

The relationship between the perception of advertising, FOMO, social network fatigue and privacy concerns among social network users

Original scientific paper, DOI 10.22522/cmr20220174, received on December 18, 2021
UDK: 316.776.33
070.13
659.1:004.738

.....

Josipa Milas

Faculty of Humanities and Social Sciences, J. J. Strossmayer University of Osijek, Croatia.
E-mail: milas.josipa@gmail.com

.....

Gordana Lesinger

Faculty of Humanities and Social Sciences, J. J. Strossmayer University of Osijek, Croatia.
E-mail: glesinger@ffos.hr

.....

Abstract

The aim of this study was to examine the relationship between factors of social network advertising, attitudes towards social networks, social network advertising, brands and perception of intrusiveness of social network advertising, and factors of social networks user behaviour (FOMO and privacy concerns). The research was conducted online on a sample of 212 respondents, who are digital natives aged 18 to 45. For the purpose of examining these variables the following was used in the research: a semantic differential scale taken from Elliott and Speck (1998) to measure the attitude towards advertising, an adjusted Facebook Intensity Scale (FBI scale) (Ellison et al., 2007), a questionnaire on attitudes towards brands (Bearden et al., 2011), an adjusted media intrusion scale (Li et al., 2002), the Gartner Inc. (2011) version of the social network privacy questionnaire, the Croatian version of the Fear of Missing Out Scale – FoMOs (Omajec and Čorkalo Biruški, 2020), and the Gartner Inc. (2011) version of the social media fatigue scale. The results indicate that positive attitudes towards advertising, higher levels of privacy concerns and FOMO are predictors of higher levels of social network fatigue, while attitudes towards social networks and perceptions of intrusiveness did not prove to be significant predictors of social network fatigue. The implementation of hierarchical regression analysis revealed the mediating effect of FOMO on the relationship between the attitude towards social network advertising, the attitude towards brands and social network fatigue, while the significance of mediation was verified by the Sobel test. The paper describes the findings, research limitations and offers suggestions for future research.

Keywords: Social network fatigue, advertising, privacy concerns, FOMO

1. Introduction

In today's society, excessive consumption of *online* content is evident. People are constantly connected to their devices, which allows them to access a large amount of information, social networks, music, and various products and services. The great advancement of technology and access to "smart devices" has led to the infiltration of social networks into our lives.

According to Boyd and Ellison (2007), social networks are defined as web-based services that allow individuals to construct a (semi)public profile within a bounded system, articulate a list of other users with whom they share a connection, and view and traverse their list of connections and those made by others within the system. According to Brandtzaeg and Heim (2009), social networks allow users to create profiles, get in contact with new people, maintain existing relationships, post photos, videos, share details about their own experiences, send private messages, express emotions, plan social events, meet new people and follow the lives of other users (e.g., Instagram, Facebook, YouTube, Snapchat, Pinterest, TikTok, Messenger, WhatsApp, LinkedIn, etc.).

Social networks as such first appeared in 1995, but really started to gain popularity with the appearance of the social network Facebook in 2004. Today, thanks to advances in technology, social networks are available on "smart devices" through a large number of free applications aiming at connecting people based on their interests, knowledge, activities, professions, hobbies and political views. These features allow social network users to engage in real and virtual worlds as they provide online and offline interaction as well as visual and verbal connectivity. (Boyd and Ellison, 2007).

The advancement of technology and social networks themselves brought new ways of advertising. State (2019) reports a dramatic increase in social network users globally, that is, from 97 million in 2010 to 2.89 billion users in 2019. A survey conducted by the Pew Research Center (2018) shows that the number of social network users in the United States has increased by fifty percent in the last decade. In the Republic of Croatia, the number of active social network users in 2018 was 2 million, which is almost half of the population of the Republic of Croatia (Hootsuite, 2018).

Thanks to social networks we are given quick access to multiple digital media categories, such as search, multimedia and video games. This means that in just one minute we can watch a short video, listen to a part of the song and access a video game just by browsing the social network homepage.

The increase in the number of users has resulted in social networks becoming a very important element in the advertising for various companies. Branding and communication on social networks are strategically considered, and companies are constantly adapting to new trends by carefully planning their strategies. Billions of dollars are spent on social network advertising in the United States every year. In 2020 alone the amount reached 40 billion US dollars, and advertising included social networks, games and applications connected with said social networks. By 2022, advertisers are expected to spend over \$ 56 billion on promoting their products on social networks (Statista, 2021). With this in mind, it is important to learn more about how consumers communicate with brands in a social network environment and whether a large amount of brand information contributes to social network fatigue.

2. Social network advertising

According to Zavišić and Mijatović (2015), social network advertising is defined as a strategic approach aimed at encouraging well-intentioned exchange of product or service information among potential customers, thus contributing to greater exposure of the promotional message.

By sharing personal data, such as demographics, opinions and hobbies, status updates and activities on personal profiles, social network users reveal a lot about themselves, both to their chosen social network audience and to third parties (Livingstone et al., 2011; Christofides et al., 2009; Stutzman et al., 2012). It is therefore not surprising that social network advertising is one of the most lucrative ways of advertising today as it allows companies direct communication with target groups, greater brand recognition, personalized communication with existing and future customers, trust building and personalized customization (Pallis, et al., 2011; Maslowska, 2013).

Research by Neustar (2013) indicates that ads published on social networks reach highly desirable users to whom products and services can be consistently sold, which resulted in social networks surpassing other advertising media. Facebook, Instagram, Twitter, LinkedIn, YouTube, Snapchat, Pinterest, and many other social networks offer advertising opportunities, and selling advertising space is their primary, and possibly only, source of revenue. Given the dependence of social networking platforms on the revenue from advertising, social networking platforms are constantly striving to make ads more attractive.

