Journal of Retailing and Consumer Services 51 (2019) 72–82

Contents lists available at ScienceDirect

Journal of Retailing and Consumer Services

journal homepage: www.elsevier.com/locate/jretconser

Why do people share fake news? Associations between the dark side of social media use and fake news sharing behavior

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ARTICLE INFO

Keywords:
Cross-sectional study
Fear of missing out (FoMO)
Self-disclosure
Social comparison
Social media fatigue and trust

ABSTRACT

The current study examines the associations of the dark side of social media use and fake news sharing behavior among social media users. A large cross-sectional data from 1022 social media users are collected to test the research model, formulated using social comparison theory, self-determination theory, rational choice theory and seminal work on psychology and communication. The study results suggest that online trust, self-disclosure, fear of missing out (FoMO), and social media fatigue are positively associated with the sharing fake news (intentionally). In contrast, social comparison has a negative association. The study findings also indicate that online trust has negative association with authenticating news before sharing. The study concludes with some implications for policy makers and marketers that could be useful in protecting society and brands from the perils of the misuse of social media and fake news.

1. Introduction

Online social media have drastically transformed how information is shared and assimilated by individuals, communities, and firms (Dhir et al., 2018a; Dhir et al., 2018a; Dhir et al., 2017). Globally, firms are using social media to augment their sales revenue by reaching out to new customers and enhancing the existing customers' experience (Movsisyan, 2016; Yadav et al., 2015). Firms not only use social media as a tool for their marketing campaigns (Baum et al., 2018), but also extend it beyond marketing to drive innovation (Torres de Oliveira et al., 2019). However, as extant literature evidences, there is a dark side of online social media as well. The Barilla case provides crucial insights into the negative impact of the social media as the CEO's controversial comments received a negative backlash on social media, plunging the firm into a brand crisis (Coffee, 2013). More recently, Elon Musk's (The CEO of Tesla, SpaceX, and The Boring Company) tweets and related Facebook posts adversely affected Tesla's stock price, leading to lawsuits by its investors and investigations by the regulators (Matousek, 2018). Another instance of a brand being affected by news going viral on social media was the Volkswagen case, where many negative comments were made on social media after the emission scandal (Litsa, 2016).

Though, electronic WOM spread across social media can help a firm enhance its reputation and performance (Loureiro et al., 2018; Nisar et al., 2019), yet at the same time, Pace et al. (2014) argue that the exposure to social media intensifies the word of mouth (WOM) and that the reactions of consumers exposed to brand issues on social media are more negative as compared to those exposed through traditional media. Hennig-Thurau et al. (2013) observe that social media exposure has the potential to negatively impact brands since customers have the freedom to share their bad experiences and other issues related to brands. Similarly, Kohli et al. (2015) also argue that social media has the ability to strengthen or kill a brand.

The threat of the viral spread of genuine issues (e.g., concerns and complaints) on social media is quite worrisome, but at least in such instances, the firms can try to resolve these issues to some extent. However, the spread of rumors and issues which are totally fabricated may make firms feel completely helpless, as such situations are beyond their control. At present, the actual and more serious threat is posed by fake news stories spreading issues on social media that are non-existent.

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https://doi.org/10.1016/j.jretconser.2019.05.026
Received 1 February 2019; Received in revised form 22 May 2019; Accepted 28 May 2019
Available online 05 June 2019

For instance, in 2016, threats were made to boycott Pepsi over a viral fabricated statement in social media discussing the hostility shown by PepsiCo CEO to Trump supporters (Gupta, 2016). Another company, New Balance, also had to face the anger of anti-Trump groups after it was falsely named as the official brand associated with Trump's campaign (Gupta, 2016). These instances raise concerns because, in the current era of Web 2.0, consumers play a more active role in the diffusion of marketing information by creating and disseminating electronic WOM via online social media (Mahapatra and Mishra, 2017).

Any fake news shared by the consumers can have damaging consequences by negatively impacting the brand. It becomes a graver concern in the light of the fact that any news, true or fake, can spread like wildfire in online social media and go viral very quickly (Bessi, 2017; Popat et al., 2017). The situation has been aggravated due to the fact that, in many countries, news is now accessed mainly on online social media platforms like WhatsApp and Facebook (Fletcher and Nielsen, 2017). These platforms have often been disparaged for not only helping, but indeed boosting the spread of fake news (Caplan et al., 2018). The threat of fake news is quite imminent as it possible for firms, governments, and even individuals to generate and disseminate information (or news) to serve their own agendas to a large audience quickly through social media (Chayko, 2017). Facebook and WhatsApp have initiated many measures to prevent the misuse of their platforms for willful spread of fake news. For example, in July 2018, in India, WhatsApp removed the 'quick forward' button, started labeling of messages as 'forwarded' messages, and limited the users' ability to forward any item to only five groups at a time (Bhattacharya, 2018).

Despite the damaging effects of the spread of fake news on online social media, it is largely not known as to why people continue to share fake news. Our review suggests that prior literature lacks theoretical frameworks on understanding fake news sharing behavior (knowingly or unknowingly) that takes into account the very nature of social media. Recent study by Marwick (2018) utilizes a sociotechnical model of media effects to explain that people share fake news guided by their pre-existing beliefs, media affordances and the structuring of messages. Newhoff (2018) argues that, to better understand why people share fake news deliberately or unintentionally, further sociological or psychological inquiry is categorically required.

The current study bridges this gap as it tries to examine the empirical associations between the dark side of online social media and fake news sharing behavior of social media users. A framework of fake news sharing behavior of consumers was developed by identifying certain behaviors and manifestations associated with social media usage. As fake news sharing is a negative aspect of online social media, it can be anticipated to have association with other negative aspects related to social media use. The disagreeable social media behaviors that adversely impact users (e.g., performance, productivity, wellbeing) have often been referred to as the dark side of social media (Baccarella et al., 2018; Dhir et al., 2018a,b,c; Dhir et al., 2016a; Dhir et al., 2016b). Some of the commonly discussed negative outcome behaviors in the context to social media are compulsive social media use (Dhir et al., 2015), social media fatigue (SMF hereinafter) (Bright et al., 2015; Dhir et al., 2018a,b,c), fear of missing out (FoMO hereinafter) (Blackwell et al., 2017) and social comparison (Nesi and Prinstein, 2015). In addition to the negative manifestations, the behaviors related to the very nature of social media use were also considered, namely, self-disclosure (Bazarova and Choi, 2014) and online trust (Grabner-Kräuter and Bitter, 2013).

