CUADERNOS.INFO Nº 49
Versión electrónica: ISSN 0719-367x
http://www.cuadernos.info
https://doi.org/10.7764/cdi.49.27437

Received: 03-23-2020 / Accepted: 04-19-2021

Psychosocial predictors of fake news exposure and diffusion in Costa Rica

Predictores psicosociales de la exposición y difusión de noticias falsas en Costa Rica

Preditores psicossociais de exposição e disseminação de notícias falsas na Costa Rica

Carlos Brenes Peralta, Universidad de Costa Rica, San José, Costa Rica (carlos.brenesperalta@ucr.ac.cr)

Rolando Pérez Sánchez, Universidad de Costa Rica, San José, Costa Rica (rolando.perez@ucr.ac.cr)

Ignacio Siles González, Universidad de Costa Rica, San José, Costa Rica (ignacio.siles@ucr.ac.cr)

ABSTRACT | This study examines the psychosocial and sociodemographic predictors of exposure, self-perceived capacity to recognize and diffusion of fake news among Costa Rican adults. A survey was conducted in May 2019, with a representative sample of 805 Costa Rican adults owners of mobile phones, with 67% women and a mean age of 38.83 (SD= 15.75). A random stratified sampling method was used. From an attitudinal perspective, results show a positive association between right-wing authoritarianism and the intentional diffusion of fake news in social media. From a motivational perspective, positive associations were found between a defensive motivation and fake news exposure in journalistic media and via WhatsApp, as well as associations between defensive and accuracy motivations with the self-perceived capacity to recognize fake news. Finally, women, people with higher education, and those with younger age were more exposed to fake news, while men and people with higher education perceived themselves as more capable to identify fake news.

KEYWORDS: fake news; exposure; recognition; diffusion; motivations; attitudes; Costa Rica.

HOW TO CITE

Brenes Peralta C., Pérez Sánchez, R., & Siles González, I. (2021). Predictores psicosociales de la exposición y difusión de noticias falsas en Costa Rica. *Cuadernos.info, (49)*, 215-238. https://doi.org/10.7764/cdi.49.27437

RESUMEN | *Este estudio investiga los predictores psicosociales y sociodemográficos de la exposición a noticias falsas entre adultos costarricenses, así como su autopercepción de la capacidad de reconocerlas y de difundirlas. Se condujo una encuesta representativa por muestreo estratificado aleatorio aplicada a 805 usuarios de teléfonos celulares en 2019, con un 67% de mujeres y una edad promedio de 38,83 (DT=15,75). En el ámbito actitudinal, los resultados muestran una asociación positiva entre el autoritarismo de derecha y la difusión intencional de noticias falsas en redes sociales. En el ámbito motivacional, se encontraron asociaciones positivas entre una motivación defensiva y la exposición a noticias falsas en medios de comunicación y vía WhatsApp, así como asociaciones entre motivaciones defensivas y de precisión con la autopercepción de la capacidad de reconocer noticias falsas. Las mujeres, las personas con mayor nivel educativo y las más jóvenes se exponen más a noticias falsas, mientras que los hombres y las personas con mayor educación dicen ser más capaces de identificar noticias falsas.*

PALABRAS CLAVE: *noticias falsas; exposición; reconocimiento; difusión; motivaciones; actitudes; Costa Rica.*

RESUMO | O estudo investiga os preditores psicossociais e sociodemográficos da exposição a notícias falsas entre adultos da Costa Rica, assim como sua autopercepção da capacidade de reconhecê-las e espalhá-las. Foi realizada uma pesquisa representativa com uma amostra estratificada aleatória aplicada a 805 usuários de celulares em 2019, com um 67% de mulheres e de uma idade média de 38,83 (desvio-padrão=15,75). No âmbito atitudinal, os resultados mostram uma associação positiva entre o autoritarismo de direita e a disseminação intencional de notícias falsas em redes sociais. No âmbito motivacional, foram encontradas associações positivas entre uma motivação defensiva e a exposição a notícias falsas na mídia e via WhatsApp, bem como associações entre motivações defensivas e de precisão com a autopercepção da capacidade de reconhecer notícias falsas. As mulheres, as pessoas com mais nível educacional e as mais novas são mais expostas a notícias falsas, enquanto os homens e as pessoas com mais nível educacional dizem ser capazes de identificar notícias falsas.

PALAVRAS-CHAVE: notícias falsas; exposição; reconhecimento; disseminação; motivações; atitudes; Costa Rica.

INTRODUCTION

The phenomenon of fake news has gained increasing academic and sociopolitical interest. Research and public discussion on the topic focus on the possible effects of its diffusion on political culture and democratic development, as well as on the socio-cognitive and communicative mechanisms that make it possible (Tong et al., 2020; Valenzuela, et al., 2021; Waisbord, 2018). In Costa Rica, fake news have played a preponderant role, due to their link with specific media events (Siles et al., 2021). Concern about Costa Ricans' interaction with fake content on Facebook is linked to three recent events: 1) citizen protests in 2019 that led to the resignation of the Minister of Public Education over a series of implemented policies, 2) the discussion in the legislative plenary about the importance of fake news as a democratic problem (2019 and 2020), and 3) the health emergency due to the coronavirus since March 2020 (Carazo et al., 2020). Fake news also came to public attention in Costa Rica when they served as an input for a xenophobic march against Nicaraguans in mid-2018 (Carazo et al., 2020).

