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The Mediating Role of Cognitions and Locus of Control in the Management of Emotional States Induced by „Fake News" in a Group of Students

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Abstract
Information or „fake news", which is increasingly present in social media, can be stressful for some people, so they can become dysfunctional in their social, family or professional environment. In this paper we provide empirical evidence explaining the role of psychological characteristics in managing dysfunctional negative emotional states induced by „fake news" and thus maladaptive behaviours. The results show that individual cognitive profile (rational vs. irrational) and locus of control (internal vs. external) play a mediating role in stimulus processing, i.e., between „fake news" induced emotions and generic everyday satisfaction of people engaged in learning activities (students) and simultaneously in professional activities. In this way, we can predict which individuals demonstrate the ability to understand and separate between news with advert and „fake news" content and their implications for generic everyday satisfaction.

Keywords: „Fake News", Dysfunctional Negative Emotions, Cognitive Profiling, Locus of Control, Uncertainty Tolerance, Generic Satisfaction

1. Introduction

Nowadays, choices about being in the virtual environment have become commonplace, including in situations involving professional activities, but they can generate stressful situations that require the mental apparatus to restore homeostasis, resilience and adaptation (Salomo, Sutarto & Arianti, 2023) [1].

Alemany-Arrebola *et al*. (2020) [2] point out that such changes were marked by the COVID-19 pandemic, when it was opted to carry out some activities online: *"in the COVID-19 era, for several months families were confined to their homes, with the reason being the containment of the pandemic, and thus a change in the physical and psychological dynamics of society as a whole occurred, with both beneficial and less beneficial effects".*

Other evidence (Leonti *et al*., 2023) [3] highlights that negative emotions and avoidant coping mediate relationships between the impact on how certain activities are carried out during the COVID-19 pandemic and the perceived threat, leading to an increase in stress by amplifying negative emotions, which in turn influence the use of avoidant coping strategies.

On the other hand, the study by Junxiang Wei et.al. (2024) [4] highlights that reliance on mobile phones for accessing various social-media platforms has been frequently reported to be correlated with some mental disorders such as depression, stress and anxiety among the young population, as well as a higher risk of social anxiety.

Therefore, the increasing presence in the virtual environment can be both a disruptive and a beneficial factor, but how will we know how to select the information we need, which is useful for our approaches, how to protect ourselves from manipulative or false information and, above all, what will be the specific behaviours in the social, family, professional or academic environment?

In order to highlight the power of information penetration at the level of social media consumers, we bring to attention the conclusions highlighted in a study on the implementation of a psychoeducation campaign (Marineanu & Prisăcaru, 2021, p.92-95) [5]. The authors mentioned that some multimedia psychological products, POSTER type, were developed and promoted, with contents related to solutions focused on anxiety management, normalization of emotional reactions, etc., and by posting them on an institution's website, then through Facebook and Youtube the impact among the target population reached 56.000 views in a few hours. The content promoted was under control and had positive effects, being managed by specialists for

intervention in psychological crisis situations, but not all situations are similar.

For example, we bring to your attention some information that highlights this fact: *"In Romania, a few years ago, the image of a bank was damaged after rumours appeared on the market that it did not have cash, people storming ATMs and tellers to withdraw money from current accounts or deposits"* or in a similar case *„in the U.S., a simple campaign to mislead the public with fake news about a particular brand's products caused that company's shares to plummet and sparked a media scandal just as the company was preparing for a merger"* (https://start-up.ro).

We note that the terms „fake news" and „false news" are often used synonymously in current parlance, but the essential difference lies in the intention behind them, namely: "Fake news" narratives are circulated by an organisation or a state with the aim of creating confusion and generating social tension, while „false news" does not originate from a state's ideology or strategy, and in some cases has no manipulative intent (www.veridica.ro).

Also, based on the findings of a study conducted during a 2019 election campaign by Novel Research for MediaStandard.ro on the impact of the „fake news" phenomenon, we bring to your attention (www.digi24.ro):

- Almost 50% of Romanians believe that „fake news" can manipulate public opinion, while 32% say that the phenomenon threatens democracy and that the state should prevent „fake news";
- The number of people who have reported/commented on „fake news" and who have never liked or shared it is small, at only 8.2%, while there is a large number of passives who have not reacted in any way to „fake news" and bivalents (44.9%) and those who have distributed „fake news" (42.6%);
- 27.8% of respondents are very confident in their ability to recognise „fake news" and 60% somewhat confident.

At the same time, the findings of a study (Galián & Ato, 2023) [6] show that life satisfaction is strongly influenced by the degree of achievement, and the role of family in achieving happiness is also strongly conditioned by cultural beliefs, influenced also by social media, we say.

The aforementioned phenomena are of concern to many specialists in various fields, who will bring to our attention both the conclusions of the studies carried out, but especially the techniques of defeat and control for individual protection, and if we can not control the phenomenon of „fake news", we can minimize their effect.