The developed framework was tested with a large cross-sectional data of 1022 WhatsApp users. The independent variables were dark side of social media (FoMO, social comparison, and SMF), and social media use (online trust and self-disclosure). The current study presents one of the first empirical investigations into the association of the dark side of social media, social media use and fake news sharing behavior. The novelty of this study is that it explores the links between some of the key aspects of social media use that have attracted the interest of scholars. However, these associations were not empirically modelled in the past. Furthermore, to the best of our understanding, no prior study on fake news has utilized structural equation modelling (SEM) to model the fake news sharing behavior. The study concludes with some key theoretical implications for researchers and practical implications for managers and policy makers.

2. Literature review

2.1. Fake news

Fake news is defined as online falsehoods formatted and circulated in a way as to make them appear authentic and legitimate to the readers (Mustafaraj and Metaxas, 2017). While fake news has always been present in some form or another for centuries, it is more popular now than ever, as shown by the recent research (Dewey, 2016). The interest of scholars in studying it has also increased during the past few years. A large number of the existing fake news studies are conceptual and qualitative (e.g., Jin et al., 2016; Mustafaraj and Metaxas, 2017; Shu et al., 2017). For example, Mustafaraj and Metaxas (2017) study the details of the use of anonymous Twitter handles to spread misinformation about an electoral candidate, Martha Coakley, to understand the spread of fake news on social networks. The study reveals that the news was spread through the infiltration of groups of users already conversing online in order to use them to share misinformation organically across their networks. There exist several empirical studies as well on fake news, but these are largely based on the analysis of newsfeeds, tweets and Facebook posts to understand the spread of fake news (e.g., Jang et al., 2018; Shin et al., 2018). Shin et al. (2018) analyze tweets representing rumors related to politics that were tweeted and shared on Twitter during the 2012 U.S. election, collected in real time from January 2012 through January 2013. The study reveals that rumor has a tendency to reverberate and resurface many times after the initial publication, whereas the factual news does not come up again and again. Jang et al. (2018) analyze a large number of tweets about both fake and real news related to the 2016 US Presidential election from January 1, 2016, to April 30, 2017. The study reveals that ordinary Twitter users had generated the fake news root tweets, but these tweets included links to dubious news websites. The study also highlights differences between the evolution of real and fake news stories.

Most of the other prior empirical studies are based on text analysis using time series, examination of the root content, writing style analysis of hyper partisan, analysis of sharing history of the identified fake story, evaluation of the information presented in the form of tweets, comments and articles, and randomized controlled trial of political mobilization messages (e.g., Allcott and Gentzkow, 2017; Bond et al., 2012; Potthast et al., 2017). In a study based on survey data encompassing 12 US states and 8000 school and college students, researchers found that most respondents were unable to distinguish between fake and real information (McGrew et al., 2018). There is a gap as far as studies related to behavioral aspects of sharing fake news by social media users are concerned.

2.2. Dark side of social media

Social media has a dark side to it which is looming larger by the day, and it is damaging the freedom and wellbeing of communities and individuals (Baccarella et al., 2018). Scholars argue that these platforms promote socially vindictive behavior, e.g., self-promotion, emotional coldness, duplicity, aggressiveness, self-objectification, and narcissism (Fox and Rooney, 2015; Garcia and Sikström, 2014). These negative aspects of social media significantly influence cognitive, emotional, social, and mental health outcomes (ImmordinoYang et al., 2012). Furthermore, negative aspects of social media also pose a threat to our society and the firms at large. Some of the prominent negative impacts

include online firestorms and hate propagation (Rost et al., 2016), feeling of being tired at work and work–life conflicts (van Zoonen et al., 2017) and the spread of online gossip or fake news, which threatens the existence of firms (Allcott and Gentzkow, 2017). Given the importance of spreading fake news in impacting firms and consumers, this study aims to explore these associations.

There exists only limited understanding of the association between the use of social media and spread of fake news. For example, Blackwell et al. (2017) suggest that FoMO significantly leads to compulsive social media usage. But, it is not clear if compulsive social media use or FoMO are positively associated with fake news sharing behavior. An understanding of such relationship may provide insights into the strategies that can be used by managers and regulators to protect their brands and cull the viral spread of damaging news online, respectively.

2.3. Online gossips and fake news

In evolutionary psychology, gossip has been described as strategies people use to influence others (Guerin, 2003). Over the years, scholars have maintained that gossip is useful in promoting social cohesion and information transmission (Dunbar, 1996; Konnikova, 2011; Okazaki et al., 2013). The sharing of gossip has acquired a more interesting connotation in the age of Web 2.0. The nature of social media is participatory, whereby people make new acquaintances and strengthen connections with existing friends through online interactions (Dewan and Ramaprasad, 2014). Group protection, status enhancement, social bonding, peer identification, and feeling of belonging to a group may be seen as factors that motivate people to engage in gossip (Boyer O'Leary et al., 2014; Lyons and Hughes, 2015).

Online gossip and sharing of online fake news have some connections as both involve sharing of information. The rise in instances of sharing malicious fake news in social media has become a great concern, especially since a notable number of users rely on social media for news, e.g., as high as 62% (Gottfried and Shearer, 2016). The perils of fake news spread are also highlighted by the fact that, in a recent study, a large percentage of people recalled believing the fake news they saw during the US Presidential election in 2016 (Allcott and Gentzkow, 2017). The volume and speed of information being transmitted on social media make it virtually impossible to detect its credibility quickly, thereby underscoring the urgency of developing efficient systems to spot fake news (Tacchini et al., 2017). Despite this, we still lack exploratory empirical studies examining the different antecedents of sharing of fake news by social media users guided by an intrinsic need to gossip. The current investigation tries to contribute to this scarce literature.

