporating the social media metrics factor in the experimental design. We added social media metrics to the model, because fake news often receives a large number of likes, shares, and comments due to its novelty and virality (Vosoughi et al., 2018). At the same time, social networking sites treat social media metrics as an important indicator of content popularity. Hence, it would be quite rare for individuals to view fake news on social media without any likes or shares. To better reflect such real-world context, we conducted Study 2 to investigate whether fact-checking information interacts with social media metrics in influencing social sharing intentions and, if so, why.

Figure 2 Main effects of fact-checking information on perceived media influence. (a) Study 1; (b) Study 2.

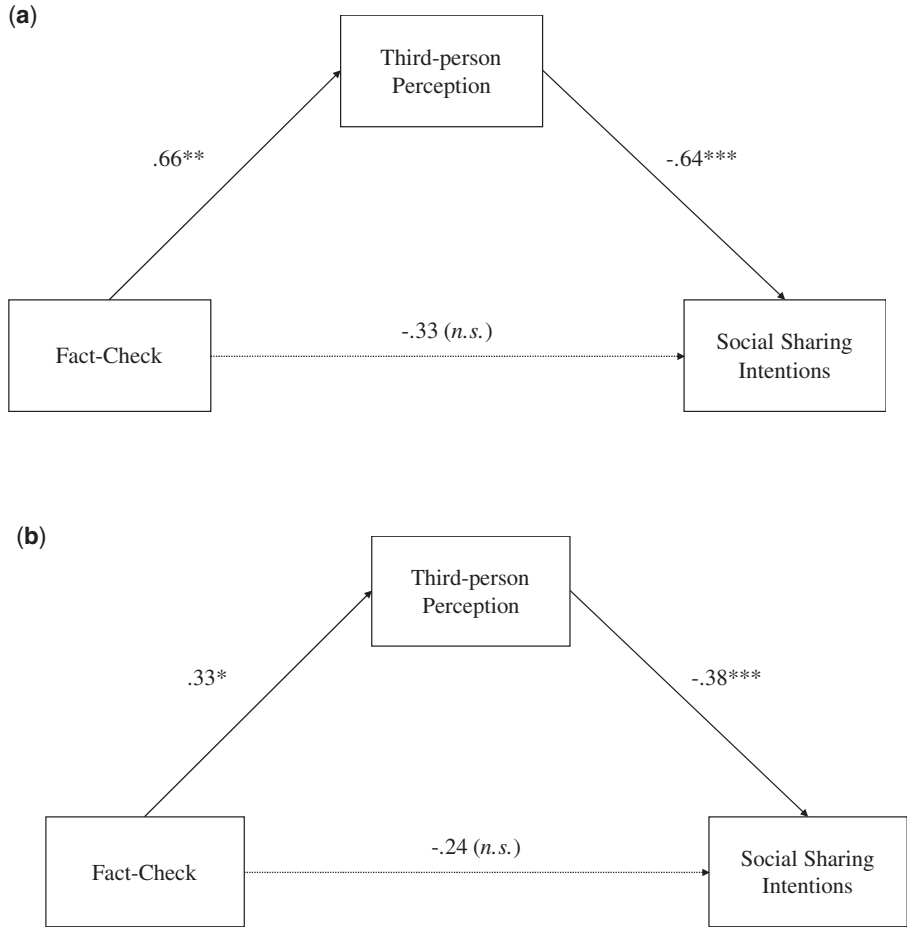


Figure 3 Third-person perception mediates the effect of fact-checking information on social sharing intentions. (a) Study 1; (b) Study 2. The no–fact-checking condition served as the baseline category. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Method

Participants

A total of 398 participants (95 men; M age = 44.97; SD = 13.39)[3] were recruited from the *Qualtrics* online panel. Participants were randomly assigned to one of four conditions: news without fact-checking information x low social media metrics; news without fact-checking information x high social media metrics; news with debunking fact-checking information x low social media metrics; and news with debunking fact-checking information x high social media metrics. A series of ANOVA and Chi-square tests found no significant demographic difference between

3 See footnote 1.

conditions ($p = .293$ for age; $p = .647$ for gender; $p = .479$ for income; $p = .343$ for education; $p = .744$ for ethnicity).