2. Methodology

2.1 Objectives and assumptions

The general objective of the present work is to highlight the implications of the „fake news" phenomenon on the emotional states induced by „fake news", as well as the role of some psychological characteristics as mediators between the external stimuli represented by the „fake news" information flow and the final action behaviors of people in different situations, considering three objectives:

- ***The first objective*** is to analyse the existence and intensity of emotional states in the context of the abundance of information in social media, especially „fake news";
- ***The second objective*** aims to highlight the difference between people with different cognitive profiles in terms of how they interpret and train their response reactions to the content of „fake news";
- ***The third objective*** is to study and highlight the role of psychological characteristics as mediators of functional versus dysfunctional emotional states generated by „fake news" and functional versus dysfunctional behaviour.

To achieve the research objectives we proposed the following hypotheses:

- *Hypothesis 1 - Social media information, especially „fake news", induces some dysfunctional negative emotional states in some people.*
- *Hypothesis 2 - There are some differences in the level of emotional states induced by „fake news" information depending on the age of the individuals.*
- *Hypothesis 3 - There are interdependent relationships between the emotional states generated by „fake news" content and some personality characteristics, namely locus of control and intolerance of uncertainty.*
- *Hypothesis 4 - There are some interdependent relationships between the emotional states generated by „fake news" content and the profile of evaluative cognitions.*
- *Hypothesis 5 - There are interdependent relationships between the processing of social media information, especially „fake news" information, and general life satisfaction.*
- *Hypothesis 6 - Some cognitive profile characteristics, as well as locus of control, mediate between emotions induced by processing of external „fake news" stimuli and generic life satisfaction.*

2.2 Participants

The main requirements of the research group were: The habit of accessing information content from social-media networks related to the social, economic, political and military context; the availability to allocate the necessary time to complete the assessment instruments (data collection took place in December 2022); the quality of student and, simultaneously, the quality of employee regardless of professional field and seniority in the profession; the possibility of accessing the psychological assessment instruments in online format.

For the constitution of the research sample, the convenience sampling technique was used, which is a non-probability technique that does not take into account the requirements of indicating the probability of selection of cases, as a result, there is no guarantee that the sample is composed of cases that accurately describe the reference population described above (Popa, 2016) [7].

Thus, the research group was composed of 231 individuals, all with student status in three faculties in Bucharest and employed in an organization, with the following characteristics:

- gender-balanced, respectively 118 women and 113 men;
- heterogeneous in terms of age, with ages ranging from 20 to 55 (M=33, S.D.=6.42).
- homogeneous in terms of the fact that they all develop different forms of interpersonal relationships in the institutional context, respectively they are students and also have professional commitments;

- heterogeneous in terms of educational background, respectively 66 with secondary education, 66 with bachelor's degree, 93 with master's degree and 6 with doctoral degree;
- heterogeneous in terms of the professional field in which they work, as follows: 34 in finance, 25 in human resources, 3 in industry, 16 in commerce, 6 in advertising, 19 in education, 9 in law, 11 in healthcare, 19 in psychology, 10 in management, 14 in technical, 15 in arts, 21 in defence and public order, 17 in public services, 4 in public administration and 8 in unspecified fields.

2.3 Measurement of variables

Data were collected by applying the online version of the standardized psychological assessment instruments presented below, under the terms of the Declaration of Helsinki and the university's Code of Ethics, with participants consenting to participate.

2.3.1 The scale of „fake news" and „real" news

The scale was developed specifically for this scientific endeavour, with the objective of assessing and highlighting the way people process and react when they are in the situation of receiving certain stimuli, through the lens of written information, respectively „fake news" or „real" news.

The task of the evaluators was to analyse and classify each piece of information/news as „fake news" or „true", assessing how plausible the news is/was for them at the time of its appearance according to their own way of relating to information content in social media, considering the following response options: Probably false; definitely false; probably true; definitely true. One point was awarded for each item identified and correctly framed.

At the same time, for each „fake news" or „true" news item elaborated and operationalised as an item of the scale, people were asked to self-assess their emotional states induced/challenged by the content of the information, by referring to a continuum from -10 to +10, taking into account each of the following three bipolar dimensions: fear/anxiety-relaxation; sadness/depression-joy/exhilaration; irritation-peaceful/calm.

The scale was designed by the author of the study in cooperation with three psychological experts and consists of 22 items (presented in the appendix). Initially the scale comprised 28 items, operationalised/conceptualised by using 14 contents specific to „fake news" and 14 contents specific to „true news", which were topical at the time of the initiation of the research approach, being taken from official news websites (www.libertatea.ro/stiri; https://spotmedia.ro/stiri; https://adevarul.ro/stiri; www.veridica.ro/stiri; https://newsweek.com).

Following the pilot study carried out (Prisacaru, 2024) [8], taking into account the answers, the suggestions of the participants and the suggestions of the psychological experts, it was judged that 6 items were not suitable and were eliminated, so the final form contains 22 items.