2.4. Theories

Many theories of psychology, theorized well before the advent of social media, seem to explain various aspects of social media behavior quite well. For instance, social comparison on social media can be understood in the context of social comparison theory (Festinger, 1954), rational choice theory (Becker, 1976) and self-determination theory (Deci and Ryan, 1985). These theories have been used in the current study to hypothesize relationship between social media behaviors of consumers and fake news sharing.

Social comparison theory (SCT): It was formulated to explain how individuals form beliefs and opinions about their capabilities and the drive they possess to evaluate their own abilities (Festinger, 1954). SCT theorizes that, when people are not able to evaluate their abilities on their own, they resort to comparing themselves with others. Such comparison gives them a sense of validation and cognitive clarity. Furthermore, such comparisons produce more accurate assessments when the target of comparison is similar to the person making the comparison. The theory also discusses two types of comparisons, namely, upward and downward comparisons. Festinger (1954) postulated that, when a person is highly motivated, he would tend to engage in upward comparison, that is, compare himself with people who are better than him. This represents the motivation for self-evaluation and self-enhancement. In contrast, an unmotivated person would resort to downward comparison, considering himself to be the best. The behavior of social comparison has been observed to be manifested in social media use also (Nesi and Prinstein, 2015).

Rational choice theory (RCT): It has its roots in economics, but is also used by other social scientists to analyze human behavior. The theory postulates that individuals make choices that tend to maximize their personal utility (Becker, 1976). Such choices are in their best self-interest possible and are outcomes of well-thought through alternatives and preferences. The theory also implies that the choices are made in specific context and may change with a change in the situation or beliefs. In a pure economics context, the theory considers rational choice to be the result of analysis of costs and benefits associated with each preference. It has been argued that rational choice theory is also manifested in social media use where consumers consciously decide to continue to use social media, anticipating positive outcomes rather than discontinuing its use on account of social media fatigue (Logan et al., 2018).

Self-determination theory (SDT): It provides a framework for the assessment of human motivation and personality (Deci and Ryan, 1985). It posits that people are active organisms who seek to evolve continuously in order to make coherent sense of self. But such natural inclination for growth does not operate automatically and needs social support to catalyze it. An obvious deduction of the theory, then, is that the social context and cultural factors are also capable of impeding the tendencies of psychological growth, initiative and active engagement. This would detrimentally impact the individual's wellbeing and quality of performance. Conversely, conditions supporting autonomy, competence and relatedness can enhance performance, creativity and diligence. In the context of social media, this theory seems to explain a prominent social media manifestation, FoMO. The need for relatedness and sense of belonging has been argued to be the main motivation driving FoMO (Beyens et al., 2016).

3. Research model and hypotheses

A conceptual model was proposed based on the seminal work available in the field of communication and psychology to hypothesize the relationship of the selected antecedents, namely, online trust, self-disclosure, FoMO, social comparison and SMF with sharing fake news and authenticating fake news before sharing online (Fig. 1). As far as the authors know, there is no prior theory-driven study using survey data to examine fake news sharing behavior; therefore, there is no a priori. Consequently, different theories that seemed relevant to social media behavior of users were consulted such as social comparison theory, self-determination theory and theory of rational choice, along with the related seminal work to develop the research model using different aspects of social media usage and fake news sharing behavior. Key constructs and the theories, seminal work and recent studies used to ground the associations between them are presented in Table 1.

3.1. Sharing fake news and online trust

Trust refers to the willingness to believe someone based upon positive expectations from his or her past behavior (Mayer et al., 1995). In an online environment, trust is built as an outcome of successful exchange of useful information (Grabner-Kräuter and Bitter, 2013). High level of online trust encourages people to provide more social support and take risks in sharing information (Krasnova et al., 2010; Lin and Liu, 2012). Consequently, online trust has emerged as an important aspect in a world where content is freely generated by users (DuBois et al., 2011). However, trust has not been examined as yet in the context of fake news sharing behavior. The only closely related available

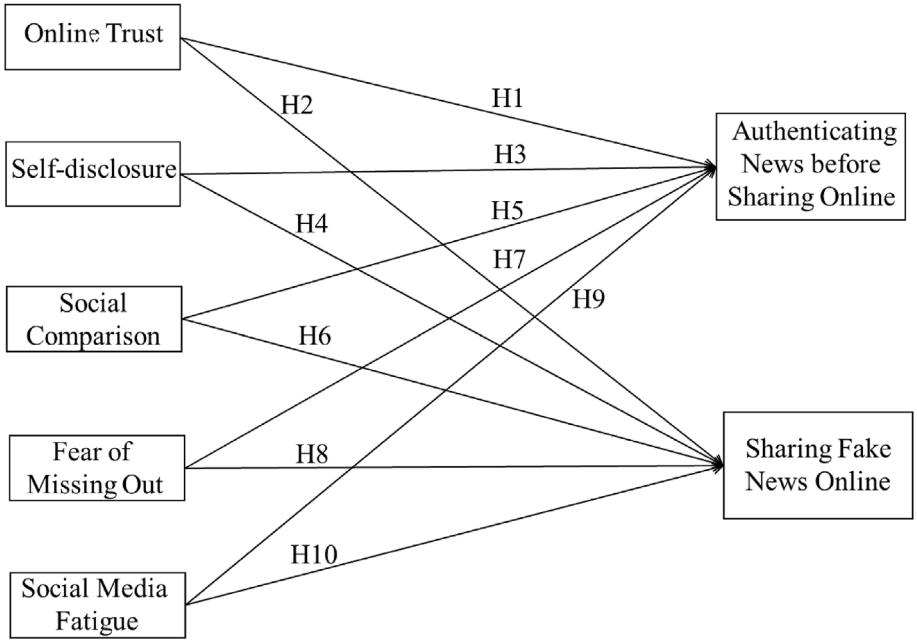

Fig. 1. Our research model.