The first fact-checking units in Costa Rica were created in 2018. Print media founded No Coma Cuento (*La Nación*) and *No se Vaya Pollo* (*La Teja*) in January 2018, in view of that year's electoral process. After the presidential elections, units such as *No Caiga* (*CRHoy.com*) and *Doble Check* (Universidad de Costa Rica) emerged. In 2019, public institutions established new initiatives to counteract the spread of fake news: the Presidency of the Republic of Costa Rica launched the platform *Gobierno Aclara* and the Supreme Electoral Tribunal established agreements with Facebook and Twitter on citizen literacy.

In this context, this study considers three aspects linked to fake news: the frequency with which people identify news that are not entirely true in media, social networks and WhatsApp, self-perception of the ability to recognize fake news, and whether people share news that they considered fake in social networks and WhatsApp. Specifically, we analyze psychosocial and sociodemographic predictors of exposure, self-perception of the ability to recognize fake news, and their dissemination among Costa Rican adults.

FAKE NEWS AS AN OBJECT OF STUDY

A major academic debate has focused on defining fake news. Up to twelve different definitions can be found. Egelhofer and Lecheler (2019) integrated the different definitions and proposed a conceptualization based on two dimensions. First, the genre of fake news, which consists of deliberately creating pseudo-journalistic disinformation, and second, the label of fake news, the instrumentalization of the term to delegitimize the media. This paper works from the first dimension.

The genre of fake news has three characteristics, which distinguish them from falsehoods, low quality journalism, or communication errors. A news item should be considered fake if, first, it possesses a low level of factuality. That is, even if a fake news has correct information, most of its content is fabricated or false (Tandoc et al., 2018). A second characteristic is that they mimic the form of journalistic news content. As a result, audiences may mistake fake news as genuine and credible (Mustafaraj & Metaxas, 2017). A third characteristic is that they are created from political, ideological, or financial motivations to deliberately mislead an audience (Tandoc et al., 2018) (see figure 1).

Fake news are commonly discussed in the context of the study of disinformation and misinformation. While disinformation consists of incorrect or biased information that is deliberately disseminated, misinformation refers to incorrect or biased information disseminated unintentionally (Lazer et al., 2018). Therefore, the concept of fake news is best placed within the disinformation literature. Concepts such as disinformation, rumors, conspiracy theories, and propaganda can be classified as fake news if they meet the three aforementioned characteristics (Egelhofer & Lecheler, 2019).

Research on fake news has revolved around two major axes: exposure and diffusion. The first is interested in understanding issues of *exposure*, i.e., "the extent to which audience members have encountered specific media messages or classes of messages/content" (Slater, 2004, p. 168). In the case of fake news, exposure refers to the dynamics involved in the reception of news perceived as fake (Tandoc, Ling et al., 2018; Wagner & Boczkowski, 2019). It privileges how people relate to content labeled as fake, how they receive it, and how they interpret it. This research has shown that acceptance of fake news varies across individuals. For example, belief in fake news has been associated with dogmatism and religious fundamentalism (Bronstein et al., 2019). For De keersmaecker and Roets (2017), the effectiveness of corrective strategies to counteract the negative effects of fake news on cognitive factors is greater in people with more advanced cognitive abilities.

A second research axis seeks to understand the dynamics of fake news dissemination and reach among different segments of the population. They place fake news in a broader context of production, circulation, and consumption (Hoffman et al., 2019). According to these studies, a first factor conditioning dissemination is access to specific technologies. These works focus on the role of algorithms in the way certain content acquires visibility in some social groups (Diakopoulos, 2019). More recent research highlights the growing importance of WhatsApp as a vehicle for spreading fake news, given its increasing use as a news medium (Newman et al., 2019; Valenzuela et al., 2021). They also conclude that psychosocial factors condition the spread of fake news.

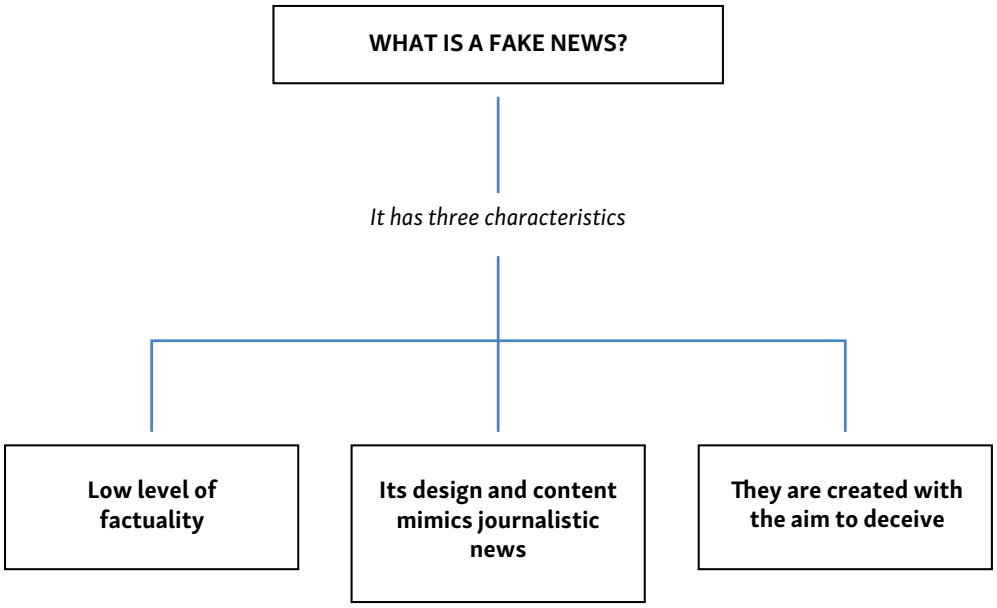

Figure 1. Defining features of fake news

Source: Own elaboration.