When it comes to advertising, Facebook is the most popular and effective social network. Advertising on Facebook is very simple and allows users to effortlessly create ads and manoeuvre around them. To create an ad, the user (in this case the company, or brand) chooses the countries in which they want the ad to be displayed, the target audience interests, age and gender, how much they are willing to spend and whether the ad should be displayed continuously (Facebook for Business, 2014). Since Facebook bought Instagram, ads can also be displayed there. In addition to classic ads, Facebook offers the possibility of video advertising. Advertising on Facebook is used by various companies, organizations and brands to collect “likes” and build a body of followers, and then to promote “posts” to advertise various events, offers and news. Namely, the intention is for users to be more inclined not only to read the “post” but also to share it within their network. *Facebook ads* provides its users (advertisers) with its own analytics package to track ad progress.

YouTube, which is owned by Google, is an ideal social network for video advertising. Google ads allow the users to advertise during search, by displaying keyword-related ads along your search results, both while searching on Google and YouTube (YouTube Ads, n.d., Google Ads, n.d.). Video ads appearing to the right of the YouTube page are relevant to the content of the video that the user is currently watching. There are also video ads appearing within the video that users are currently watching. Such ads are video ads closest in format to those displayed on TVs. It can appear either as an introduction to popular videos or in the middle of a video being watched.

Twitter offers a more subtle way of advertising. There are three types of ads on Twitter: promoted accounts, promoted trends, and promoted *tweets*. Promoted accounts suggest accounts to users who are not currently following them, and are used to build a network of followers. Promoted trends serve to generate interest, raise awareness or launch new products or services. They depend on the time, context and events on the top of the *Trending Topics* list. Promoted *tweets* are standard *tweets* bought by companies, brands or organizations wishing to raise awareness of their products or services, reach a larger group of users or encourage their existing followers to engage more. Just like ordinary *tweets*, they can be forwarded (Twitter Business, n.d.) Twitter, like Facebook, offers its advertisers the option of targeting audiences based on their interest, gender, geographic location, and the device through which they access the social network. However, the process of placing ads is more complex than that on Facebook.

3. Privacy concern

In the spirit of Internet advertising, a breach of privacy is interpreted as the unauthorized collection, disclosure, or other use of personal information, such as selling it to other e-advertisers (Wang et al., 1998).

Growing privacy concerns are forcing users to reconsider their approach to social networking. Boyd and Ellison (2007) suggest that perceived privacy threats change with respect to the way users disclose information about themselves by undermining the ability to control in managing impressions and social context. Such dynamics can have extremely negative consequences on social networks. For instance, the Facebook incident received global attention when user data was leaked to Cambridge Analytica. Also, it has been shown that social network users do not usually use the exclusion clause settings, and agree to the processing and use of personal data when joining social networks, even when they are cognizant of the potential threats.

Transparent interaction between users and social networks raises privacy concerns (Karahasanovic et al., 2009; Gartner Inc., 2011). Users with a higher level of privacy concern show greater social media fatigue because “beyond a given threshold, keeping social contacts becomes irritating and thus difficult” (Schwartz, 1968; according to Malik, Kaur, & Johri , 2021, p. 562), suggesting that users may experience that they are too accessible or receive too much information from too many people, while at the same time being constantly concerned about what social networks are doing with the data collected.

Fear of missing out

Since users have access to an infinite amount of information on social networks, but a limited amount of time to process it, some may experience a fear of missing out (FOMO). FOMO is defined as “a pervasive apprehension that others might be having rewarding experiences from which one is absent.” (Przybylski et al., 2013). FOMO makes the social network user regularly consume content for fear of missing important information or events (Przybylski et al., 2013). Obsert (2017) and Brčić (2018) pointed out in their research work the mediating role of FOMO between psychopathology and the negative consequences associated with the use of social networks.

Guided by previous research and today’s view of social networks as the main source of the

latest information, FOMO could also be related to market experience, e.g., special offers and opportunities offered by various stores, brands, etc. Social network users will often agree to receive promotional offers and discounts from their favourite brands, stores, video game manufacturers, or even influencers they know, even if they do not necessarily follow them on social networks. While this satisfies their need for information and reduces their FOMO levels, such actions could also lead to social network fatigue due to the large amount of offers and promotional content they are shown on social networks.

Social network fatigue

Intensive use and a large amount of information obtained on social networks can also lead to social network fatigue. Namely, there are indications that Generation Y (the so-called Millennial generation, or Millennials), i.e., people born between 1980 and 1995, shows significant signs of social network fatigue – the tendency of users to distance themselves from social network due to too much exposure to content.

When it comes to social network fatigue, the research is limited. Bright et al. (2015) identified several psychological factors that may contribute to social network fatigue, such as user self-esteem, perceptions of self-efficacy in connection with use of social networks, perceptions of social network usefulness, and privacy concerns when sharing personal data. Bright et al. suggest that social network fatigue can be attributed to Internet-based privacy concerns and over-reliance on social networks for their perceived usefulness. Harris Poll research (2016) suggests that advertising intrusiveness may contribute to social network fatigue. The research has revealed that 56% of young people reported cutting back or actually stopping use of social network sites entirely due to advertisements in their news feed.

4. Methodology and survey results

Research objective

The study aimed to examine the relationship between factors of social network advertising (attitude towards social networks, attitude towards social network advertising, attitude towards brands and perceptions of intrusion) as well as factors of user behaviour on social networks (FOMO and privacy concerns), and social network fatigue.

Problems

1. Examine whether attitudes towards social networks, social network advertising and brands, perceptions of the intrusiveness of social network advertising, privacy concerns and FOMO predict social network fatigue.
2. Examine whether FOMO and privacy concerns mediate between attitudes toward advertising, brands and social networks, and social network fatigue.

Hypotheses

1. a) Positive attitudes towards social network advertising and brands, and a higher perception of the intrusiveness of social network advertising predict a higher level of social network fatigue.
b) Higher levels of privacy concerns and FOMO predict a higher level of social network fatigue.
2. Based on previous research (Oberst et al., 2017; Bright et al., 2015), it can be assumed that FOMO and privacy concerns mediate between attitudes toward advertising, brands, social networks, and social network fatigue.