study suggests that negative gossip (e.g., malicious, nasty, hurtful or fake information) is usually shared with someone the gossiper trusts (Grosser et al., 2010). The high level of online trust is likely to cause users to lend more support to the information shared with them by sharing it further on their social network. Consequently, the association between online trust and fake news sharing behavior can be anticipated. In the light of the above discussion, it can be argued that social media users having high trust in the information and news shared on WhatsApp are likely to share fake news with others and are less likely to authenticate the news before sharing. Furthermore, the high online trust can be anticipated to prevent users from authenticating news received from trusted sources since users feel comfortable to share any news received from trusted sources, even if they seem to be fake. Therefore, we propose:

H1. Online trust is negatively associated with authenticating news before sharing online

H2. Online trust is positively associated with sharing fake news online

3.2. Sharing fake news and self-disclosure

Self-disclosure represents sharing of personal information with others (Gibbs et al., 2006). It is usually motivated by the need to increase mutual understanding, strengthening relationships, and enhancing bonds among group members (Whitty and Joinson, 2009). Prior literature has linked self-disclosure with social purposes (Winter et al., 2014) and need for social connections (Buglass et al., 2017). Similarly, gossip is also a means for status enhancement and social bonding (Lyons and Hughes, 2015). Consequently, self-disclosure might also share an association with online gossip and fake news sharing behavior. For example, seminal work suggests that self-disclosure might be important in getting social support for gossip, as the life of gossip depends on the support it receives from those who share it (Eder and Enke,

Table 1
Constructs and theories.

Constructs	Type of antecedent	Theory	Seminal work	Recent studies
Online Trust → Fake news sharing and authentication	Social Media Behavior		Mayer et al. (1995)	DuBois et al., (2011); Grabner-Kräuter and Bitter (2013); Krasnova et al., (2010); Grosser et al. (2010)
Self-disclosure → Fake news sharing and authentication	Social Media Behavior		Eder & Enke (1991)	Buglass et al., (2017); Christofedes et al., (2009); Lyons and Hughes (2015); Whitty & Joinson (2009)
Social comparison → Fake news sharing and authentication	Dark side of social media	Social comparison theory (Festinger, 1954)	Keefer (1993); Suls (1977)	Cramer et al., (2016); Wert & Salovey (2004)
Fear of missing out → Fake news sharing and authentication	Dark side of social media	Self-determination theory (Deci and Ryan, 1985)	Baumeister & Tice (1990)	Alt (2015); Beyens et al., (2016); Blackwell et al. (2017); Nottingham Trent University (2016)
Social media fatigue → Fake news sharing and authentication	Dark side of social media	Theory of rational choice (Becker, 1976)	Lewis & Wessely,1992	Greenfield (2017); Lee et al., (2016); Logan et al., (2018); Marwick (2018); Ravindran et al. (2014)

1991). The need for popularity has also been identified as the driving force behind the online self-disclosure (Christofedes et al., 2009). Furthermore, it can also be anticipated that, in the light of gaining popularity or the attention of others, social media users may share news that is exciting and sensational, without any concern for its being fake or true. Due to this, we hypothesize that users who indulge in more self-disclosure are less likely to authenticate news before sharing, and be more inclined to share fake news.

H3. Self-disclosure is negatively associated with authenticating news before sharing online

H4. Self-disclosure is positively associated with sharing fake news online

3.3. Sharing fake news and online social comparison

Social comparison theory argues that individuals possess an intrinsic desire to gauge themselves through social comparisons and they also tend to make comparisons with others who seem similar (Festinger, 1954). Also, the need to keep up and compare oneself with others results in a drive to enhance oneself (Wert and Salovey, 2004). Online social media platforms have provided new and exciting means for people to practice social comparisons online (Cramer et al., 2016). For example, sharing travel stories and information about impressive purchases with online friends has become a trend (Lin et al., 2018). However, the need for enhancing oneself could blur the lines between reality and fiction, thereby making gossip a function of social comparison. This is in line with the seminal work in psychology which suggests that gossip is an indirect and painless method of obtaining information people need for comparison (Suls, 1977) and seeking social approval (Keefer, 1993; Suls, 1977). Consequently, two diverse behaviors related to sharing fake news can be anticipated from the social media users in their pursuit of social comparison. First, to gain social approval, the users may put in efforts to authenticate certain news or information which they perceive to be important to their social network. Second, to build a positive image in front of others and position them as having more authentic information than others, users may not share any news that may seem fake. Based on this anticipated behavior, we propose:

H5. Social comparison is positively associated with authenticating news before sharing online

H6. Social comparison is negatively associated with sharing fake news online

3.4. Sharing fake news and fear of missing out

Extant literature suggests that FoMO has its roots in various psychological insufficiencies in competence and relatedness needs, as discussed by Deci and Ryan (1985) in the self-determination theory. In their bid to overcome these deficiencies and seek relatedness, people tend to turn to online social media, as these provide consistent flow of social and informational rewards (Oulasvirta et al., 2011). In this context, the use of social media may reach a compulsive level, thereby linking FoMO to higher use of social media (Alt, 2015; Blackwell et al., 2017). FoMO can also be seen as a psychological reaction, like anxiety, that individuals may experience when they feel excluded from their social or peer groups (Baumeister and Tice, 1990). Therefore, seeking popularity and sense of belongingness are considered to be key drivers of FoMO (Beyens et al., 2016).

Scholars also describe FoMO as continuous anxiety or suspicion among social media users that others might have much more rewarding experience than them (Przybylski et al., 2013). A recent study by psychologists at Nottingham Trent University has linked FoMO with gossip sharing and found that FoMO made people more reckless online, making them vulnerable to harassment, critical comments, and gossip (Nottingham Trent University, 2016). This finding is in line with the seminal work also, which suggests that social exclusion (a likely cause of FoMO) may lead to a decrease in self-regulation and exacerbate undesirable behavior (Baumeister et al., 2005). To summarize, we argue that increased use of social media, heightened vulnerability and recklessness due to FoMO can be expected to cause users to share fake news. Furthermore, decreased self-regulation is less likely to motivate them to make any effort to authenticate news before sharing. Consequently, it is likely that users with high FoMO may not authenticate information before sharing and share fake news. Hence, we propose the following:

H7. FoMO is negatively associated with authenticating news before sharing online.