This study considers crucial to evaluate the role played by conservatism and its psychosocial characteristics in recognizing and disseminating fake news. Studies on the electoral processes of Donald Trump in the United States and Jair Bolsonaro in Brazil associate attitudes and discourses linked to conservatism with the dissemination of fake news (Van der Linden et al., 2020; Ituassu et al., 2019; Da Silva & Larkins, 2019). Other authors have found this correlate in a non-electoral framework (Guess et al., 2019), so its study at the local level allows us to contribute to the understanding of the genesis of the dissemination of this type of news in Costa Rica.

PSYCHOSOCIAL AND SOCIODEMOGRAPHIC PREDICTORS OF FAKE NEWS EXPOSURE AND DISSEMINATION

This research associates psychosocial variables –personality factors and cognitive mechanisms– with the three aspects of fake news. The first domain examines personality aspects, specifically conservative attitudes or those that legitimize authoritarian attitudes and social hierarchies, for accepting fake news. The second domain, motivational, is linked to cognitive mechanisms that favor the acceptance and reproduction of fake news, where what matters is to be informed and to evaluate the information received.

Authoritarianism, social dominance, and fake news

Authoritarianism is understood as a product of unrestricted obedience to authorities (authoritarian submission), resorting to punishment as a legitimate means of social control (authoritarian aggression), and endorsing a traditional system of norms (conventionalism) (Altemeyer, 1981, 1996, based on the authoritarian personality theory of Adorno et al., 1950). Thus, authoritarian persons advocate punishment during childhood, deplore leniency in the courts, and believe that penal reforms only encourage criminals to continue committing illegal acts (Altemeyer, 1996).

Social dominance considers that human social organization tends to be hierarchically structured. It implies that one group is placed in a hegemonic position, with an intrinsic value in possessing political and social power and privileged access to socioeconomic resources and social welfare (Pratto et al., 1994). These groups construct social and historical discourses that allow them to legitimize social asymmetries and justify what they consider inferior groups (Sidanius et al., 2004).

The constructs right-wing authoritarianism and social dominance are related, but not are not synonymous. Social dominance refers to the support of anti-democratic attitudes that legitimize structural inequality. In contrast, authoritarianism focuses on defending values associated with traditional societies, where religion plays a central role in giving meaning to such values (Bilewicz et al., (2017); Crowson & Brandes (2017); Pérez Sánchez et al., (2020).

According to Pérez Sánchez and colleagues (2020), the presence of attitudes that support authoritarianism and social dominance in today's societies is linked to dissatisfaction with politics, which implies a generalized rejection of the actions of politicians, who are not fulfilling their role. This dissatisfaction, referred to by the authors as animosity towards politics, may vary according to government policies, the state of the economy, and the performance of state institutions (Montero et al., 2008).

Precedents on the relationship of these factors with fake news have shown that people with higher authoritarianism scores consume less diversity of news sources (Sindermann et al., 2020). Likewise, high authoritarianism and social dominance scores are associated with greater tolerance for the dissemination of fake content by ideologically close politicians (De keersmaecker & Roets, 2019).

The motivational dimension of fake news exposure and processing

Motivated reasoning theory has been important for understanding how the selection and processing of news content varies according to people's motivations (Taber & Lodge, 2006; Winter et al., 2016). This theory proposes that individual

motivations influence the cognitive processes people use to select and process information (Kunda, 1990). Motivation is defined as "any desire, wish, or preference that involves the outcome of a reasoning task" (Kunda, 1990, p. 480). There are two motivations that are considered central: defensive and accuracy (Leeper & Slothuus, 2014).

Defensively-motivated individuals select and process information to validate and protect their existing attitudes, beliefs, and behaviors (Kunda, 1990). They prefer and value more positively information that reinforces their desired conclusions, discrediting discordant information. In contrast, precision-motivated individuals use cognitive strategies to reach a conclusion about a specific topic. They process information objectively, regardless of whether it reinforces their own beliefs and attitudes.

The evidence on both motivations comes mostly from experiments. These studies have been complemented by correlational measures, which use surveys to capture the conceptual dimensions of motivations (Federico & Schneider, 2007). Several studies have suggested that, at the level of individual differences, the need for cognition is equivalent to an experimental manipulation of precision motivation (Nir, 2011; Cacioppo et al., 1996). This need is defined as the individuals' chronic tendency toward the enjoyment of cognitive activity involving effort (Cacioppo & Petty 1982; Cacioppo et al., 1996).