Respondents

The study included 212 respondents, 109 of whom were female (51.4%) and 103 male (48.6%). The age range of the respondents was 18 to 45, because the target group of the research were digital natives – generations who grew up with new technologies and can use them skilfully. The average age of respondents was 26.64 (SD = 6.731). A total of 104 respondents (49.1%) follow their favourite brands on social networks, of whom 61 (55.96%) are female and N = 43 (41.75%) are male. Most commonly used social networking platforms are Facebook N = 199 (93.9%), WhatsApp N = 188 (88.7%), YouTube N = 186 (87.7%), Instagram N = 166 (78.3%), Messenger N = 162 (76.4%) and Viber (59.9%). Other social networking platforms that respondents use less often are TikTok N = 52 (24.5%), LinkedIn N = 43 (20.3%), Pinterest N = 40 (18.9%), Snapchat N = 40 (18.9%), Twitter N = 23 (10.8%) and other social networks such as Reddit, Discard, Tumblr, Xing, BitChute and OnlyFans N = 7 (3.3%).

Of the total number of respondents, N = 2 (0.9%) have completed only primary education, N = 105 (49.5) have completed secondary education, N = 44 (20%) hold a specialised

education degree, N = 60 (28.3%) a university degree and N = 1 (0.5%) a doctoral degree. As far as the current employment status is concerned, the largest number of respondents (N = 100 (47.2%)) are university students, N = 70 (33%) work full time, N = 9 (4.2%) are part-time or seasonal workers, N = 18 (8.5%) are unemployed, and N = 4 (1.8%) are housewives, seafarers and fixed-term employees, and N = 1 (0.5%) a high school student. The majority of respondents (N = 103 (48.6%)) described their material status, i.e., the material status of their family as equal to that of others, N = 72 respondents assessed that their material situation as better than that of others, N = 23, or 8% assessed their material status as slightly worse than that of others, N = 12 (5.7%) assessed their material status as much better than that of others, whereas N = 2 (0.9%) assessed their material status as much worse than that of others.

Tools

The socio-demographic data questionnaire was designed for respondents to gather the data on gender, age, level of education, financial status, employment status, which social networks they use and whether they follow their favourite brands on social networks.

To measure attitudes towards social network advertising, a semantic differential scale by Elliott and Speck (1998) was applied, which was developed to measure attitudes towards advertising in all media (e.g., radio, TV, magazines, newspapers, etc.). For the purposes of this research, the scale was translated into Croatian by three independent translators, and the final version of the questionnaire contains translations of items agreed upon by at least two translators. The instructions for the scale have been adjusted, so that instead of asking for advertising in all media, it only includes the advertising on social networks. The attitude towards advertising was measured using a semantic level with four items on a seven-degree scale (1 to 7), with the following sets of adjectives of opposite meaning: *Not interesting – Interesting*, *Not pleasant – Pleasant*; *Not informative – Informative*, and *Not convincing – Persuasive*. The respondents' task was to mark, for example, "How interesting do you find social network advertising?" on a scale from 1 – not interesting to 7 – interesting), based on their recent experience with ads on social networks. The total result was expressed as the sum of all items divided by the total number of items, where a higher result indicates a more positive attitude towards social network advertising. Previous research (Bright et al., 2015) shows good reliability ($\alpha = .89$). The reliability of the questionnaire in this study is $\alpha = .87$.

To measure the attitude towards social networks, the *Facebook Intensity Scale – (FBI scale)* was applied (Ellison, Steinfield and Lampe, 2007), which was translated into Croatian for the purpose of this research by three independent translators, and the final version of the questionnaire contains translations of the items agreed upon by at least two translators. Also, the scale has been adjusted to fit the context of this research, and the word “Facebook” has been replaced by “social networks”. The questionnaire included one particular behaviour assessment where respondents reported on the amount of time they actively spend on social networks (“*How much time per day, on average, do you spend on social networks?*”). The scale also included 6 statements (e.g., “*Social networks have become part of my daily routine*”), where respondents marked their level of disagreement using a Likert-type scale (from 1 – strongly disagree to 5 – strongly agree). The total score has been expressed as the sum of all items divided by the total number of items where a higher result indicates a more positive attitude towards social networks. Previous research (Logan et al., 2021) shows good reliability ($\alpha = .81$). The reliability of the questionnaire in this study is $\alpha = .78$.

The Croatian version of the *Fear of Missing out Scale: FoMOs* (Omejec and Čorkalo Biruški, 2020; Przybylski et al., 2013) was used to **measure the fear of missing out (FOMO)**. The scale consists of ten items (e.g., “*I worry when I find out that my friends are having fun without me.*”). The respondents’ task was to provide answers on a Likert-type scale of 5 degrees (where 1 “*does not apply to me at all*” and 5 “*completely applies to me*”). The total score has been expressed as the sum of all items divided by the total number of items, where a higher score indicates a higher level of FOMO. Previous research (Omejec and Čorkalo Biruški, 2020) shows good reliability ($\alpha = .82$). The reliability of the questionnaire in this study is $\alpha = .86$.

A version of the scale from Gartner Inc. research (2011) was used to **measure the level of social network fatigue. It was translated into Croatian by three independent translators for the purposes of this research, and the final version of the questionnaire contains translations** of items agreed upon by at least two translators. The respondents’ task was to provide answers to individual items (e.g., “*When I search for information on social network platforms, I often give up because I am overwhelmed by the amount of information*”) using a Likert-type scale from 1 to 7, where 1 means “*I completely disagree*” and 7 means “*I completely agree*”. The total score has been expressed as the sum of all items divided by the total number of items, where a higher score indicates a

higher level of social network fatigue. Previous research (Logan et al., 2018) shows good reliability ($\alpha = .87$). The reliability of the questionnaire in this study is $\alpha = .74$.

Procedure

Prior to research, the consent of the Ethics Committee of the Department of Psychology and the Ethics Committee of the Faculty of Humanities and Social Sciences in Osijek was requested. After the consent was obtained, data collection began. The survey was conducted online, via a Google form containing the aforementioned questionnaires. The link to the questionnaire through which the respondents accessed the research was shared on social networking platforms (Facebook, Instagram, WhatsApp, Messenger). Respondents were requested to forward the link to the research to their friends and colleagues of certain age groups (the snowball effect). On the link to the research, before the questionnaire itself, there was a text describing the purpose of the research, who the questionnaire is for, and a note on the anonymity of the research and the fact that respondents can leave the questionnaire at any moment. Along with research instructions, e-mail addresses were listed for respondents to use in case of any queries regarding the research. At the end of the questionnaire, the respondents were thanked for their participation and the researchers' e-mail address was once again given in case of any additional queries. The total time for completing the questionnaire was 5 to 10 minutes.