H8. FoMO is positively associated with sharing fake news online.

3.5. Sharing fake news and social media fatigue

SMF is defined as a subjective experience that comprises negative emotions such as anger, disappointment, tiredness, exhaustion, and reduced energy, resulting from continuous use of online social media (Ravindran et al., 2014). In the seminal literature, fatigue is argued to result in the impairment of mental and physical strength (Lewis and Wessely, 1992). The same outcomes are noticed in the case of SMF, as observed by Lee et al. (2016), who have linked SMF with lower interest, tiredness, and indifference. Since SMF is the result of information overload, upon experiencing fatigue, some users may have the intentions to hold back or even take a break from social media participation (Ravindran et al., 2014) or become selective in using it (Greenfield, 2017). Further, SMF also leads to more errors and negative outcomes like confusion or frustration (Logan et al., 2018).

Fatigued users can be expected to be less inclined to authenticate news before sharing, given their intentions to reduce the use of social media, combined with the increased susceptibility to make errors. Hence, we propose:

H9. Social media fatigue is negatively associated with authenticating news before sharing online

Additionally, due to the perceived usefulness of social media, fatigued users may not disengage from it completely. Instead, they may behave as postulated by the theory of rational choice (Becker, 1976) and use social media based on its expected utility. Such expected utility of being on social media will be based on a combination of users' preferences and required outcomes. It can be argued that, since preferences are linked to beliefs and beliefs are potent drivers of behavior (Heiphetz et al., 2013), fatigue may drive users to share selective information aligned with their pre-existing beliefs, as proposed by the sociotechnical model of media effects (Marwick, 2018). This can be interpreted to imply that the fatigued users, in their bid to continue to be on social media selectively, may share even fake news that they come across, if it is in accordance to their existing beliefs and helps them achieve their preferred social outcome. On the basis of above discussion, we hypothesize the following:

H10. Social media fatigue is positively associated with sharing fake news online

4. Data and method

4.1. Item pool development

Open-ended surveys with 88 WhatsApp users (65 females) with mean age of 21.58 years were conducted in Northern India. The open-ended surveys focused on their understanding of fake news, measures

taken by them to check the authenticity of the news and behavior patterns related to fake news circulation on social media platforms. The responses were analyzed using NVIVO 11 software (QSR International) to understand some key themes in the data (Corbin and Strauss, 2008). Following the standard practice of qualitative research, these themes were taken forward for analysis after finding adequate support in the literature to enhance their understanding, (Hesse-Biber and Leavy, 2010). The emerging themes and discussions with experts helped us to understand the behavior underlying sharing of fake news. The generated themes were: sharing news without authentication while believing it to be true; sharing news without authentication with no concern for its being true; deliberately sharing fake news as manifestation of some social media behavior, such as seeking popularity; sharing any news that seemed fake; and always authenticating any news before sharing. Intuitively, it emerged that a study on why people share fake news should cover not only behavior related to sharing fake news, but also the behavior related to authenticating news before sharing. This observation is also reinforced by the fact that recent studies related to fake news also discussed fact-checking and detection as important part of fake news circulation (e.g., Wang, 2017; Potthast et al., 2017; Rubin et al., 2015) as well as detection of fake online reviews (Munzel, 2016).

4.2. Data collection process

Data were collected from 1022 WhatsApp users in May 2018. The study participants were aged between 18 and 30 years and the average age of the respondents was 22.19 years (SD = 3.05). There were 73.7% female respondents [$N = 753$]. The study was advertised in three different public and private universities in Lahore, Pakistan. The target user group was briefed about the objectives and research questions were explained to them along with the implications of the study. The specific time slots for the survey answering session were advertised, and one of the authors of the study supervised and administered these sessions. Consent was taken from the study participants before administering the questionnaire. Also, the participation in the study was kept voluntary, anonymous, and confidential.

4.3. Data analysis methods

The collected data were analyzed using SPSS 23 (IBM Corp. 2017) and AMOS 23. It was confirmed that the measurement items were normally distributed as kurtosis and skewness were in the threshold limit of ± 1. Next, a two-step process was applied to test the research model. First, confirmatory factor analysis (CFA) for the measurement model was performed to examine the model fit indices and different forms of validity and reliability. Afterwards, the structural path and different hypotheses were assessed using structural equation modelling (SEM).

5. Results

5.1. Measurement model

The model consisted of five independent measures (online trust, self-disclosure, social comparison, fear of missing out, and social media fatigue) and two dependent measures (authenticating news before sharing and sharing fake news online). The measurement model returned an acceptable model fit as suggested by prior literature (Kline, 2016; Wang and Wang, 2012) (Table 2). Also, the factor loadings of the items related to each construct, as presented in Table 3, are above 0.60, which exceeds the conventional cut-off of 0.40, as suggested by Hair et al. (2010).

5.2. Validity and reliability

The validity of the study measures is confirmed using convergent and discriminant validity (Table 4). The value of average variance extracted (AVE) for all study measures is greater than the threshold limit of 0.50 (Kline, 2016), thereby confirming convergent validity. The study measures also possess sufficient discriminant validity because the square root of AVE for all given measures is greater than the corresponding inter-measure correlation, and correlation between any two given study measures is below 0.80 (Kline, 2016). Furthermore, maximum shared variance (MSV) and average shared variance (ASV) are less than AVE, which satisfies another condition for discriminant validity. The reliability of the study measures is also confirmed because the composite reliability (CR) for all study measures is above 0.70 (Table 4).

Table 2
Model fit indices for measurement and structural models.