Instead, the operational definition of defensive motivation can be captured by the need to evaluate (Nir, 2011), the chronic tendency of people to form evaluative judgments and thoughts (Jarvis et al., 1996). The need to evaluate has been positively associated with more intense evaluation of political candidates (Bizer et al., 2002, 2004), greater partisan engagement, and less political ambivalence (Federico & Schneider 2007).

Several authors have applied motivated reasoning theory to the context of fake news. They argue that defensive motivation is an important factor in understanding why people pay attention to and believe that pro-attitudinal fake news are truthful (Beck, 2019). Furthermore, it has been suggested that fake news are influential in acquiring or reinforcing false ideas on various topics and that some people are resistant to explicit corrections of these ideas, due to the influence of cognitive biases in information processing that activate defensive motivation (Berinsky, 2017). This would explain why fact-checking would only have an effect when the correction of false ideas does not contradict a person's desired conclusion (Hameleers & Van der Meer, 2019). In contrast, other studies have found that people trained in media pedagogy strategies are influenced more by accuracy motivation –rather than defensive motivation– when processing fake news (Kahne & Bowyer, 2017).

No research was found that examined the relationship between need to evaluate –as a conceptual proxy for defensive motivation– and the need for cognition –as a proxy for accuracy motivation– with fake news. Nevertheless, it is considered relevant to study the relationship between both constructs with the three aspects of the study on fake news, given the applicability of the theory of motivated reasoning to explain the motivational dimension of the exposure, processing, and dissemination of news and fake news content, as well as the usefulness of need for cognition and need to evaluate to operationalize motivated reasoning in correlational studies.

Sociodemographic characteristics in the study of fake news

To contribute to understanding the acceptance and dissemination of fake news, along with the psychosocial dimensions, it is relevant to consider sociodemographic variables, specifically age, gender, geographic area of residence, and educational level. Age and geographic area matter, as they refer to forms of use and access to news content; they are associated with generational differences linked to the use of digital technologies, as well as with the prevailing gaps that limit access and use in rural areas. Educational level can affect the type of content consumed, the sources of information, and their evaluation. Regarding gender, it is necessary to investigate whether there are differences at the attitudinal level, or in the motivational factors that favor or limit the acceptance and dissemination of fake news.

Rampersad and Althiyabi (2020) found that age, rather than education or gender, explained the acceptance of fake news. Regarding education, they determined that higher educational attainment is associated with lower acceptance of fake news.

METHODOLOGY

Research questions

The guiding questions for this study were as follows:

Q1. What is the association between exposure, self-perceived ability to recognize and disseminate fake news, and endorsement of conservative attitudes, expressed in high scores for authoritarianism and social dominance?

Q2. What is the association between the three aspects of fake news and the motivational factors of news consumption linked to the need to evaluate and the need for cognition?

Q3. What is the relationship between the three aspects on fake news and people's age, gender, educational level, and geographical area of residence?

Participants

A total of 805 people were recruited from all over the country, within the framework of the 2017 National Household Survey that covers 97% of the population over 18 years of age in Costa Rica. A stratified random sampling was used, taking the National Numbering Plan of the Superintendence of Telecommunications (SUTEL, by its Spanish acronym) as the sampling frame. Individuals were contacted directly on their mobile phones and requested to participate in the study. As inclusion criteria, only people over 18 years of age and with Costa Rican nationality were interviewed. The collection was conducted from May 13 to 19, 2019, through telephone interviews during morning, afternoon, and evening hours. Sixty-seven percent of the sample are women, with an age ranging from 18 to 88 years (M=38.83, SD=15.75). Forty-two percent of the sample had primary education, 37% had secondary education, and 21% had university education. Considering a confidence level of 95%, a sampling error of ±3.45 percentage points is estimated.

Each respondent was informed that participation was voluntary, and that the data would be treated confidentially and anonymously. Once this was made clear, they were asked for their verbal agreement to participate in the survey. During the survey, control was maintained over the quotas corresponding to the national distribution by province, gender, and age (Instituto Nacional de Estadística y Censos, 2017). The education variable was weighted to balance the primary and secondary levels.

Instruments

The five instruments used 5-point Likert-type scales (1 = strongly disagree, 5 = strongly agree). To measure authoritarianism, we used the short version of Altemeyer's (1996) six-item Right-Wing Authoritarianism Scale. An example item is "God's laws on pornography, abortion, and marriage should be strictly followed, their transgressions should be punished". We obtained a Cronbach's Alpha of .79.

To study the legitimization of social hierarchies and inequality, we applied the Social Dominance Scale (Sidanius & Pratto, 1999), using a reduced version of eight items, composed of two subscales: four items that measure support for social hierarchies and four attitudes in favor of social equality. An example of the items corresponding to support for hierarchies is: "To get ahead in life, sometimes it is necessary to go over other people's heads". For attitudes in favor of equality: "We would have fewer problems if we treated different social groups more equally". An internal consistency coefficient of .66 (social hierarchy) and .68 (equality) was obtained.

To measure dissatisfaction with politics and politicians, we used the Animosity towards Politicians Scale (Pérez Sánchez et al., 2020), composed of 10 items on

a 5-point Likert scale. An example of the items is: "Politicians only want to take personal advantage of being appointed to government". A Cronbach's coefficient of .91 was obtained.