The results

As an initial step in data processing, a descriptive data analysis was carried out. Table 1 shows the achieved ranges, theoretical ranges, arithmetic means and standard deviations of the examined variables. By reviewing the arithmetic mean and theoretical range, it can be observed that the results showing respondents' attitudes towards social networks are closer to the maximum, which indicates a positive attitude towards them. The results related to attitudes towards brands and attitudes towards advertising on social networks are mostly of average scale values and somewhat closer to the minimum, which indicates a more negative attitude of the respondents towards brands and social network advertising. The results concerning the perception of intrusiveness of advertising on social networks and concerns about privacy on social networks are closer to the maximum, which indicates that respondents perceive ads on social networks as intrusive and show a higher level of concern about their privacy. As far as the FOMO is concerned, the respondents' answers

are slightly closer to the minimum, which indicates that respondents experience a lower level of FOMO. The results related to the social network fatigue are slightly closer to the maximum, which indicates a higher level of social network fatigue.

Table 1. Descriptive data of examined variables (N = 212)

	Achieved range	Theoretical range	M	SD
Attitude towards social networks	10 - 35	7 - 35	25.34	5.06
Attitude towards brands	8 - 56	8 - 56	22.07	11.65
Attitude towards social network advertising	4 - 28	4 - 28	14.42	5.50
Perception of intrusiveness of social network advertising	12 - 49	7 - 49	37.49	8.19
Social network privacy concerns	4 - 28	4 - 28	19.24	4.47
Fear of missing out – FOMO	10 - 50	10 - 50	27.42	8.10
Social network fatigue	7 - 49	7 - 49	29.72	7.19

In order to test the hypotheses, before the regression analysis, the intercorrelations of the examined variables were calculated, and the results are shown in Table 2. The Table 2 shows that the variables of interest do not correlate with most sociodemographic variables. The obtained correlation coefficients generally range from very low to low and medium values. Namely, social network fatigue correlates statistically significantly negatively with gender and following the brands on social networks, while it correlates statistically significantly positively with attitudes towards social networks, brands, advertising on social networks, privacy concerns and FOMO.

Furthermore, it has been shown that a higher level of FOMO is experienced by younger respondents and respondents who follow their favourite brands on social networks, and respondents with more positive attitudes towards social networks, brands, advertising on social networks, and those with a higher level of privacy concerns. Respondents who perceive advertising on social networks as intrusive have more negative attitudes towards social networks and towards advertising on social networks. Women and respondents who follow their favourite brands on social networks and have a more positive attitude towards social networks show a more positive attitude towards advertising on social networks. Respondents who follow their favourite brands on social networks and have a positive attitude towards social networks have a more positive attitude towards brands. Younger respondents and those who follow their favourite brands on social networks have a more positive attitude towards social networks.

To test the hypotheses, a three-step hierarchical regression analysis was carried out (Table 3). In the first step, the variable “following your favourite brands on social networks” was included, which proved to be a significant predictor of social network fatigue, and explains only 6% of the variance of social network fatigue. In the second step, by adding the additional variables: attitudes towards social networks, brands, social network advertising and perceptions of intrusiveness, the model explains 15% of the variance of the criteria. The attitude towards advertising on social networks has proven to be a significant predictor of social network fatigue, while the perception of the intrusiveness of advertising on social networks shows a tendency towards being significant. In the last step, the privacy and FOMO variables were added, which proved to be significant predictors of social networks fatigue, and the model explains 29% of the variance.

Table 2. Intercorrelation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Sex	1												
2. Age	.05	1											
3. What is your level of education?	.04	.31**	1										
4. What is your current employment status?	-.02	.46**	.25**	1									
5. How would you assess your material status, i.e., the financial status of your family?	.19**	.21**	.25**	.06	1								
6. Do you follow your favourite brands on social networks?	.14*	-.00	.01	-.06	.02	1							
7. Attitude towards social networks	-.10	-.15	.02	-.09	.05	-.35**	1						
8. Attitude towards brands	-.01	-.04	.08	.01	.13	-.53**	.51**	1					
9. Attitude towards social network advertising	-.20**	-.11	-.04	-.08	-.08	-.30**	.41**	.40**	1				
10. Perception of intrusiveness of social network advertising	.00	-.09	-.08	-.01	.01	.03	-.14*	-.05	-.31**	1			
11. Privacy concerns	.00	.07	.02	.04	.08	-.06	.09	.12	.05	.06	1		
12. Fear of missing out – FOMO	-.11	-.14*	.12	.01	-.03	-.26**	.44**	.37**	.33**	-.12	.20**	1	
13. Social network fatigue	-.16*	.04	.08	.06	.10	-.23**	.26**	.29**	.31**	.04	.34**	.41**	1

Note: *p <.05; **p <.001; The variable “Do you follow your favourite brands on social networks?” is coded so that 1 = yes and 2 = no.

Table 3. Results of hierarchical regression analysis with the total result of Social Network Fatigue as a criterion

	R	R ²	ΔR ²	F	β
1. Step	.23	.06	.05	12.18	-
Do you follow your favourite brands on social networks?					-.23 **
2. Step	.39	.15	.13	7.45	-
Do you follow your favourite brands on social networks?					-.07
Attitude towards social networks					.10
Attitude towards brands					.12
Attitude towards social network advertising					.24 *
Perception of intrusiveness of social network advertising					0.13
3. Step	.54	.29	.27	12.05	-
Do you follow your favourite brands on social networks?					-.06
Attitude towards social networks					.01
Attitude towards brands					.05
Attitude towards social network advertising					.20 *
Perception of intrusiveness of social network advertising					.12
Privacy concern					.26 **
FOMO					.27 **

Note: * $p < .05$; ** $p < .001$

Given the results obtained, it can be concluded that hypothesis H1a, i.e., the hypothesis of the possibility of predicting social network fatigue based on attitudes towards advertising on social networks, social networks and brands, and the perception of intrusiveness of social network advertising, has been partially confirmed. It has been shown that positive attitudes towards social networks, towards brands and higher perception of intrusiveness do not predict a higher level of social network fatigue, while positive attitudes towards social network advertising predict a higher level of social network fatigue.