2.3.2 Generic life satisfaction scale

The scale was taken from a specialised website (www.researchcentral.ro) and was used to assess beliefs and feelings that relate to people's appreciation of the realities of life, the quality of interpersonal relationships, the degree of psychological comfort or well-being generated by the characteristics listed above, which ultimately lead to overall satisfaction with social, family and organisational relationships as a whole. The scale consists of 10 items and the responses are recorded on a 5-step Likert-type scale.

2.3.3 Place of control scale

The scale was developed by Julian B. Rotter in 1966, based on the concept of „locus of control" in the description of personality, highlighting the psychological characteristics that give a certain direction to a person's behaviour, aiming to attribute the causes of behaviour to factors that are in the subjective sphere or outside it, in the objective world. The instrument was adapted by a group of specialists (Cracsner, Prisăcaru, Cană & Negură, 2007, p.245-248) [9] and comprises 29 items with two response options each.

2.3.4 Uncertainty intolerance scale

The scale was taken from a specialised website (www.researchcentral.ro), contains 27 items with answers on a 5-step Likert-type scale and allows the assessment of individual preferences and personal coping style in some complex life situations marked by either minimal or high uncertainty. Uncertainty tolerance is defined as an individual predisposition, assessed in the context of interpersonal interaction in different social and professional environments.

2.3.5 Rational and irrational belief scale

The scale was taken from a specialized website (www.researchcentral.ro), contains 25 items with responses on a 5-step Likert-type scale and assesses rational/rational evaluative cognitions of a general nature, divided into 7 dimensions: Rationality, global evaluation of one's own value, need for achievement, need for approval, need for comfort, absolutist demands for justice and global evaluation of others.

2.4 Procedure

The research was guided by the benchmarks of quantitative research, and the independent variables, dependent variables and statistical apparatus for data analysis were established. The research variables are translated into research hypotheses as follows:

- the dependent variables are „fake news" induced emotional states, „fake news"-„real news" induced emotional states (responses to items that were not correctly framed from both „fake news" and „real news"), and general life satisfaction;
- the independent variables are the locus of control and the rational/rational belief profile characteristics, which also act as moderator variables.

For the statistical processing of the data, using S.P.S.S. version 18.00, correlation analysis, simple linear regression and difference of statistical means were used.

In the preliminary data analysis stage, aimed at ensuring the correctness of data recording, checking marginal values, identifying missing data/values and analysing the normality of the distribution, no particular situations were identified.

3. Findings and Discussion

The statistical technique called Pearson correlations was used to prove Hypothesis 1 and the results are shown in Tables 1 and 2.

Table 1: Descriptive statistics and correlation coefficient values between the variable „fake news" and the variables emotional states induced by them (N=231)

	M	*S.D.*	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
(1) Items identified variable „fake news"	7.25	1.545	-						
(2) N.B. variabile „fake news"	11.2	3.395	.653**	-					
(3) Fear/Anxiety	29.22	20.811	.322**	.231**	-				
(4) Sadness/Depression	11.71	7.954	.217**	.057	.605**	-			
(5) Irritation	29.03	19.744	.339**	.260**	.981**	.598**	-		
(6) Relaxation	29.52	16.843	.312**	.259**	-.598**	-.292**	-.585**	-	
(7) Joy/Exhilaration	8.53	6.324	.304**	.117	-.119	.204**	-.115	.367**	-
(8) Peaceful/Calm	31.67	18.455	.381**	.300**	-.562**	-.329**	-.547**	.923**	.368**

** Correlation is significant at the 0.01 level (2-tailed)

Table 2: Descriptive statistics and correlation coefficient values between the variable *„fake news"-„true news" and the variables emotional states induced by them (N=231)*

	M	*S.D.*	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
(1) Unidentified items variable „fake news"- „true news"	5.10	2.820	-						
(2) N.B. variabile „fake news"-„true news"	13.55	11.497	.468**	-					
(3) Fear/Anxiety	36.49	23.360	.931**	.440**	-				
(4) Sadness/Depression	16.58	12.131	.666**	.282**	.619**	-			
(5) Irritation	36.28	23.256	.936**	.431**	.993**	.647**	-		
(6) Relaxation	9.68	7.460	.637**	.256**	.389**	.412**	.398**	-	
(7) Joy/Exhilaration	7.27	5.646	.651**	.282**	.435**	.492**	.458**	.784**	-
(8) Peaceful/Calm	10.35	8.268	.682**	.282**	.438**	.467**	.454**	.885**	.784**

** Correlation is significant at the 0.01 level (2-tailed)

The data for the „fake news" variable covers the number of items and the raw score obtained on items with „fake news" content identified and correctly scored, and the data for the „fake news"-„true news" variable covers the number of items and the raw score obtained on items with „fake news" content and items with „true news" content that were not recognized and correctly scored.