To study the need for cognition, we used the two-item short version developed by the American National Election Study (2013). The two items are "I prefer to solve complex problems rather than simple problems"; "I like having the responsibility of handling a situation that requires a lot of thinking". The measure obtained an internal consistency of .54.

The reduced three-item scale was used to measure the need to evaluate (Bizer et al., 2004). The three items are: "I have an opinion about almost everything"; "It is important for me to have an opinion about whether something is good or bad"; "It is very important for me to have a strong opinion". A Cronbach's alpha of .59 was obtained.

To measure exposure to fake news, we formulated a question to inquire about the frequency of exposure to fake news in the media, social networks, and WhatsApp. A 5-point response scale was used, ranging from never (1) to always (5).

To study the self-perception of the ability to recognize false news, a question was asked about the frequency with which the person manages to identify news that he/she considers not to be completely true, in the media, social networks, and WhatsApp. Likewise, a 5-point response scale was used, ranging from never (1) to always (5).

We inquired whether people shared news that they considered false. For this purpose, we directly asked whether they had shared news of this type on social networks or via WhatsApp. A dichotomous response, yes/no, was used.

Age, educational level, gender, and province of residence were considered as sociodemographic variables. For analytical purposes, age was recoded into three groups –18 to 34 years, 35 to 54 years, and 55 years and over. Education was recoded into three groups –primary, secondary, and university education. The variable with the seven Costa Rican provinces of residence was recoded into a dichotomous one: Central Valley, which includes living in the provinces of San José, Heredia, Alajuela and Cartago. The category outside the Central Valley includes the coastal provinces of Puntarenas, Limón, and Guanacaste.

As an analysis procedure, we performed basic general descriptive analyses and exploratory factor analyses. In addition, several hierarchical regression and logistic regression models were estimated using the Stepwise method to determine the relative impact of psychosocial and sociodemographic measures on exposure, self-perceived ability to recognize fake news, and dissemination.

RESULTS

Basic descriptive analysis

We began by examining trends in exposure to fake news. We asked about the frequency with which people tend to encounter news that are not completely true in media, social networks, and via WhatsApp. On average, on a scale of 1 to 5, respondents encountered fake news with equal frequency on social networks (M=3.02; SD=1.18) and in the media (M=2.96; SD=1.12). This average is similar to the frequency of exposure to fake news via WhatsApp (M=2.90; SD=1.25).

We also asked whether people shared news that they considered false. In the case of social networks, 81% said they did not and 19% did. The number is almost identical in the case of WhatsApp: 18% shared fake news and 82% said they did not.

Finally, 36% of the sample claimed to have a lot or too much ability to recognize fake news, 33% said they were somewhat able, and 30% considered they have little or no ability.

Predictors of exposure, self-perceived recognizability and dissemination of fake news

To determine the relative impact of psychosocial measures of exposure and self-perception on the ability to recognize fake news, considering age, gender, educational level, and geographic region as intervening variables, four hierarchical regression models were estimated using the Stepwise method. A hierarchical model was estimated for each dependent variable: exposure to fake news in media, exposure in social networks, exposure via WhatsApp, and self-perception on the ability to recognize fake news. The same predictors were used in each hierarchical regression. At the first level of regression, the need for cognition and the need to evaluate were included. At the second level, authoritarianism, animus toward politicians, social dominance, and egalitarianism were incorporated. At the third level, educational level, age, geographic region, and gender were included. The complete results of the regression models are presented in table 1. For reasons of space, the results of the third hierarchical level of each regression are described below.

Exposure to fake news in mass media was associated with high scores on need to evaluate (β=.09, p<.05) and a university education level (β=42, p<.01) –compared to primary studies, $R2$ (N=707) = .05, F(13.694)=2.73, p<.01).

A higher frequency of exposure to fake news in social networks was associated with people with university education –compared to those with primary education (β=.32, p<.01)–, people aged 18-24 years –compared to those aged 55 years or older (β =-.28, p<.01)–, and those of female sex (β=.21, p<.01), $R2$ (N=693) =.12, F(14.679) = 6.39, p<.01).

Exposure to fake news via WhatsApp is higher among people with high scores on the need to evaluate (β=.10, p<.05), low scores on social dominance (β=-.10, p<.05) and those with university education –compared to those with primary level (β=.57, p<.01), $R2$ (N=696) = .32, F(13.683) = 5.82, p<.01.

Higher self-perceived ability to recognize fake news was associated with male gender (β=.33, p<.01), with high school (β=.34, p<. 01) and university (β=.52, p<.01), as well as with high scores on the need for cognition (β=.09, p<.05) and the need to evaluate (β=.09, p<.05), $R2$ (N=706) = .36, F(13.693) = 7.77, p<.01).

To study the relative impact of the same psychosocial and sociodemographic measures on the spread of fake news on social networks and via WhatsApp, two logistic regression models were estimated using the Stepwise method. In each model, the three levels of regression were the same as those used in the hierarchical regressions. To facilitate the interpretation of the significant coefficients, the probability of sharing fake news was calculated from the probabilities' ratio (table 2).

The logistic model for predicting the dissemination of false news in social networks was not significant at the three levels. However, at the univariate level and when controlling for the impact of sociodemographic variables at the third level, the probability of spreading false news in social networks remained at 54% for people with high scores in authoritarianism (RM=1.17, p<.05).