Model Fit Indices							
Model	CMIN/DF	GFI	AGFI	TLI	CFI	NFI	RMSEA
Measurement model	6.28	0.94	0.90	0.90	0.93	0.92	0.07
Structural model	6.28	0.94	0.90	0.90	0.93	0.92	0.07

Note. Chi-square ratio degrees of freedom (CMIN/DF), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI) Goodness of Fit Index(GFI), Adjusted Goodness of Fit Index (AGFI), Normed Fit Index (NFI), Root mean square error of approximation (RMSEA).

We have also examined and confirmed that there are no multicollinearity issues representing inter-association among independent variables (O'brien, 2007). Further, in line with the recommendations of Pappas et al. (2017), the common latent factor technique and the CFA marker variable technique were applied to examine the potential common method bias. The study was not found to suffer from any such issue.

5.3. Structural model

The model was evaluated using SEM, and it also returned an acceptable model fit. This suggests that the structural model fits the data well (Table 2). The standardized regression coefficients measuring the hypothesized relationships and their respective probability values are presented in Fig. 2. The coefficient of online trust ($\beta = -0.17$; $p < 0.001$) is statistically significant (negative) in the context of authenticating news before sharing online. In comparison, online trust ($\beta = 0.43$; $p < 0.001$) shares positive and significant association with sharing fake news online. The self-disclosure shares significant (positive) association with both authenticating ($\beta = 0.31$; $p < 0.001$) and sharing fake news ($\beta = 0.09$; $p < 0.05$). Social comparison ($\beta = -0.11$; $p < 0.01$) shares significant (negative) and FoMO ($\beta = 0.17$; $p < 0.01$) shares significant (positive) association only with sharing fake news online. Finally, SMF is found to have statistically significant (positive) association with both authenticating ($\beta = 0.22$; $p < 0.001$) and sharing fake news ($\beta = 0.15$; $p < 0.001$).

The research model explains 17% variance in authenticating news before sharing and 36% variance in sharing fake news online (Fig. 2). In this study, the relatively low value of R^2 may be attributed to the field of the study. The values are, however, acceptable in line with the recommendation of Falk and Miller (1992), who argued that R^2 of 0.10 (i.e., 10% variance explained) or more would be adequate to judge variance explained of a particular endogenous construct. The view is supported by Hair et al. (2011), who contended that R^2 value of 0.20 should be considered high for studies related to consumer behavior.

6. Discussion

The present study has empirically examined the association between different aspects of social media use and fake news sharing behavior. Recent social media-based studies, interdisciplinary seminal literature

Table 3
Study measures and items factor loadings of measurement model.

Study Measure (Reference)	Measurement items	Factor loadings
Authenticating news before sharing[a]	I ask my friends to check the authenticity of any message before sharing	0.82
	I ask my family/relatives to check the authenticity of any message before sharing	0.81
	I rely on TV news channels to check the authenticity of any message before sharing it	0.63
Online trust (Fang et al., 2016)	I trust the information that is shared on WA	0.78
	I trust the news that is shared on WA	0.77
Self-disclosure (Krasnova et al., 2009)	I reveal a lot of information about me on WA	0.77
	My WA profile tells a lot about me	0.83
	I have a detailed profile on WA	0.71
Social comparison (Cramer et al., 2016)	I feel less motivated to use WA to avoid comparing myself to others	0.88
	I feel less motivated to use WA as I compare myself to others through WA use	0.81
Fear of missing out (FoMO) (Przybylski et al., 2013)	I fear others have more rewarding experiences than me	0.78
	I fear my friends have more rewarding experiences than me	0.71
Social media fatigue (SMF) (Karasek, 1979)	Due to WA use, I feel rather exhausted	0.76
	After using WA, it takes effort to concentrate in my spare time	0.83
	During WA use, I often feel too fatigued to perform other tasks well	0.83
Sharing fake news online[a]	I often share fake news because I don't have time to check its authenticity	0.87
	I share fake news because I don't have time to check facts through trusted sources	0.87

Note. WhatsApp = WA.
[a] Measures developed based on qualitative study.

Table 4
Validity and reliability.

	CR	AVE	MSV	ASV	ANO	SFO	OT	SD	SC	FoMO	SMF
Authenticating news before sharing online (ANO)	0.80	0.58	0.10	0.05	**0.76**						
Sharing fake news online (SFO)	0.86	0.76	0.29	0.13	0.18	**0.87**					
Online trust (OT)	0.75	0.60	0.29	0.14	0.04	0.54	**0.77**				
Self-disclosure (SD)	0.82	0.60	0.25	0.15	0.31	0.39	0.50	**0.77**			
Social comparison (SC)	0.83	0.71	0.19	0.09	0.19	0.18	0.34	0.31	**0.85**		
Fear of missing out (FoMO)	0.71	0.55	0.28	0.16	0.22	0.42	0.37	0.45	0.32	**0.74**	
Social media fatigue (SMF)	0.85	0.65	0.28	0.14	0.31	0.31	0.22	0.32	0.44	0.53	**0.80**

Note: Values in diagonal are the square root of AVE and the off-diagonal values are correlations.

and theories from psychology and communication were reviewed to build a comprehensive research model which was analyzed using cross-sectional data collected from university students. This study proposed ten hypotheses to examine online trust, self-disclosure, FoMO, social media fatigue, and online social comparison as the possible antecedents of authenticating news before sharing and sharing fake news online. The outcome of hypotheses testing is presented here.