For interpretation of the data, according to Colton (1974, p.167) [10], the values of the correlation coefficients have the following meanings: r=-0.25÷0.25 means poor or no correlation; r=0.25÷0.50 (or-0.25÷-0.50) means an acceptable degree of association; r=0.50÷0.75 (or-0.50÷-0.75) means a moderate to good correlation; r >0.75 (or r< -0.75) means a very good association or correlation.

The data presented in tables 1 and 2 show that between the variables represented by the content of the news and the variables represented by the emotional states induced by their content there are different degrees of association, expressed by multiple values of the correlation coefficients, from specific values of acceptable association to good or even very good values, which allows us to conclude that the way of reception, processing and interpretation of the stimuli has a direct influence on the way of elaboration of the response, in this case of emotions.

We can also see that the data on the „fake news" variable, obtained through the responses to the items identified and correctly framed, as well as the data on the „fake news"-„true news" variable, obtained through the responses to the items that were not correctly framed, both among the „fake news" and „real news" content items, show the presence of dysfunctional negative emotions specific to anxiety/fear, sadness/depression and irritation through different values of the correlation coefficient (example: Table 2, r=0,931**; r=0,666**; r=0,936**; p <0,01).

This fact allows us to estimate that both items with „fake news" content and items with content that cannot be correctly assessed and framed, whether „fake news" or „real news", will have similar influence on the person's response, most probably due to the lack of certainty, maladaptive action behaviour develops.

We can also observe that there are significant interdependent relationships between the variables „fake news", „fake news"-„true news" and the variables positive emotions, respectively relaxation, joy/exhilaration and peaceful/calm, evidenced by different values of the correlation coefficients (example: Table 1 with values r=0.312**; r=0.304**; r=0.381**; p<0.01), which may mean that some people are not negatively influenced by information content or that they can optimally manage emotional states regardless of external stimuli.

From the data presented in tables 1 and 2 as well as from the interpretation presented we can state that hypothesis 1 is statistically supported.

The statistical technique called differences of statistical means, respectively Independent-Samples Test, was used to prove/test Hypothesis 2, and the results obtained are shown in tables 3 and 4.

Regarding the age of the people in the study group, they were distributed into two groups, namely 118 people aged up to 35 years in group 1 and 113 people aged over 35 years in group 2.

Table 3: Descriptive statistics on differences in statistical means between the two age groups on emotions induced by „fake news" variables (N=231)

Emotions induced by „fake news"	*Group age*	*N*	*Variable „fake news"*		
			M	*S.D.*	*Std.Error Men*
Gross Note (NB)	1	118	10.81	3.542	.326
	2	113	11.60	3.200	.301
Fear/Anxiety	1	118	14.19	8.818	.812
	2	113	44.91	17.941	1.688
Sadness/Depression	1	118	8.52	6.803	.626
	2	113	15.04	7.720	.726
Irritation	1	118	15.04	8.951	.824
	2	113	43.63	17.194	1.618
Relaxation	1	118	39.24	14.700	1.353
	2	113	19.38	12.395	1.166
Joy/Exhilaration	1	118	9.41	7.343	.676
	2	113	7.61	4.914	.462
Peaceful/Calm	1	118	41.23	16.933	1.559
	2	113	21.68	14.246	1.340

Table 4: Values of differences of statistical means (Independent Samples Test) on emotions induced by the „fake news" variable for the two age groups (for N=231)

Emoțiile induse de „fake news"	*Equal variances assumed (A)/not assumed (N.A.)*	*Levene's Test for Equality of Variances*		*t-test for Equality of Means*						
				T	*df*	*Sig. (2-tailed)*	*Mean Difference*	*Std. Error Difference*	*95% Confidence Interval of the Difference*	
		F	*Sig.*						*Lower*	*Upper*
Gross Note (NB)	*A.*	.931	.336	-1.772	229	.078	-.788	.445	-1.665	.088
	N.A.			-1.776	228.237	.077	-.788	.444	-1.663	.086
Fear/ Anxiety	*A.*	43.463	.000	-16.621	229	.000	-30.717	1.848	-34.358	-27.075
	N.A.			-16.401	161.544	.000	-30.717	1.873	-34.415	-27.018
Sadness/ Depression	*A.*	1.758	.186	-6.825	229	.000	-6.527	.956	-8.412	-4.643
	N.A.			-6.806	222.654	.000	-6.527	.959	-8.417	-4.637
Irritation	*A.*	31.699	.000	-15.945	229	.000	-28.586	1.793	-32.118	-25.053
	N.A.			-15.747	166.918	.000	-28.586	1.815	-32.170	-25.002
Relaxation	*A.*	4.151	.043	11.076	229	.000	19.857	1.793	16.324	23.389
	N.A.			11.116	225.421	.000	19.857	1.786	16.337	23.377
Joy/ Exhilaration	*A.*	10.632	.001	2.175	229	.031	1.796	.826	.169	3.423
	N.A.			2.193	205.158	.029	1.796	.819	.182	3.411
Peaceful/ Calm	*A.*	5.502	.020	9.474	229	.000	19.547	2.063	15.482	23.613
	N.A.			9.509	225.298	.000	19.547	2.056	15.497	23.598