Similarly, the three levels of the model for predicting the dissemination of false news via WhatsApp were not significant. In the second model, high scores in authoritarianism were associated with a 54% probability of sharing fake news via WhatsApp (RM=1.16, p<.05). However, authoritarianism did not remain as a predictor of the dependent variable at the third level.

	Criteria															
	EFNM				EFNSN				EFNW				SCRFN			
Predictors	**ΔR²**	**F gl**	**β**	**95% CI**	**ΔR²**	**F gl**	**β**	**95% CI**	**ΔR²**	**F gl**	**β**	**95% CI**	**ΔR²**	**F gl**	**β**	**95% CI**
Model 1	**.01**	**2.97(2.705)**			**.01**	**2.85(2.691)**			**.01**	**2.48(2.694)**			**.20**	**15.67**(2.704)**		
Need cognition			.04	-.04..12			.06	-.02..14			.04	-.04..12			.14**	.07..22
Need evaluate			.07	-.01..15			.05	-.03..13			.06	-.01..14			.11**	.03..19
Model 2	**.024**	**2.47*(7.700)**			**.04**	**4.10**(7.686)**			**.23**	**5.36**(7.689)**			**.26**	**7.12**(7.699)**		
Need cognition			.04	-.04..12			.06	-.01..14			.04	-.04..12			.14**	.07..22
Need evaluate			.09*	.01..17			.06	-.02..15			.10*	.02..19			.15**	.07..23
Authoritarianism			.04	-.05..13			.08	-.01..17			.01	-.08..09			-.01	-.09..08
Animus			-.04	-.11..04			-04	-.12..04			-.03	-.01..05			-.04	-.11..04
Dominance			-.04	-.12..03			-.12**	-.19.-.04			-.16**	-.24.-.08			-.10*	-.17.-.02
Egalitarianism			-.01	-.08..07			-.01	-.08..07			-.07	-.15..01			-.10*	-.17.-.01
Model 3	**.05**	**2.73**(13.694)**			**.12**	**6.39**(14.679)**			**.32**	**5.82**(13.683)**			**.36**	**7.77**(13.693)**		
Need cognition			.02	-.05..10			.02	-.06..10			.01	-.07..09			.09*	.02..17
Need evaluate			.09*	.01.017			.06	-.02..14			.10**	.03..19			.16**	.08..23
Authoritarianism			.05	-.03..14			.06	-.02..15			.03	-.06..11			-.01	-.09..09
Animus			-.02	-.10..06			-.02	-.10..06			-.01	-.08..07			-.02	-.10..05
Dominance			-.01	-.08..08			-.06	-.14..02			-.10*	-.18.-.02			-.06	-.13..02
Egalitarianism			.01	-.08..08			.01	-.07..08			-.05	-.13..02			-.07	-.14..01
Secondary			.22*	.02..42			.19	-.01..39			.17	-.02..37			.34**	.15..53
University			.42**	.21..64			.32**	.12..53			.57**	.36..77			.52**	.31..72
35-54 years			.01	-.16..18			-.07	-.23..09			.01	-.16..17			.03	-.13..19
55+ years			-.04	-.25..18			-.28**	-.49.-.07			-.17	-.38..05			-.03	-.24..18
Outside Valle Central			-.02	-.19..15			.03	-.13..20			.02	-.14..19			-.01	-.18..15
Mujeres			.10	-.04..25			.21**	.14..28			-.04	-.19..11			-.33**	-.48.-.19

* p<.05. **p<.01

EFNM: exposure to fake news in media // EFNSN: exposure to fake news in social networks // EFNW: exposure to fake news via WhatsApp // SCRFN: self-perception on the capacity to recognize fake news.

The coefficients are standardized.

The reference groups for the categorical variables are as follows: education (primary school), age (18-34 years), geographic region (Central Valley), gender (men).

Table 2. Logistic regressions of the dissemination of fake news in social networks and via WhatsApp

Source: Own elaboration.

	Criteria							
	SFNSN				SFNW			
Predictors	**ΔR²McF**	**X² gl**	**RM**	**95% IC**	**ΔR²McF**	**X² gl**	**RM**	**95% IC**
Model 1	**.001**	**1.58 (2)**			**.001**	**.82 (2)**		
Need cognition			1.06	.96.1.18			1.05	.95.1.16
Need evaluate			.95	.84.1.08			.98	.86.1.12
Model 2	**.02**	**12.94 (7)**			**.01**	**7.47 (7)**		
Need cognition			1.06	.96.1.18			1.05	.94.1.16
Need evaluate			.89	.78.1.02			.95	.83.1.09
Authoritarianism			1.20**	1.05.1.38			1.16*	1.01.1.33
Animus			1.05	.94.1.17			1.02	.91.1.14
Dominance			.93	.84.1.03			1.02	.92.1.12
Equalitarianism			.99	.87.1.13			.96	.85.1.09
Model 3	**.03**	**20.40 (14)**			**.02**	**14.16 (13)**		
Need cognition			1.05	.95.1.17			1.03	.92.1.14
Need evaluate			.90	.78.1.03			.96	.84.1.10
Authoritarianism			1.17*	1.01.1.35			1.14	.99.1.31
Animus			1.04	.93.1.17			1.01	.90.1.13
Dominance			.94	.84.1.04			1.02	.92.1.14
Equalitarianism			.99	.87.1.13			.96	.85.1.09
Secondary			1.43	.84.2.44			1.69	.98. 2.90
Universitary			1.03	.58.1.84			1.33	.74.2.39
35-54 years			1.11	.72.1.69			1.01	.66.1.55
55 years or more			.90	.50.1.62			.94	.53.1.67
Outside Valle Central			.98	.64.1.51			1.26	.82.1.92
Women			.99	.67.1.45			.82	.56.1.21