Hypothesis H1b, i.e., the hypothesis of the possibility of predicting social network fatigue based on privacy concerns and FOMO, has been confirmed. Higher levels of privacy concerns and FOMO have been shown to predict higher levels of social network fatigue.

The standardized beta coefficient (Table 3) of the predictor of attitudes towards social network advertising has shown a decrease when FOMO and privacy concerns were included in the analysis, but is still statistically significant, which indicates potential partial mediation. In order to examine the potential mediation effect in more detail, additional regression analyses were carried out and the Sobel test was used.

According to Baron and Kenny (1986), prior to testing potential mediators (FOMO and social network privacy concerns) variables must meet the following criteria: 1. the existence of a statistically significant relationship between the independent variable and the mediator (if the mediator is not connected with an independent variable, then mediation is not possible), 2. the existence of a statistically significant relationship between the intermediary and the dependent variable, 3. the existence of a statistically significant relationship between the independent and dependent variable and 4. the impact of the independent variable on the dependent variable must be less when controlling the mediator variable. Given that the first criterion is not met (Table 2), i.e., since there is no statistically significant correlation between privacy concerns and independent variables (attitudes towards social networks, attitudes towards brands, attitudes towards social network advertising), privacy concerns have been excluded from the analysis. Also, the results in Table 3 show that the predictors, the attitude towards social networks and the attitude towards bands, are not significant, and therefore have been excluded from the analysis.

After excluding the variables that do not meet the criteria, the first regression analysis was performed, in which the attitude towards social network advertising was set as predictor, and FOMO as a criterion. In the second regression analysis, the attitude towards social network advertising was set as a predictor, and social network fatigue as a criterion. In the last, multivariate regression analysis, social network fatigue was set as a criterion and the attitude towards social network advertising and FOMO as predictors. All criteria were met and a decrease in the standardized beta coefficient of the “attitudes towards social network advertising” predictor was observed when FOMO was included in the analysis compared to the second regression analysis, where the attitude towards social network advertising was the only predictor of social network fatigue.

After meeting the criteria, Baron and Kenny (1986) advocate checking the significance of mediation using the Sobel test, which is based on the assumption that when a mediator with a predictor variable is included in regression analysis, the influence of the predictor variable decreases and the effect of the mediator variable remains significant (Talić, 2013). According to Baron and Kenny (1986), the mediation effect occurs only when the predictor variable is significantly connected with the mediator and the criterion, and when the mediator is not entered and has a significant independent contribution to the explanation of the criterion variable. When the mediator is entered in the model, the significance of the predictor variable for the criterion is decreased.

The Sobel test showed that FOMO is indeed a significant mediator in the correlation between attitudes towards social network advertising and social network fatigue (Sobel test = 3.61256; $p < 0.001$). Figure 1 shows the mediating effect of FOMO on the link between attitudes towards social network advertising and social network fatigue. The results suggest that the attitude towards social network advertising is directly and indirectly linked to social network fatigue, and that FOMO is a partial mediator in the relationship between the attitude towards social network advertising and social network fatigue.

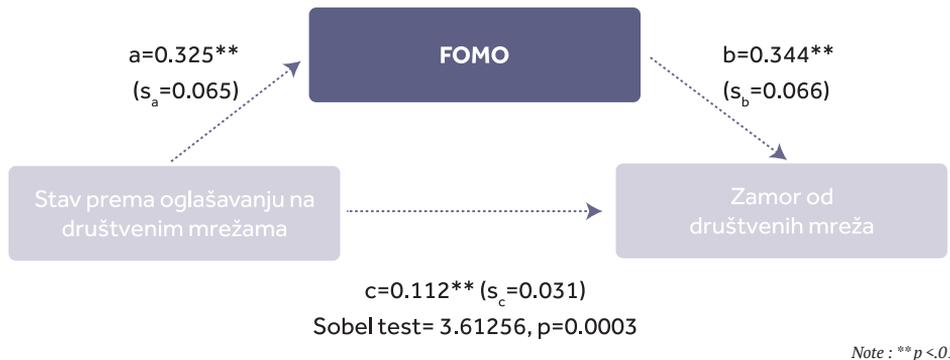


Figure 1. The mediating effect of FOMO on the relationship between attitudes towards social network advertising and social network fatigue

Based on the results obtained, the hypothesis H2, i.e., the hypothesis of FOMO mediation and privacy concerns in relation to attitudes towards advertising, towards brands and attitudes towards social networks with social network fatigue, was partially confirmed, i.e., it was shown that privacy concerns do not mediate in the relationship between attitudes towards advertising, attitudes towards brand and attitudes towards social networks and social network fatigue, while FOMO proved to be a partial mediator in the relationship between attitudes towards social network advertising and social network fatigue.

5. Discussion and conclusion

The aim of this study was to examine the relationship between the factors of social network advertising (attitude towards social networks, attitude towards social network advertising, attitude towards brands and perception of intrusiveness) and factors of social network user behaviour (FOMO and privacy concerns) with social network fatigue.

In order to test the hypotheses, the intercorrelations of the examined variables were calculated, which shows (Table 2) that social network users who follow their favourite brands on social networks have more positive attitudes towards social networks, brands and social network advertising, which ultimately causes a higher level of FOMO and social network fatigue among respondents. Also, a significant correlation of FOMO with social network fatigue is demonstrated by the users' privacy concerns. FOMO proved to be more common among younger social network users, whereas social network fatigue proved to be more common among female users. Such intercorrelation effects have been reported by other studies (Li et al., 2002; Gartner Inc., 2011; Dhir and Midha, 2014; Bright et al. 2015; Zhang and Lou, 2016).