Note: A=Assumed; N.A.=Not assumed

From the analysis of the data presented in tables 3 and 4, the following can be deduced:

- significant differences are revealed between the two age groups in terms of the level of emotional states induced by the content of news specific to the „fake news" variable;
- the dysfunctional negative emotional states induced by the „fake news" variable have higher values in the age group over 35 compared to the age group under 35, which means that older people are more sensitive, show some resistance to change and are less able to adapt to new situations;
- the positive emotional states induced by the „fake news" variable have higher values for the under 35 age group compared to the over 35 age group, which means that younger people show an optimal level of adaptation to new situations and accept change more flexibly;
- Stimulus processing mechanisms work differently, one could say that they are in favour of the age group under 35, perhaps supported by the vision of life with fewer events and worries, the prospect of professional experiences to come, mental openness and the possibility of personal development.

The data mentioned in tables 3 and 4 and the interpretation presented above allow us to state that hypothesis 2 is statistically supported.

In order to prove Hypothesis 3 the statistical technique called Pearson Correlations was used and the results obtained are presented in Table 5.

Table 5: Descriptive statistics and correlation coefficient values between the locus control variable, the uncertainty tolerance/intolerance variable and the emotions induced by the „fake news" variable (for N=231)

Variabile	*M.*	*S.D.*	*Emotional states induced by the variable „fake news"*					
			Fear/ Anxiety	*Sadness/ Depression*	*Irritation*	*Relaxation*	*Joy/ Exhilaration*	*Peaceful/ Calm*
Tolerance/intolerance of uncertainty	64.81	29.944	.714**	.370**	.704**	-.566**	-.236**	-.531**
Place of internal control	13.71	3.850	.050	.071	.057	-.185**	-.027	-.189**
Place of external control	9.31	3.853	-.046	-.063	-.052	.182**	.024	.186**

** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed)

The data presented in Table 5 reliefs:

- Between the uncertainty tolerance/intolerance variable and the „fake news" induced emotional states variables there are significant association or intercorrelation relationships, supported by high correlation coefficient values for negative emotional states (example: For fear/anxiety r=.714**; for irritation r=.704**; p<0.01);
- In the case of positive emotional states, related to the same variable, the values of the correlation coefficients are high, but with a negative sign („-"), which means both a further validation of the previous conclusion and evidence that low uncertainty is accompanied by high positive emotions or that positive emotions take the place of negative ones (example: For relaxation r=-.566**; for peaceful/calm r=-.531**; p<0.01), and vice versa;
- Regarding the relationship between the variable locus of control in relation to the variables of emotional states induced by „fake news", we find that the internal locus of control is associated with positive emotions, and the external locus of control with negative emotions; although the values of the correlation coefficients are not high enough (example: For relaxation r=-.185**; for peaceful/calm r=-.189**; p<0.01), their negative sign („-") indicates that strongly internalist people, who attribute the causality of the unfolding of events to subjective, internal, self-determinations, ignoring the role of life situations, the conjunction of factors, chance, may have positive emotions of higher intensity, and vice versa;
- When the level of externality becomes evident, negative emotions play a similar role to positive emotions in the case of internalists, although the values of the correlation coefficients are not significant (example: For sadness/depression r=-.063; for irritation r=-.052; for relaxation r=-.182**; for peaceful/calm r=-.186**; p<0.01), which means that externality-oriented people, who attribute the causality of mental and physical phenomena mainly to factors related to chance, fate, supernatural forces, generate negative emotions with increasing levels of externality;
- At the same time, although we do not have conclusive evidence, by logical inference we can judge that ambiverts, who describe themselves by characteristics specific to both orientations of locus of control (externalist vs. internalist), will manage emotions in an optimal manner compared to those with a clear orientation towards either externality or internality.

The data reported in Table 5, as well as the interpretation presented above, justify us to state that hypothesis 3 is statistically supported.

To prove Hypothesis 4 the statistical technique called Pearson Correlations was used and the results are shown in Table 6.