p<.05. **p<.01
SFNSN: sharing fake news on social networks; SFNW: sharing fake news via WhatsApp.
RM: probabilities' ratio.
The reference groups for the categorical variables are as follows: education (primary), age (18-34 years), geographic region (Valle Central), gender (men).

Table 2. Logistic regressions of the dissemination of fake news in social networks and via WhatsApp

Source: Own elaboration.

DISCUSSION

The results reflect a positive association between right-wing authoritarianism and intentional dissemination of fake news in social networks. At the motivational level, there are positive associations between a defensive motivation and exposure to fake news in media and WhatsApp, as well as associations among defensive and accuracy motivations with self-perceived ability to recognize fake news. At the sociodemographic level, women, people with higher educational level, and those younger claimed to be more exposed to fake news, while men and people with higher education claim to be more able to identify fake news.

This study examined the role of conservative attitudes and motivational factors, controlling for sociodemographic characteristics, in the prediction of exposure, self-perceived recognition capacity, and dissemination of fake news in a representative sample of Costa Rican adults. The first question inquired into the association between the three measures of fake news and support for conservative attitudes, expressed in high scores for authoritarianism and social dominance. In response to this question, the most important finding is that authoritarianism is relevant to understanding the tendency to intentionally spread fake news. Hypothetically, the result is possibly due to the fact that the information that is intentionally disseminated is pro-attitudinal and allows them to defend or affirm a societal project or attack perspectives that threaten their worldviews. In this regard, De keersmaecker and Roets (2019) note that more conservative people are more willing to tolerate the dissemination of fake news by ideologically related political figures. Given the relevance of the result, further research is needed.

The second question of the study explored the association between measurements of fake news and the constructs of need to evaluate and need for cognition – considered as proxies of defensive motivation and motivation towards accuracy, respectively. A relevant finding is that defensive motivation is positively linked to exposure to fake news in the media and via WhatsApp, but not in social networks.

The literature provides sufficient evidence to suggest why defensive motivation is associated with greater exposure to fake news in the media. People exhibit two types of cognitive biases in news selection and processing: an attitudinal congruence bias, such that pro-attitudinal messages are evaluated as more credible than counter-attitudinal ones, and a disconfirmation bias, whereby people positively evaluate pro-attitudinal messages and denigrate counter-attitudinal ones (Taber et al., 2009). Both biases are prevalent strategies used by defensively motivated people when exposed to news (Taber & Lodge, 2006). In this study, it is possible to see that defensively motivated people use the label fake news (Egelhofer & Lecheler, 2019) as a strategy to delegitimize counter-attitudinal media news.

This perspective could be supported from the well-documented hostile media effect (Hansen & Kim, 2011).

The positive association between defensive motivation and exposure to fake news via WhatsApp could have several explanations. First, fake news proliferate in this space and people can easily perceive or be exposed to falsehoods in this context. Second, people may distrust the veracity of both the sources authoring a fake news and the people sharing them. Third, defensively motivated people may apply the label fake news to counter-attitudinal news they encounter on WhatsApp, but not so to pro-attitudinal ones.

Interestingly, defensive motivation was not associated with exposure to fake news in social networks. Before proposing interpretations of this finding, it would be relevant to study the diversity of Costa Ricans' information consumption patterns in social networks, their relationship with motivational factors, and to explore the place of fake news in the different patterns. In addition, it is relevant to examine how exposure to fake news is linked to demographic and sociocultural homogeneity among people connected to social networks, as well as with characteristics generated by online users (e.g., user comments) and the role of algorithms in the so-called pre-selected exposure to news –including exposure to fact-checkers.

Another relevant finding is that self-perceived ability to recognize fake news increases with higher defensive motivation and higher accuracy motivation. According to the theory of motivated reasoning (Kunda, 1990), this suggests that both motivations, based on the use of different cognitive strategies, would allow different individuals to believe that they can recognize fake news. In the case of defensively-motivated individuals, they could use the label fake news to qualify counter-attitudinal news as fake. From the pseudo-journalistic genre dimension posited by Egelhofer and Lecheler (2019), it is also possible that these individuals could identify fake news-regardless of whether they are pro- or counter-attitudinal-because the strength of their desired opinions and attitudes about a topic would make them believe that they handle and have certainty about which information is truthful. In the case of accuracy-motivated individuals, objective and unbiased cognitive processing strategies, aimed at reaching a correct conclusion about a topic, would enable them to identify falsehoods in news content.

Motivational factors were found to be associated with exposure to and recognition of false news but did not motivate individuals to spread false news. Hypothetically, in the case of defensively-motivated individuals, the motivational goal would be limited to labeling information as false to reinforce their desired conclusions. These individuals would not seek social validation of their conclusions

by disseminating false information or be motivated to share false information to influence others. For people motivated by accuracy, seeking correct conclusions allows them to detect false news, but not necessarily to warn others.