Design and procedure

Study 2 followed the same general protocols as Study 1. A pretest questionnaire measured participants' news consumption on social media, attitudes toward charitable organizations, prior exposure to the posted news, and frequency of sharing news on social media.[4] Participants then read a fake news story about United Nations Children's Fund (UNICEF). The posting was adopted from false information circulating on social media. This time the story was presented as a Facebook posting by a fictitious non-profit organization, *Charity Watcher*. The posting started with a sentence emphasizing the excessive salary and benefits received by Caryl M. Stern, the President and CEO of the United States Fund for UNICEF. It then showed a picture of the President and mentioned that only 9 cents of every dollar donated to UNICEF goes to helping those in need. In the fact-checking condition, headlines from FactCheck.org ("False: viral posts misinform on charities") and the AP Fact Check ("no, the United States Fund for UNICEF spends 91% of every dollar on humanitarian services") were displayed underneath the posting (Figure 1). The social media metrics icons displayed 2.1K likes, 1,089 comments, and 153K shares in the high social media metrics condition and 0 likes, 0 comments, and 2 shares in the low social media metrics condition. The specific numbers of social media metrics were determined by monitoring the typical numbers of high and low social media metrics accompanying news stories on Facebook over a 3-day period.

Main measures

All measures were identical to Study 1 (see Table 1 for descriptive statistics).

Study 2 Results

Manipulation checks

To ensure that the experimental manipulations performed as intended, participants were asked to indicate to what extent they agreed with the following statements: "the news story was fact-checked by a third party" and "the story was liked and shared

4 All measures are identical to Study 1, except for existing attitudes toward charity organizations. Participants indicated to what extent they agreed with the following statements: "the money given to charities going for good causes," "much money donated to charity is wasted" (reverse-coded), "my image of charitable organizations is positive," "charitable organizations have been quite successful in helping the needy," and "charitable organizations perform a useful function in society" (1 = strongly disagree; 7 = strongly agree; $M = 5.09$; $SD = 1.18$; $\alpha = .84$).

Table 1. Descriptive Statistics by Experimental Condition

	Perceived News Quality	Perceived Media Influence on the Self (a)	Perceived Media Influence on Others (b)	Third-Person Perception: (b) – (a)	Social Sharing Intentions
Study 1					
News only	4.68	4.08	4.51	0.43	3.11
	(1.39)	(2.05)	(1.54)	(1.78)	(2.22)
Fact-check	3.74	3.52	4.56	1.04	2.39
	(1.68)	(2.18)	(1.42)	(1.70)	(2.07)
Study 2					
News only	4.37	4.93	5.08	0.15	2.83
	(1.31)	(1.86)	(1.38)	(1.45)	(2.07)
Fact-check	3.88	4.51	4.96	0.46	2.46
	(1.38)	(1.77)	(1.29)	(1.60)	(1.91)

Note: Cell entries are means, with standard deviations in parentheses.

many times" (1 = strongly disagree; 7 = strongly agree). An independent-sample *t*-test showed that participants in the fact-checking condition ($M = 5.23$; $SD = 1.72$) reported higher scores on the first question than those in the news-only condition ($M = 3.43$; $SD = 2.15$; $t[395] = -9.21$; $p < .001$). Also, participants in the higher social media metrics condition ($M = 5.81$; $SD = 1.46$) reported higher scores on the second question than those in the lower social media metrics condition ($M = 4.17$; $SD = 1.81$; $t[395] = 9.94$; $p < .001$). Hence, the manipulations were deemed successful.

Hypothesis tests

To test H1, a one-way ANOVA was conducted. Results showed that those who read the news without fact-checking information evaluated the news to be of higher quality ($M = 4.37$; $SD = 1.31$) than those who read the news with debunking fact-checking information ($M = 3.88$; $SD = 1.38$; $F[1, 397] = 13.17$; $p < .001$; partial $\eta^2 = .03$). Hence, H1 was confirmed.

To test H2, we ran a one-way ANOVA, and found that those who read the news with debunking fact-checking information reported greater TPP ($M = 0.46$; $SD = 1.60$) than those who read the news without fact-checking information ($M = 0.15$; $SD = 1.45$; $F[1, 397] = 3.96$; $p = .047$; partial $\eta^2 = .01$). We additionally ran a 2 (fact-check status: news without fact-checking information vs. news with debunking fact-checking information) x 2 (perceived influence: self vs. others) mixed-model repeated-measures ANOVA to identify what drives the change in TPP. We found a significant interaction effect between fact-checking and self-other ratings for media influence ($F[1, 397] = 3.96$; $p = .047$; partial $\eta^2 = .01$). In the no–

fact-checking condition, TPP was modest; participants perceived that others ($M = 5.08$; $SD = 1.38$) were influenced slightly more by the news than themselves ($M = 4.93$; $SD = 1.86$). However, in the fact-checking condition, the discrepancy between the self-other rating greatly increased; participants perceived that the news had more influence on others ($M = 4.96$; $SD = 1.29$) than themselves ($M = 4.51$; $SD = 1.76$; see Figure 2b). Hence, H2 was confirmed. As with Study 1, the data suggest that the increased TPP is largely due to reduced media influence on the self, rather than increased media influence on others. The implications of this finding are further discussed in the discussion section.