Given the results obtained, it is interesting that the users' perception of the intrusiveness of social network advertising did not show any correlation with social network fatigue. Such findings are in contrast to previous research (Li et al., 2002; Bright et al. 2015), which has shown that the higher users' perception of advertising intrusiveness, the more likely the users are to experience fatigue. Such findings could be explained by the "sophisticated" nature of today's ads on social networks, or better and more personalized ads that become more inconspicuous as they do not "stand out" from the social network's content the users find interesting, and some even find them useful (Richter, 2019).

Contrary to the first hypothesis, that positive attitudes towards social network advertising and brands and higher perceptions of intrusiveness of social network advertising do not predict a higher level of social network fatigue, advertising factors (attitudes towards social network, brands and perceptions of social network intrusiveness) have not proved to be significant predictors, i.e., only positive attitudes towards advertising predict a higher level of social network fatigue, which is contrary to previous research (Li et al., 2002; Bright et al., 2015), so that this hypothesis was partially confirmed. This finding could be attributed to the *opt-in* nature of social network advertising. *Opt-in* is a method by which a user expresses a desire to receive information or advertisements. Also, the perception of the intrusiveness of social network advertising has been shown to be negatively related to attitudes toward social networks and attitudes toward social network advertising, which may suggest that some users *opt out* as they find social network advertising intrusive. *Opt-out* is a method that offers the user the opportunity to stop receiving promotional content at any time. The research findings are inconsistent with previous research (Li et al., 2002; Bright et al., 2015), which indicated that positive attitudes towards social network advertising and brands,

and higher perceptions of advertising intrusiveness due to information overload, lead to avoidance of social network and thus to social network fatigue.

The second hypothesis, that a higher level of privacy concerns and a higher level of FOMO predict a higher level of social network fatigue, has been fully confirmed with regard to behavioural factors. It has been confirmed that higher levels of privacy concerns and higher levels of FOMO predict higher levels of social network fatigue, which is consistent with previous research (Dhir and Midha, 2014; Bright et al., 2015; Zhang and Lou, 2016). A review of the literature found that information overload is a direct consequence of FOMO. Dhir and Midha (2014) observed that respondents who show a higher level of FOMO tend to follow a lot of information but cannot take it in successfully since FOMO causes information overload, which leads to social network fatigue (Lee et al. 2016; Zhang et al., 2016; Lin et al., 2020). When users receive large amounts of information, they feel more tired, and dissatisfaction and negative behaviour increase, which is the most direct response to fatigue and causes discontinuous usage behaviour (Zhang et al, 2016). Research shows that users tend to reduce the use of social networks due to feelings of being trapped (Cao and Sun, 2018; Maier, Laumer, Weinert, & Weitzel, 2015). Also, previous research (Gartner Inc., 2011; Bright et al., 2015; Karahasanovic et al., 2019) suggests that a higher level of privacy concerns causes anxiety when visiting social networks, thus increasing fatigue. In his research, Khan (2018) questions the relationship between privacy concerns and social network fatigue and advocates that there is a possibility that such relationship does not exist as privacy concerns are linked to concerns arising from experience with privacy issues and not due to excessive use of social networks.

The final hypothesis of the research was to determine whether FOMO and privacy concerns mediate between attitudes toward advertising, attitudes toward brands, and attitudes toward social networks with social network fatigue. Since it was found that, when it comes to privacy concerns, there is no statistically significant relationship with attitudes towards advertising, brands and social network advertising and that attitudes towards social networks and brands are not significant predictors, the analysis was carried out only to examine the FOMO mediation effect in the relationship between the attitude towards social network advertising and social network fatigue. The last hypothesis has been partially confirmed, i.e., FOMO proved to be a partial mediator between the attitude towards social network advertising and social network fatigue. FOMO has also been shown to be a strong predictor of social network fatigue, which is in line with previous research (Wang, 2018). Based on

the results obtained, we can conclude that users experience FOMO if they are not “*up to date*” with the latest information on discounts and special offers of their favourite brands, although a constant influx of such information leads to social network fatigue, which creates a paradox for advertisers. The paradox could be attributed to the nature of social network advertising, i.e., users must “*like*” or “*follow*” brands, subscribe to the newsletter and actively allow the delivery of ads on their social network profile page, and in this way, they agree to share information in exchange for exclusive content and thus openly consent to less privacy. The results obtained in the research indicate that social networks users who show a more positive attitude towards brands also show a more positive attitude towards social network advertising, which may indicate that social networks are good advertising channels. However, the same users also express greater social network fatigue, which is why advertisers are advised to process information better, and target consumers on social networks more consciously in an effort to reduce excessive exposure to ads and consequent social network fatigue. Also, according to the results obtained, the Table 2 shows that there is a relationship between FOMO and privacy concerns, which may indicate that the user’s privacy concerns increase along with his need for the latest information and content on social networks.

Apple iOS 14 mobile operating system offers a potential solution to the problem with new mobile operating system features helping users control their privacy when using different apps, thus improving transparency and managing how apps access a user’s location, photos, microphone and cameras (Apple Support, n.d.). Although this feature is welcomed by Apple users, it creates problems for advertisers because it prevents them from tracking the success of their ads on social networks, i.e., it prevents social networks from tracking, optimizing and targeting data reliably, as well as the reliability of web conversion reports, that is, converting the visit to a website/app into a specific, desired action (Facebook Business, n.d.). Both social networks and advertisers face a unique challenge because they have to cause FOMO in social networks users without FOMO and privacy concerns causing social network fatigue and without changing the users’ relationship with social networks. Advertisers and social networks alike should get involved in addressing the issue of user privacy, and provide better information to the users about exactly what data is used and how it is processed. Better information from social networks and advertisers on how data collection works could lead to decrease in privacy concerns, better processing of information and to more personalized ads that users would like and that would preferably lead to reduced social network fatigue.

The conducted research has several important limitations. Firstly, it was conducted online, which may lead to reduced control since researchers are not able to check the understanding of the instructions or ensure the serious approach to the questionnaire. Furthermore, although the instructions stated that the questionnaire was anonymous, there is still a possibility that some respondents did not feel safe enough to provide personal information online due to privacy concerns. The research included variables measured based on self-assessment, such as the use of social networks, individual psychological differences and attitudes towards social network content. Adler (2016) pointed out in his research how such measurements can be misjudged, particularly when social networks use is concerned. Future research could focus on collecting data through newly developed, upcoming and more sophisticated questionnaires to measure user behaviour on social network platforms, their engagement as well as their screen-time.