Table 6: Descriptive statistics and values of correlation coefficients between profile variables rational versus irrational evaluative cognitions and emotions induced by the „fake news" variable (N=231)

Cognitive profile variables	*M*	*S.D.*	*Emotional states induced by the variable „fake news"*					
			Fear/ Anxiety	*Sadness/ Depression*	*Irritation*	*Relaxation*	*Joy/ Exhila-ration*	*Peaceful/ Calm*
Rationality	16.21	3.036	.062	-.066	.045	.043	.034	.048
Global assessment of own value	7.35	1.819	-.030	.071	-.012	-.061	-.140*	-.087
Need for achievement	11.34	3.923	-.654**	-.447**	-.652**	.528**	.115	.551**
Need for approval	9.42	3.252	-.647**	-.367**	-.631**	.484**	.040	.450**
The need for comfort	10.00	3.807	.529**	.438**	.524**	-.392**	-.077	-.338**
The absolutist demand for justice	11.06	4.604	.640**	.445**	.636**	-.526**	-.156*	-.446**
Overall assessment of others	8.84	3.310	.664**	.453**	.648**	-.543**	-.181**	-.508**
Total irrationality	58.13	8.338	.307**	.304**	.309**	-.283**	-.162*	-.208**

**Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed)

The data in Table 6 shows:

- Between the variable emotional states induced by „fake news" and some variables of the cognitive profile there are present strong association relationships, supported by different values and meanings („+" or „-") of the correlation coefficient, which explicitly means that the role of cognitions is significant in stimulus processing and response elaboration;
- Regarding the need for achievement variable, it is directly interrelated with emotional states induced by „fake news", in a negative sense („-") with dysfunctional negative emotional states (example: For fear/anxiety r=-.654**; for irritation r=-.652**; p<0.01) and in a positive direction („+") with positive emotional states (example: For relaxation r=.528**; for peaceful/ calm r=.551**; p<0.01);
- With regard to the variable need for approval, we find the same direct interlinking relationship with emotional states induced by „fake news", in a negative sense („-") with dysfunctional negative emotional states (example: For fear/anxiety r=-.647**; for irritation r=-.631**; p <0.01) and in the positive („+") direction with positive emotional states (example for relaxation r=.484**; for peaceful/calm r=.450**; p <0.01), highlighting that a higher level of rationality of cognitions will result in a lower level of dysfunctional negative emotional states, but also a higher level of positive emotions.

The data mentioned in Table 6 and the interpretation presented above justify us to state that hypothesis 4 is statistically supported.

The statistical technique called Perason correlations was used to prove Hypothesis 5 and the results obtained are shown in Table 7.

Table 7: Descriptive statistics and correlation coefficient values between the variable generic satisfaction with life and information content in social media (N=231)

Variable	*M*	*S.D.*	*(1)*	*(2)*	*(3)*	*(4)*
(1) Generic life satisfaction	27.09	8.274	-			
(2) No. items identified variable „fake news"	7.25	1.545	.614**	-		
(3) N.B. variabile „fake news"	11.20	3.395	.946**	.653**		
(4) No. of items not correctly identified variable „fake news"-„true news"	5.10	2.820	-.489**	-.656**	-.634**	-
(5) N.B. variabile „fake news"-„true news"	13.55	11.497	-.257**	-.306**	-.340**	.468**

** Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed)

From the data presented in Table 7 we can see:

- Strong direct intercorrelation relationships between the variable generic life satisfaction and the variable „fake news", supported by high values of the correlation coefficient r=.614** and r=.946**; p <0.01, highlighting that satisfaction is influenced by environmental stimuli, in this case by „fake news" information;
- Association relationships between the variable generic job satisfaction and the variable „fake news"-„true news", respectively acceptable values of the correlation coefficient, with negative direction („-") r=-.489**and r=-.257**; p<0.01, showing that external stimuli of uncertain character, in our case information of uncertain character, have the same effect on generic life satisfaction as in the situation described above on people who are not able to deduce or distinguish with respect to content; as the number of stimuli increases there will be a decrease in the degree of generic life satisfaction.

The data mentioned in Table 7 and the interpretation presented above justify us to state that hypothesis 5 is statistically supported.

The statistical technique known as simple linear regression was used to test Hypothesis 6 and the results obtained are shown in tables 8, 9, 10, 11 and 12.

Table 8: Regression coefficient values for the direct relationship between life satisfaction variable and the „fake news" induced emotions variables

	B	Std. Error	Beta	t	Sig.
Generic life satisfaction⁎					
(Constant)	1.215	.723	-	1.681	.094
N.B. „fake news"	2.293	.066	.941	34.861	.000
Fear/Anxiety „fake news"	-.035	.045	-.089	-.791	.430
Sadness/Depression „fake news"	.029	.031	.028	.952	.342
Irritation „fake news"	.025	.047	.059	.524	.601
Relaxation „fake news"	-.031	.029	-.063	-1.060	.290
Joy/Exhilaration „fake news"	-.029	.033	-.022	-.901	.368
Peaceful/Calm „fake news"	.042	.026	.093	1.606	.110

⁎ Dependent variable: Generic life satisfaction

Table 9: Regression coefficient values for the relationship between moderator variable cognitive profile and „fake news" induced emotions variables