To examine H3, a simple mediation test was run with fact-checking status as an IV (0 = news without fact-checking information, 1 = news with debunking fact-checking information), TPP as a mediator, and social sharing intentions as a DV (Hayes, 2013, Model 4). The result supported H3; fact-checking information decreased social sharing intentions via TPP (indirect effect = -0.13; bootSE = 0.06; 95% bias-corrected 5000 bootstrap CI, -.25 to -.01; $R^2 = 0.08$; $F[1, 395] = 3.32$; $p = .069$; see Figure 3b).

To explore how the effects of fact-checking information interact with social media metrics in influencing TPP and social sharing intentions, we ran a moderated mediation test using a PROCESS macro (Hayes, 2013, Model 8), with fact-checking status as an IV (0 = news without fact-checking information, 1 = news with debunking fact-checking information), TPP as a mediator, social sharing intentions as a DV, and social media metrics (0 = lower social media metrics, 1 = higher social media metrics) as a moderator. As shown in Figure 4a, we found a significant interaction between the fact-check status and social media metrics on TPP; when there was news only, those who viewed the news with higher social media metrics reported a significantly smaller TPP than those who viewed the news with lower social media metrics ($p = .025$). However, when the news was debunked by fact-checking information, exposure to higher social media metrics, as compared to exposure to lower social media metrics, did not lead to a smaller TPP ($p = .502$; $R^2 = 0.03$; $F[3, 393] = 3.32$; $p = .018$; see Figure 4a). More importantly, fact-checking information nullified the effect of social media metrics on social sharing intentions; in the no–fact-checking condition, participants who read the news with higher social media metrics reported significantly greater intentions to share the news on social media than those who read the news with lower social media metrics ($p = .011$). In contrast, in the fact-checking condition, exposure to higher social media metrics did not lead to greater social sharing intentions than exposure to lower social media metrics ($p = .403$; $R^2 = 0.11$; $F[4, 392] = 11.87$; $p = .000$; see Figure 4b). Based on these relationships, the full conditional mediation model is depicted below (see Figure 5).

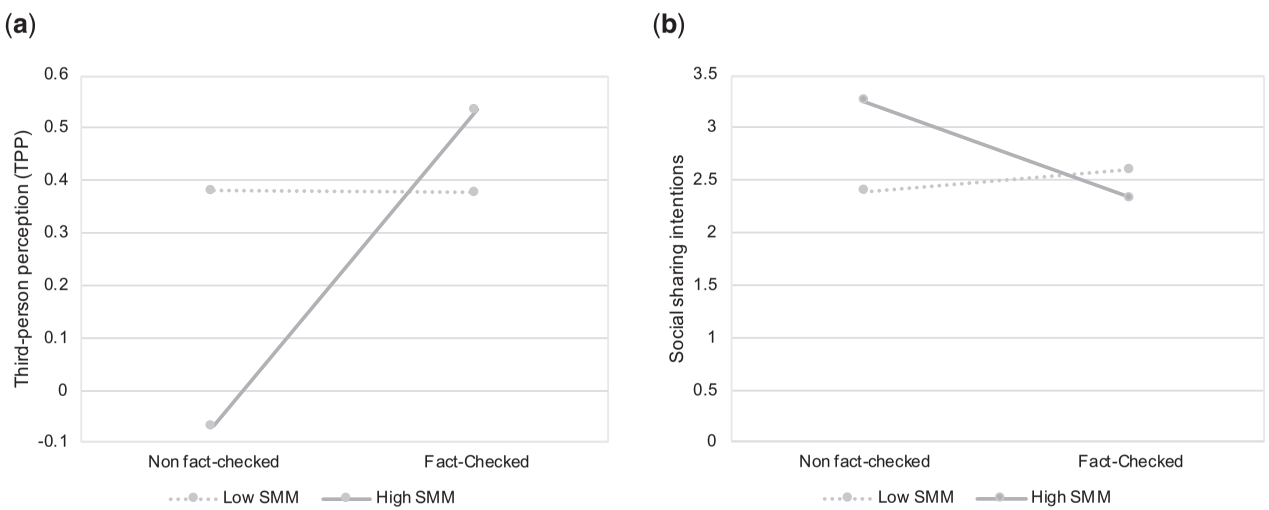


Figure 4 Interaction effect of fact-checking and social media metrics on TPP and social sharing intentions. (a) TPP; (b) sharing intentions. TPP = third-person perception.