In response to the third research question, on the relationship between fake news measurements and demographic characteristics, it was found that women report being more exposed to fake news on social networks, while men report having more skills to recognize them. No differences by gender are observed in exposure to fake news in media and via WhatsApp. It is possible that these results are linked to cultural construction and gender socialization, which may reinforce a differential use and interpretation of fake news, its exposure and perceived self-efficacy in its recognition. The background does not allow us to substantiate the implications of the finding, so further research on the topic is required.

Regarding educational level, it was found that people with higher levels of education report being exposed to fake news and self-perceive themselves as more capable of recognizing them. This finding may be the result of a higher overall frequency of news consumption by more educated people and not necessarily a greater ability to detect and reject fake news, as Rampersad and Althiyabi (2020) stated in another context for the more educated sectors.

As for age, older people report less exposure to fake news. However, this may be due to a lower frequency of consumption of the news sources studied. According to Rampersad and Althiyabi (2020), older people are more accepting of fake news, while in Costa Rica less exposure is reported. It would be important to directly study the association between both aspects.

CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH

What are the implications of our findings for citizenship in a disinformation society? First, our results suggest that intentional disinformation dissemination may be more prevalent among individuals with authoritarian attitudes. Second, motivations that influence cognitive strategies for selecting and processing information play an important role in exposure and in the self-perceived ability to recognize fake news, but not in their dissemination. Finally, to better understand such exposure and ability to detect misinformation, it is important to consider sociodemographic differences among citizens.

This study is not without limitations. In the first place, we do not know what respondents understand by fake news. As mentioned, the conceptualization of fake news has been the subject of intense academic debate and its definition is also a product of its historical moment. It is possible that respondents include meanings

of fake news that the academic literature differentiates. To mitigate the possible effect of this interpretative flexibility, we chose to ask a question in the survey that emphasized the perceived veracity of the news.

Secondly, we performed a correlational study. Further research is required to establish causal relationships between variables. However, we consider that the use of a nationally representative sample allowed us to identify parameters that apply to Costa Rican society. Another limitation is the low reliability of the measures of need to evaluate and need for cognition, so it should be considered that the associations found could have been more robust, with more consistent measures. In response to this psychometric limitation, future studies can use the original 16-item need to evaluate measure (Jarvis et al., 1996) and the original 18-item need for cognition scale (Cacioppo & Petty, 1982) –or validate the reduced six-item version developed by Lins de Holanda Coelho and colleagues (2018).

Despite these cautions, this research opens valuable opportunities for future studies. A first line of work focuses on aspects of *exposure* to fake news. Future studies could specify the reasons that lead news audiences to label specific content as fake. For example, it is possible that people come to that conclusion because of an evaluation of the news content, because they use the term fake news as a label to make sense of it, or because the news is accompanied by a commentary that assigns it that meaning of falsehood (such as a fact-checking site).

The need for additional studies on the dissemination of fake news is also evident. For example, while it has been relatively possible to collect data on news consumption habits on platforms such as Facebook, the study of WhatsApp is made difficult by the technological and ethical challenges it poses. However, multiple researches demonstrate its growing importance in news consumption (including fake news). This study emphasized the importance of better understanding for what reasons news that are considered fake or counter-attitudinal are spread. It is still unclear whether more pro-attitudinal than counter-attitudinal news are disseminated and what reasons might explain these differences. Likewise, it is necessary to study mediating variables of the influence of right-wing authoritarianism on the intentional dissemination of fake news. Finally, it is relevant to consider the influence of variables associated with membership and identification with endogamic groups on the exposure, detection capacity, and dissemination of fake news in social networks and WhatsApp in future research.

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FUNDING

Our research did not receive funding from any organization. The Rector's Office of the University of Costa Rica donated the funds to conduct the field work.

ABOUT THE AUTHORS

CARLOS BRENES PERALTA, researcher. He works at the Institute of Psychological Research of the Universidad de Costa Rica. He did his graduate studies in Social Research and Communication at the Vrije Universiteit Amsterdam (The Netherlands) and his doctorate in Political Communication at the University of Amsterdam. Areas of research interest: social psychology of the uses and effects of information and communication technologies, selective exposure and processing of news content, research on public opinion, disinformation, and fake news.

https://orcid.org/0000-0003-0578-3908

ROLANDO PÉREZ SÁNCHEZ, tenure professor, Universidad de Costa Rica. He works at the Institute of Psychological Research and at the School of Psychology of the Universidad de Costa Rica. He did his doctoral studies in Sociology of Communication at the University of Frankfurt (Germany). Areas of research interest: social psychology of the uses and effects of information and communication technologies, as well as socio-cognitive and emotional processes linked to the use of social networks.

https://orcid.org/0000-0001-6321-2543

IGNACIO SILES GONZÁLEZ, tenure professor. He works at the Communication Research Center (CICOM, by its Spanish acronym) and at the School of Collective Communication Sciences of the Universidad de Costa Rica. Ph.D. studies in Media, Technology and Society at Northwestern University (U.S.). Areas of research interest: communication, technology, and society; critical studies of data uses.

https://orcid.org/0000-0002-9725-8694