	B	Std. Error	Beta	t	Sig.
Cognitive profile-Irrationality⁎					
(Constant)	57.263	2.042	-	28.045	.000
Fear/Anxiety „fake news"	-.042	.126	-.105	-.332	.740
Sadness/Depression „fake news"	.340	.087	.324	3.889	.000
Irritation „fake news"	.073	.133	.173	.549	.584
Relaxation „fake news"	-.280	.082	-.566	-3.423	.001
Joy/Exhilaration „fake news"	-.276	.092	-.210	-3.004	.003
Peaceful/Calm „fake news"	.247	.073	.547	3.369	.001
Cognitive profile-Rationality ⁎					
(Constant)	14.811	.811	-	18.273	.000
Fear/Anxiety „fake news"	.097	.050	.666	1.942	.053
Sadness/Depression „fake news"	-.071	.035	-.186	-2.053	.041
Irritation „fake news"	-.075	.053	-.486	-1.416	.158
Relaxation „fake news"	.019	.033	.107	.594	.553
Joy/Exhilaration „fake news"	.032	.037	.066	.869	.386
Peaceful/Calm „fake news"	-.010	.029	-.060	-.339	.735

⁎ Dependent variable (moderator): Cognitive-rationality profile; cognitive-irrationality profile

Table 10: Regression coefficient values for the relationship between moderator variable locus of control and „fake news" induced emotions variables

	B	Std. Error	Beta	t	Sig.
Locus of control internality⁎					
(Constant)	15.691	.938	-	16.722	.000
Fear/Anxiety „fake news"	-.066	.063	-.356	-1.041	.299
Sadness/Depression „fake news"	.030	.043	.062	.689	.492
Irritation „fake news"	.042	.065	.216	.644	.520
Relaxation „fake news"	-.036	.041	-.159	-.889	.375
Joy/Exhilaration „fake news"	.028	.046	.046	.609	.543
Peaceful/Calm „fake news"	-.025	.036	-.121	-.695	.487
Locus of control externality⁎					
(Constant)	7.290	.940	-	7.758	.000
Fear/Anxiety „fake news"	.064	.063	.346	1.011	.313
Sadness/Depression „fake news"	-.025	.043	-.052	-.579	.563
Irritation „fake news"	-.040	.066	-.207	-.618	.537
Relaxation „fake news"	.036	.041	.159	.889	.375
Joy/Exhilaration „fake news"	-.031	.046	-.051	-.678	.499
Peaceful/Calm „fake news"	.026	.036	.122	.703	.483

⁎ Dependent variable (moderator): locus of control (internality vs. externality)

Table 11: Regression coefficient values on the relationship between the life satisfaction variable and the „fake news" induced emotions variables, moderated by some cognitive profile variables

	B	Std. Error	Beta	t	Sig.
Generic life satisfaction⁎					
(Constant)	.722	1.861	-	.388	.698
Cognitive-rationality profile	.076	.060	.028	1.259	.209
Cognitive-irationality profile	-.011	.024	-.011	-.460	.646
Fear/Anxiety „fake news"	-.043	.045	-.108	-.958	.339
Sadness/Depression „fake news"	.039	.032	.037	1.200	.231
Irritation „fake news"	.031	.047	.074	.658	.511
Relaxation „fake news"	-.035	.030	-.072	-1.185	.237
Joy/Exhilaration „fake news"	-.035	.033	-.027	-1.046	.297
Peaceful/Calm „fake news"	.045	.027	.101	1.697	.091

⁎ Dependent variable: Generic life satisfaction

Table 12: Regression coefficient values on the relationship between the life satisfaction variable and the „fake news" induced emotions variables, moderated by the locus of control variable

	B	Std. Error	Beta	t	Sig.
Generic life satisfaction⁎					
(Constant)	130.339	56.094	-	2.324	.021
Place of internal control	-5.155	2.442	-2.399	-2.112	.036
Place of external control	-5.220	2.438	-2.431	-2.141	.033
Fear/Anxiety „fake news"	-.081	.113	-.204	-.718	.473
Sadness/Depression „fake news"	-.115	.078	-.110	-1.476	.141
Irritation „fake news"	.365	.116	.870	3.138	.002
Relaxation „fake news"	.107	.072	.217	1.473	.142
Joy/Exhilaration „fake news"	-.062	.082	-.047	-.750	.454
Peaceful/Calm „fake news"	.206	.064	.459	3.197	.002

⁎ Dependent variable: Generic life satisfaction

We consider the clarifications of Baron & Kenny (1986, p.1173-1182) [11]:

- Averaging is a mechanism by which the relationship between the independent variable and the dependent variable is enhanced;
- Confirmation of the averaging relationship requires the concomitant fulfilment of certain conditions concerning the relationship between the independent variables and the dependent variable, with reference to the level of significance of the value of the correlation or regression coefficient.

As for the mediating relationship between the variable emotional states induced by „fake news" and the variable generic life satisfaction, in agreement with Sobel (1986, p.155-176) [12], it concerns the mediating effect of the mediating variable, respectively the variable locus of control and the variable cognitive profile.