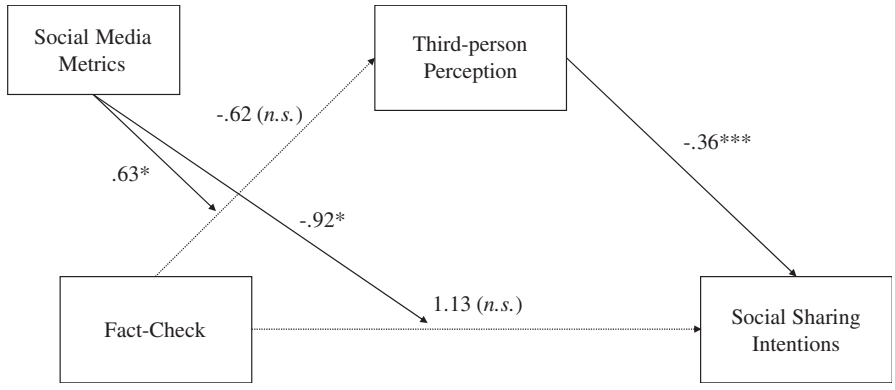


Figure 5 Conditional indirect effect of fact-checking on social sharing intentions via TPP. The no–fact-checking condition and the lower social media metrics condition served as baseline categories. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$. TPP = third-person perception.

Discussion

The current study investigated whether fact-checking information could lessen the spread of fake news on social media and, if so, why. Two experiments found that participants who viewed a fake news story on Facebook without fact-checking information perceived the news to be more credible, accurate, and informative, and presumed that they were influenced by the news to a similar extent as others. However, when the fake news was debunked by fact-checkers, participants evaluated the news to be of lower quality and presumed that others were more influenced by the news than themselves, demonstrating classic TPP. Greater TPP as a function of exposure to fact-checking information, in turn, led to weaker intentions to share the news on social media. Fact-checking information also nullified the power of social media metrics in influencing TPP and social sharing intentions; when there was no fact-checking information, those who viewed fake news with higher social media metrics (vs. lower social media metrics) reported reduced TPP and greater intentions to share the news with their social networks. However, when fact-checking information debunked the fake news, higher social media metrics did not yield differential levels of TPP and social sharing intentions than lower social media metrics.

Theoretical and practical implications

This study provides a novel theoretical explanation for the psychological mechanism underlying the fact-checking effect on social sharing intentions. We found that a perceived discrepancy in media influence on the self and others (i.e., TPP) accounts for individuals' intentions to share fake news on social media; fact-checking information alerted people that the news they read was fake and thus increased TPP. Increased TPP, in turn, led individuals to be less likely to share the news on social media. One notable point is that increased TPP as a function of fact-checking was largely due to reduced media influence on the self (PME1), rather

than increased media influence on others (PME3); PME3 increased only a bit upon learning that the news was fake, but PME1 decreased greatly. It suggests that fact-checking may make participants resist the influence of low-quality media content (i.e., fake news) on themselves, and such a perception was the driving force of behavioral intentions. This finding could be a meaningful addition to the debate over the role of PME1 and PME3 in predicting behavioral outcomes (Baek, Kang, & Kim, 2019; Chung & Moon, 2016); some scholars (Chung & Moon, 2016; Gunther & Storey, 2003) have argued that PME3, not PME1, is the key predictor of changes in attitude and behavior, while others (Baek et al., 2019) have highlighted that PME1 and PME3 interactively influence behavior. However, these studies focused only on restrictive actions (e.g., censorship, fake news regulation) as the behavioral outcome; thus, it remained unknown how PME1 would influence other behavioral outcomes. By elucidating the processes through which PME1 affects promotional actions, such as social sharing, the current study not only confirms that Gunther and Storey (2003)'s assertion that PME1 is not a necessary part in discussing the presumed media effects was erroneous (Baek et al., 2019), but also advances our understanding of the diverse psychological mechanisms behind different behavioral outcomes of TPP.