H1 examined if negative association exists between online trust and

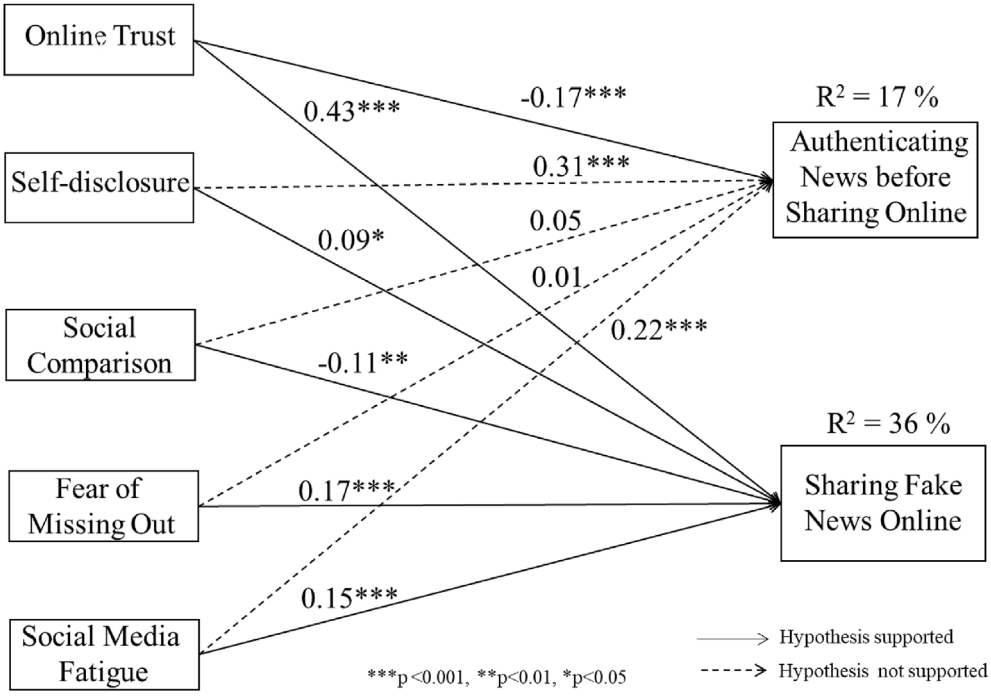

Fig. 2. The results of hypotheses testing.

authenticating news before sharing it online. The study findings support this hypothesis, which is consistent with the findings of Grosser et al. (2010). This finding implies that social media users with high trust in the content shared on WhatsApp are likely to share it with others without authenticating. Similarly, H2 examined if a positive association between online trust and sharing fake news online exists. This hypothesis is also supported. This is again consistent with Grosser et al. (2010) as well as prior literature, which suggests that users with high online trust do not hesitate to take risks in sharing information (Krasnova et al., 2010; Lin and Liu, 2012).

H3, which examined the negative association between self-disclosure and authenticating news before sharing it online, is not supported. In comparison, the result indicating a significant positive association between the two suggests that users who tend to engage in more self-disclosure may have tendency to authenticate news before sharing it. The possible reasons could be: First, as suggested by the prior literature, self-disclosure is motivated by a need to build connections and relationships (Buglass et al., 2017; Whitty and Joinson, 2009) and the sharing of unauthenticated news might adversely impact these objectives, i.e., mutual understanding and strong relationships. Second, gossip sharing behavior in offline and online space may be different (e.g., in an online forum, gossip can be recorded, unlike in offline channels), due to which findings of seminal work on gossip may not apply here (e.g., Eder and Enke, 1991).

H4, which examined the positive association between self-disclosure and sharing fake news online, is supported by the study findings. The finding is in line with the existing seminal work (Eder and Enke, 1991). This suggests that users with high self-disclosure are likely to share fake news online.

We hypothesized positive association between social comparison and authenticating news before sharing online via H5. The study findings did not support it, as no significant association was found. A possible reason could be that there is a more understandable link between gossip and social comparison (Suls, 1977), such that users may not see authentication of news as a way of enhancing self in comparison with others. However, the behavior may be much more complex and needs to be evaluated further before any conclusion can be drawn. The fact is that nonsignificant association between social comparison and authenticating news before sharing may indicate that there might be other mediating variables, which must be examined in future studies.

In comparison, H6, implying that social comparison is negatively associated with sharing fake news online, is supported by the study findings. A possible reason could be that social comparison is associated with the building of a positive image before others and sharing fake news can have damaging effect on the user's image. This behavior is anticipated as it has been argued by prior studies that social comparison leads to a drive to enhance oneself (Wert and Salovey, 2004). In this case, the users can be argued to be enhancing self by pursuing an image of a person who doesn't share fake news by endeavoring to not to share it.

H7 examined the negative relationship between FoMO and authenticating news before sharing online and it is not supported by the study findings. This finding is contrary to the expectation of decrease in self-regulation and increase in undesirable behavior (Baumeister et al., 2005) as a result of exclusion anxiety, which is one of the factors affecting FoMO. Similar to social comparison, future investigations should examine the mediating variables in the association of FoMO and authenticating news before sharing online. In comparison, H8 is supported, thus suggesting that FoMO is positively associated with sharing fake news online. The findings of H8 are similar to a recent study which argues that FoMO drives people to share gossip online (Nottingham Trent University, 2016).

H9, implying that SMF has a negative association with authenticating news before sharing it online, is not supported by the findings of the study. Rather, a significant positive association is found, which is contrary to the behavior anticipated in line with the findings of Greenfield (2017) and Logan et al. (2018). The finding suggest that authentication of news adds to fatigue because a user might have to browse several links to confirm if the news is real or fake.

H10, hypothesizing a positive association of SMF with sharing fake news online, is supported by the study findings. This implies that, in their desire to use social media despite fatigue, users may share fake news online, since it might serve as a quick way of remaining active without putting in much effort. Further, they might also share the news without realizing that it is fake. This finding is in line with the results of the study by Logan et al. (2018), who argued that SMF leads to more errors and confusion. Sharing of fake news by fatigued users is also as anticipated by the sociotechnical model of media effects (Marwick, 2018).

7. Study implications

7.1. Theoretical implications

The objective of this study is to investigate the association between different aspects of social media use and the fake news sharing behavior. This study has significant importance since it is one of the first to model the behavior of social media users in sharing fake news and authenticating it before sharing online. The study has brought together key constructs that have been identified by the prior studies as important factors shaping social media usage. The important implications of the study for scholars are as follows. First, the study findings advance the current limited understanding on online fake news sharing behavior. The findings will enable the scientific community to understand the factors that are positively and negatively associated with fake news sharing behavior. Fake news is becoming a large threat, and new knowledge of its dynamics can catalyze the formulation of effective strategies in protecting society and firms from the threat of fake news spread.