Since the variable related to following brands on social networks showed a statistically significant relationship with social network fatigue, and advertising and behavioural factors, future research could focus on examining the relationship between the inclination to follow brands on social networks and psychological and advertising factors. Also, future research could focus on investigating consumer reactions to different types of advertising content, which content causes the most social network fatigue, and how different social network platforms and their respective content cause social network fatigue. According to Bright et al (2015), there is a possibility that unadjusted, that is, non-personalized and sponsored advertising on social networks may not alarm social network users, but still raise concerns about the way they are targeted by ads. Also, future researchers could examine, in more detail, the role of FOMO in the relationship between users, consumers and the brand in the context of social networks, and differences in habits, preferences, psychological and advertising factors depending on digital native generation (Generation Z and Generation Y).

In addition to providing new findings on the relationship between behavioural factors and advertising, and social network fatigue, the research could be useful for future social network advertisers to create more compelling and non-intrusive ads and to follow the personalized social network content to avoid social network fatigue or even fatigue from the brand itself due to the excessive / intrusive occurrence of ads, which can result in the loss of a potential consumer. Cundari (2015) states the importance of planning when creating ads in order for social network users to show interest in interacting with the brand and its content on social network.

Reference list

- Adler, E. (2016). Social media engagement: the surprising facts about how much time people spend on the major social networks. *Business Insider*, 7. Retrieved from <https://www.businessinsider.com/social-media-engagement-statistics-2013-12>, 10.02.2021.
- Apple Support (n.d.). *O ažuriranjima za iOS 14*. <https://support.apple.com/hr-hr/HT211808>
- Baker W. E. i Lutz R. J. (2000). An Empirical Examination of the Structural Antecedents of Attitudes Towards the Ad in An Advertising Pretesting Context. *Journal of Marketing*, 55(2), 48-65.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182.
- Bearden, W.O., Netemeyer, R. i Haws, K.L. (2011). *Handbook of Marketing Scales. Multi Item Measures for Marketing and Consumer Behavior Research*. SAGE Publications, Inc.
- Boyd, D. i Ellison, N. (2007). Social Network Sites: Definition, History, and Scholarship. *Journal of Computer-Mediated Communication*, 13(1), 210-230.
- Brandtzæg, P. i Heim, J. (2009). Why People Use Social Networking Sites. *Online Communities and Social Computing*, 7, 143-152.
- Brčić, I. (2018). Utjecaj medija na gledatelja od najranije do odrasle dobi. *In medias res*, 7(15), 2019-2027.
- Bright, L.F., Grau, S.L. i Kleiser, S.B. (2015). Too much Facebook? An exploratory examination of social media fatigue. *Computers in Human Behavior*, 44, 148 – 155.
- Cao, X. i Sun, J. (2018). Exploring the effect of overload on the discontinuous intention of social media users: An SOR perspective. *Computers in Human Behavior*, 81, 10-18.
- Christofides, E., Muise, A. i Desmarais, S. (2009). Information Disclosure and Control on Facebook: Are They Two Sides of the Same Coin or Two Different Processes? *CyberPsychology & Behavior*, 12(5), 341–345.
- Chu, S. (2011). Viral Advertising in Social Media. *Journal of Interactive Advertising*, 12(1), 30-45.
- Cundari, A. (2015). *Customer-centric marketing: build relationships, create advocates, and influence your consumers*. Seattle, Washington: Amazon Digital Services, LLC.
- Dhir, M., Midha, V. (2014). Overload, Privacy Settings, and Discontinuation: A Preliminary Study of Facebook Users. *SIGCHI 2014 Proceedings*, 12.
- Ellison, N., Steinfield, C. i Lampe, C. (2007). The Benefits of Facebook “Friends:” Social Capital and College Students’ Use of Online Social Network Sites. *Journal of Computer Mediated Communication*, 12(4), 1145-1168.
- Facebook for Business (2014). The Getting Started Series: *How Facebook Ads Work*. Retrieved from <https://www.facebook.com/business/news/How-Facebook-Ads-Work>, 18.02.2021.
- Facebook Business (n.d.). *How the Apple iOS 14 Release May Affect Your Ads and Reporting*. Retrieved from https://www.facebook.com/business/help/331612538028890?id=428636648170202&_rdc=2&_rdr, 18.02.2021.
- Fishbein, M. i Ajzen, I. (1975). *Belief, attitude, intention, and behaviour: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Gartner Inc. (2011). *Gartner survey highlights consumer fatigue with social media*. Retrieved from: <http://www.gartner.com/it/page.jsp?id=1766814>, 01.03.2021.
- Google Ads (n.d.). *Oglašavanje na Googleu – Google Ads*. Retrieved from https://ads.google.com/intl/hr_hr/getstarted/, 01.03.2021.
- Harris Poll (2016). Seventy-four percent of digital natives tired of brands shouting at them. *Harris Poll*, 5.
- Howell, D. (2002). *Statistical Methods for Psychology*. Boston: Cengage Learning.
- Karahasanovic, A., Brandtzaeg, P.B., Vanattenhoven, J., Lievens, B., Nielsen, K. T. i Pierson, J. (2009). Ensuring Trust, Privacy, and Etiquette in Web 2.0 Applications. *Computer*, 42(2), 42-49.
- Khan, S. (2018). *To disclose or not to disclose? A literature review on the antecedents of privacy fatigue in the context of online social networks* (Završni rad). Amsterdam: Faculty of School of Business and Economics.
- Li, H., Edwards, S.M. i Lee, J.-H. (2002). Measuring the Intrusiveness of Advertisements: Scale Development and Validation. *Journal of Advertising*, 31(2), 37-47.
- Lin, C., Broström, A., Griffiths, M. i Pakpour, A. (2020). Investigating mediated effects of fear of COVID-19 and COVID-19 misunderstanding in the association between problematic social media use, psychological distress, and insomnia. *Internet Interventions*, 21.