Another intriguing finding of the current study concerns the interaction of fact-checking and social media metrics on TPP and social sharing intentions. In previous studies, high social media metrics (i.e., large number of likes and shares) were found to reduce the self-other discrepancy in perceived media influence and to subsequently increase intentions to share the media content on social media, as people took high social media metrics as a bandwagon cue (Chung, 2017; Chung, 2019; Stavrositu & Kim, 2014). However, our finding suggests that fact-checking information invalidates the power of social media metrics; when participants did not recognize that they read fake news (i.e., no fact-checking information provided), they were susceptible to the influence of social media metrics in presuming media influence and shaping social sharing intentions. In contrast, when participants were informed that the news they read was false, their estimates of media influence and social sharing intentions were not swayed by the number of likes or shares. It is possible that participants interpreted social media metrics differently when they learned the news was false. That is, the fact that a fake news story has been liked and shared by many people could signal a wider reach of harmful content, which in turn led to a different presumption of media influence and, subsequently, different actions. Future research that directly measures how people interpret social media metrics accompanying fake news would provide a more complete understanding of the interaction between fact-checking and social media metrics.

This study also has important practical implications for social networking sites, news organizations, or other professionals who work towards stemming the massive diffusion of fake news online. Our data show that exposure to fact-checking information debunking fake news leads to weaker intentions to share the news. This finding is particularly important in light of the growing skepticism towards fact-

checking (Brandtzaeg, Følstad, & Chaparro Domínguez, 2018); given the inconsistent findings regarding the effectiveness of fact-checking in correcting misbeliefs from fake news (see Walter & Tukachinsky, 2019), some social networking sites and news organizations even considered abandoning fact-checking or limiting the scope of fact-checking (Issac & Kang, 2020). However, our findings suggest that fact-checking discourages people from sharing fake news on social media, if it does not correct public misperceptions in the short term. Given that one of the ultimate goals of fact-checking is to regulate the spread of fake news, our empirical evidence can be a meaningful step toward such a goal. At the same time, our findings suggest that we cannot hold a naive expectation that people will naturally detect fake news and take necessary actions (i.e., not sharing fake news on social media) without fact-checking information; thus, we should continue efforts to debunk rumors and correct false information.

This study also carries meaningful implications for today's social media–driven media landscape. The fact that fake news is often accompanied by high social media metrics due to its virality (Vosoughi et al., 2018) has been particularly alarming; if people see that a certain fake news story has been liked and shared many times, without knowing that the story is false, such a heuristic cue may create a perception that the story has been widely accepted by others and thus lead people to follow the trend (i.e., share the news on social media), as suggested by the bandwagon effect (Simon, 1954). However, our finding that fact-checking information can nullify the effect of social media metrics on sharing intentions suggests that the effectiveness of fact-checking can be even more prominent in the social media context.

Limitations and future research

This study has some limitations worth noting. First, in testing the effects of fact-checking on social sharing intentions, we only measured participants' intentions to share the news story, but not their intentions to share the fact-checking information. Although the results suggested that participants are less likely to share a news story debunked by fact-checkers, they may have different thoughts about sharing the fact-checking information, apart from the fake news itself. A future study that separately measures intentions to share the news story and the fact-checking information would provide a more complete picture of the fact-checking effects on social sharing intentions. Second, because we recruited only U.S. samples to test our hypotheses and research question, some considerations need to be given to the possibility that the results are specific to the examined population. For instance, in some collectivistic cultures where people tend to care more about what others think (Hofstede, Hofstede, & Minkov, 2010), individuals' reaction to social media metrics, with or without fact-checking information, in presuming media influence might display a different pattern than our findings. Third, our study did not examine potential moderators that might alter the direction or magnitude of the fact-checking effect on TPP and social sharing intentions. For instance, the effects of fact-

checking on social sharing intentions might be more or less prominent among those who have stronger needs to lead opinions or seek a leader status among peers, as compared to those who do not have such tendencies. Future studies that consider various factors that can determine the strength of fact-checking effects would further expand this line of research. Lastly, we presented two fact-checking reports together to enhance the visibility of fact-checking information, as well as to control for any preexisting attitudes toward a specific fact-checking organization, but each fact-checker may exert a differential impact on news consumers' perceptions. Future research that explicitly measures how participants perceive each fact-checker would provide a more comprehensive understanding of the effect of fact-checking information.

Conclusion

Although fact-checking has been discussed as an important means to combat the massive diffusion of fake news, what role fact-checking plays in stemming news consumers' sharing of fake news on social media, and through which psychological processes such an effect occurs, remains understudied. Also, little is known regarding how the effect of fact-checking interacts with other contextual cues provided in social media, such as social media metrics. Guided by third-person effects, the current study elucidated how fact-checking information accompanying fake news increases the discrepancy in perceived media influences on the self and others, and how such perceptions subsequently weaken individuals' intentions to share the news on social media. Our findings carry notable implications for theory and practice related to fake news and fact-checking.

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