Second, the study findings have brought newer understanding on the association of the dark side of social media use and fake news sharing behavior. It is important to mention that no prior empirical study has examined such associations in the past. This new knowledge of the association of fake news, and social media use behavior can improve the understanding of marketers and analysts with regard to consumer behavior in the era of fake news and social media. The fear of the potentially damaging role of social media in spreading fake news about society and firms is alarming; making the current study findings significant as they provide a foundational knowledge and understanding of the association between the two.

Third, the study has grounded the antecedents and the dependent variables in the existing seminal work, popular theories like self-determination theory, theory of rational choice, social comparison theory, and related prior studies. Although prior literature on social media has used some of these theories to explain various aspects of behavior, this is the first time that these theories are being extended in connection to sharing fake news. By doing so, the study has opened the scope for the application of the proven existing work to the research in the new area of fake news, which is raising concerns across the globe. The fact that most of the hypotheses, grounded in the existing work, are supported provides basis for taking the exploration of these constructs further. Scholars can extend the conceptual model by exploring more complicated relationships of mediation and moderation to galvanize the research in the area further.

Fourth, the dependent variable related to the authentication of news before sharing, which was identified as a result of the qualitative study, requires deeper understanding. To this end, scholars can use the third-person effect hypothesis (TPE) (Davison, 1983) which argues that people believe that negative media messages influence others more and this perception causes them to act to protect others. The need to authenticate may be interpreted to stem from the perception that others may be impacted by fake news and, hence, it needs to be authenticated

before sharing. Furthermore, in contrast to the hypothesized expectations, the study findings indicated the existence of positive association of self-disclosure and SMF, respectively, with authenticating news before sharing it online. This finding also needs to be evaluated.

Fifth, FoMO, social comparison and other constructs analyzed in this study are manifestations of some underlying emotion (e.g., fear). Past studies related to consumer behavior have also emphasized the importance of emotions and acknowledged that the same have remained understudied (Pappas et al., 2014, 2017). Hence, this study contributes to the extant literature in the related areas.

Sixth, limited prior empirical literature on fake news is mainly focused on social media users from the Western world. In contrast, the current study is based on samples drawn from Asian social media users. Emerging economies based in Asia have evolved into an important geography for marketers worldwide, but studies related to their social media behavior remain limited. This study is expected to divert the attention of scholars to less-developed countries that represent mass market, as social media usage is diffusing rapidly there.

7.2. Practical implications

The current study has four main implications. First, this study has raised pertinent questions about the impact of the dark side of social media on sharing fake news online. The fake news shared online can have a potentially damaging impact on products and brands (e.g., PepsiCo, New Balance) (Gupta, 2016). Consequently, understanding how the socio-psychological aspects of interacting on online social media are associated with fake news sharing can provide insightful knowledge to the marketers. For example, since FoMO stems from a drive to seek belongingness and popularity (Beyens et al., 2016), marketers can introduce star rating of users who share informative reviews. Furthermore, study results suggest actionable alternatives for firms to minimize the negative fallout of social media behaviors on brands, e.g., focus on online trust and minimize fatigue, as these contribute to fake news sharing behavior.

Second, since online trust is important in sharing information received online, brands and firms should focus on utilizing WhatsApp groups to fight the menace of fake news. They could possibly motivate their loyal customers, who may also be influential members of a group, to share positive reviews about a brand or firm. This is important because group members are likely to trust the information they receive from the trusted group and may also become positively disposed towards the brand.

Third, this study has found that the need for positive image and popularity in social comparison prevents people from sharing fake news; thus, marketers can run contests among social media users for spotting and contradicting fake news related to their brands. Need for popularity may prompt consumers to actively seek and denounce fake news. This strategy will also create opportunities for self-enhancement for users, leading to upward social comparison (social comparison theory (Festinger, 1954)).

Fourth, since we found that social media fatigue causes users to share fake news, apps tracking screen time, and generating warnings can be made mandatory by policy makers in the interest of society as a whole. Further, campaigns with testimonials can be run to educate social media users on the dark side of social media uses to boost public wellbeing and protect the potential targets of fake news.

8. Limitations and further research

The current study has two main limitations. First, the study sample was selected from only one country, so generalizing the findings of the study to other geographies or cultural settings is difficult. Second, the study methodology was influenced by the cross-sectional design, which is prone to methodological biases. Furthermore, in cross-sectional design, causality is difficult to examine. Also, the low value of R^2 may be considered to be a limitation of the study, if interpreted in a general context where value of 0.75 is considered substantial (Hair et al., 2013). However, this is not really a limitation, as much lower values of variance explained are acceptable in consumer behavior studies (Hair et al., 2011). The low value of R^2 can also be interpreted as an indication of the need to study asymmetrical relations amongst the constructs analyzed by the present study.

We recommend that scholars should address the above limitations in future investigations. The study setup should be examined and validated by recruiting social media users from other countries. In addition, the dynamic and causal nature of relationship among these variables should be examined through longitudinal and experimental studies. Further, future research could examine the association of fake news sharing behavior with other social media use measures. Future research can also focus on uncovering the mediating and moderating effects of the independent variables and cultural differences, respectively, on authenticating news and sharing fake news online.

In view of the limitation regarding the low value of R^2, future researchers may study asymmetrical relations among these constructs by performing fuzzy set qualitative analysis (fsQCA) (Ragin, 2008), as applied by many recent studies (e.g., Pappas, 2018; Pappas et al., 2016; Woodside, 2014). The versatility of FsQCA lies in the fact that it gives multiple solutions to explain any outcome. Despite its limitations, the study contributes insightful knowledge and provides better understanding of the association of dark side of social media use and fake news sharing behavior.

Acknowledgement

We acknowledge the support received from the Academy of Finland mobility grants (Decision No 326066, 318452, 311191, 326065, 317752)

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jretconser.2019.05.026.

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