- Livingstone, S., Ólafsson, K. i Staksrud, E. (2011). *Social Networking, Age and Privacy*. Retrieved from <http://eprints.lse.ac.uk/id/eprint/35849>, 15.02.2021.
- Logan, K., Bright, L. i Gangadharbatla, H. (2021). It's Complicated: Exploring the Social Media Privacy Paradox in the United States. *ACM Transactions on Information and System Security*, 4(3), 303-321.
- MacKenzie, S. B. i Lutz, R. J. (1989). An empirical examination of the structural antecedents of attitude toward the ad in an advertising pretesting context. *Journal of Marketing*, 53(2), 48-65.
- Maier, C., Laumer, S., Weinert, C. i Weitzel, T. (2015). The Effects of Technostress and Switching-stress on Discontinued Use of Social Networking Services: A Study of Facebook Use. *Information Systems Journal*, 25(3), 275-308.
- Malik, A., Dhir, A., Kaur, P., i Johri, A. (2021). Correlates of social media fatigue and academic performance decrement: A large cross-sectional study. *Information Technology & People*, 34(2), 557-580.
- Masłowska, E. H. (2015). *“Just for You!” A Study into the Effectiveness and the Mechanism of Customized Communication*. PhD Thesis. Amsterdam: Faculty of Social and Behavioral Sciences (FMG). Retrieved from <https://hdl.handle.net/11245/1.395584>, 15.02.2021.
- Neustar (2015). *Global Media Intelligence Report for 2015*.
- Oberst, U., Wegmann, E., Stodt, B., Brand, M. i Chamorro, A. (2017). Negative consequences from heavy social networking in adolescents: The mediating role of fear of missing out. *Journal of Adolescence*, 5, 51-60.
- Omejec, H. (2020). *Strah od propuštanja kao medijator povezanosti pretjeranog korištenja interneta i zadovoljstva romantičnom vezom*. Diplomski rad. Zagreb: Filozofski fakultet u Zagrebu
- Pallis, G., Zeinalipour-Yazti, D. i Dikaiakos, M. (2011). Online Social Networks: Status and Trends. *New Direction in Web Data Management 1*, 213-234.
- Povelja Europske unije o temeljnim pravima (2007). *Special edition in Croatian: Chapter 01, 007,104-119*.
- Przybylski, A., Murayama, K., DeHaan, C., Gladwell, V. (2013). Motivational, Emotional, and Behavioral Correlates of Fear of Missing Out. *Computers in Human Behavior*, 29(4), 1841-1848.
- Pew Research Center (2018). Social media fact sheet. *Internet and technology*, 17.
- Speck, P. S., Elliott, M. T. (1997). Predictors of Advertising Avoidance in Print and Broadcast Media. *Journal of Advertising*, 26(3), 61-76.
- Statista. (2019). *Number of social network users worldwide from 2010 to 2021 (in billions)*.
- Stutzman, F., Gross, R., Acquisti, A. (2015). Silent Listeners: The Evolution of Privacy and Disclosure on Facebook. *Journal of Privacy and Confidentiality*, 4(2).
- Talić, L. (2013). *Povezanost odnosa s roditeljima, samopojmanja i simptoma poremećaja hranjenja kod adolescenata* (Diplomski rad, Filozofski fakultet u Zagrebu). Retrieved from <https://repozitorij.erf.unizg.hr/islandora/object/erf%3A197/datastream/PDF/view>, 29.01.2021.
- Twitter Business (n.d.). *How Twitter Ads Work*. Retrieved from <https://business.twitter.com/en/help/troubleshooting/how-twitter-ads-work.html>, 04.02.2021.
- Wang, H., Lee, M., Wang, C. (1998). Consumer Privacy Concerns about Internet Marketing. *Communications of the ACM*, 41, 63-70.
- Wang, S. (2020). *Investigating Consumer's Fear of Missing Out and Social Media Fatigue: An Extended Literature Review* (Disertacija, Auckland University of Technology). Retrieved from <http://hdl.handle.net/10292/13923>, 18.02.2021.
- YouTube Ads (n.d.). *How it works*. Retrieved from <https://www.youtube.com/ads/>, 23.02.2021.
- Zavišić, S. & Mijatović, A. (2015). Društvene mreže u funkciji povećanja prodaje. *Suvremena trgovina*, 40(6), 16-20.
- Zhang, M., Luo, N. (2016). Understanding relationship benefits from harmonious brand community on social media. *Internet Research*, 26(4), 809-826.
- Zhang, S., Zhao, L., Lu, Y., Yang. (2016). Do you get tired of socializing? An empirical explanation of discontinuous usage behaviour in social network services. *Information & Management*, 53(7), 904-914.



Josipa Milas



Josipa Milas graduated Psychology at the Faculty of Humanities and Social Sciences in Osijek, University of Josip Juraj Strossmayer in Osijek. She finished her undergraduate program at Faculty of Croatian Studies, University of Zagreb. Her field of scientific interest is industrial and organizational psychology, marketing psychology, consumer behaviour, behavioural economics, and developmental psychology. During her undergraduate and graduate program, she published one scientific paper and actively participated in several student congresses such as EFPSA (European Federation of Psychology Students' Association) and NEURI (Student Congress of Neuroscience) where she presented her research. For one term she has obtained the role of Member Representative of Croatia at EFPSA, and External Relations Director at USPjeH (Ujedinjeni student psihologije Hrvatske).



Gordana Lesinger



Gordana Lesinger is assistant professor at Faculty of Humanities and Social Sciences in Osijek. Graduated journalism at the Faculty of Political Science in Zagreb, and at the Doctoral School "Communication studies" of the University of Josip Juraj Strossmayer in Osijek in 2016 when gained the academic title PhD. Her field of scientific interest is communication, mass media, public relations and professional ethics in journalism.

She is co-author of a book "25 year of Yellow submarine" and author of book "Media relation and media agendas" and "International Press Center - a hidden ether of war reporting in Osijek". She has published several scientific papers and has participated in several domestic international scientific conferences in the area of public relations / media relations, political communication, new media and ethics.