Fig 1 shows schematically the mediating relationship between VI and VD, where „index a" represents the relationship between VI and M, „index b" represents the relationship between M and VD, „index c" represents the direct relationship between VI and VD, and „index c*" represents the relationship between VI and VD mediated by mediators.

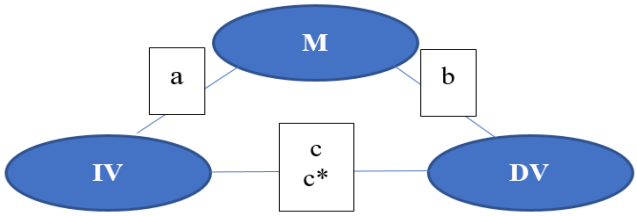

Fig 1: Mediation relationship between VI and VD

At the same time, we observe that the effect of the independent variable (VI) on the dependent variable (VD) propagates in two ways. The first path concerns the direct relationship between VI and VD, denoted by „index c", and the second path concerns the relationship between VI and VD mediated by the mediator (M), denoted by „index a and b". The value of „index c*" is only part of the VI and VD, because in this case part of the effect of VI on VD is manifested via the mediator, via the pathway VI→M, then M→VD.

According to Popa (2016) [13], „index a" signifies the intensity of the relationship between VI and M, and „index b" indicates the intensity of the relationship between M and VD, independent of the effect of VI on VD. The effect taken up by the mediator is called indirect effect and is calculated as the product of „indices a and b" with the formula M=(a x b), and the total effect (c) is calculated with the formula c= c*+(a x b).

The results of testing the averaging relationship, i.e. the regression equation data presented in table 8, 9, 10, 11 and 12, lead to the following conclusions:

- The total direct effect of fake news-induced emotional states on generic life satisfaction (VI→VD), as shown in Table 8, is 2.293, with distinct values for each of the dysfunctional negative emotions (e.g. for fear/anxiety the effect is -.035, with a standard error coefficient of .045) and the positive functional ones (e.g. for peaceful/calm the effect is .042, with a standard error of the coefficient of .026); we deduce that for the fear/anxiety example „index c*"=-.035, and for the peaceful/calm example „index c*"=.042;
- The moderating effect of the cognitive profile on emotions induced by „fake news" (VI→M) for the fear/anxiety variable, according to the data in Table 9, represented by irrationality is -.042, with the standard error of the coefficient of .126, and that represented by rationality is .097, with the standard error of the coefficient of .050; we deduce that in the case of irrationality „index a"=.042, and in the case of rationality „index a"=.097;
- The moderating effect of locus of control on fake news-induced emotions (VI→M) for the fear/anxiety variable, as shown in Table 10, represented by the internality is -.066, with standard error of the coefficient of .063, and that represented by the externality is .064, with standard error of the coefficient of .063; we infer that for internality „index a"=-.066, and for externality „index a"=.064;
- The indirect effect of emotions induced by „fake news" on generic life satisfaction, moderated by the cognitive profile variable (M→VD), according to the data in Table 11, represented by irrationality is .076, with standard error of the coefficient of .060, and that represented by rationality is -.011, with standard error of the coefficient of .024; we deduce that in the case of irrationality „index b"=.076, and in the case of rationality „index b"=-.011;
- The indirect effect of „fake news" induced emotions on generic life satisfaction, moderated by the locus of control variable (M→VD), according to the data in Table 12, represented by the internality is -5.155, with the standard error of the coefficient of 2.442, and that represented by the externality is -5.220, with the standard error of the coefficient of 2.438; we infer that in the case of internality „index b"=-5.155, and in the case of externality „index b"=-5.220.

Taking into account the data presented above, as well as the fact that M=(a x b), we can calculate the moderating effect of the two variables as follows:

(a) Cognitive profile variable:

- For irrationality M_1=(.042 x .076)=.003192;
- For rationality M_2=(.097 x .011)=.001067;

b) The control location variable:

- For internality M_1=(-.066 x -5.155)=.34023;
- For externality M_2=(-.064 x -5.220)=.33408;

c) The cumulative effect of the two variables:

- M_1 =.003192+.34023=.343422;
- M_2 =.001067+.33408=.335147;
- $M_{TOTAL}=M_1+M_2$ =.343422+.333013=.678569.

Based on the data presented above, we can calculate the total effect, denoted by the „index c", of the „fake news" induced emotional state variable on generic life satisfaction, with the formula c=c*+(a x b), where c*=-0.035 and (a x b)=M_{TOTAL}=0.678569.

Thus, c=-0.035+0.678569=0.643569.

The total effect of „fake news" induced emotional states on generic life satisfaction, a psychological characteristic that can be regarded as an essential component of behavioural adaptation in various life situations, is mediated 64% by the two variables cognitive profile and locus of control.

The data mentioned in tables 8, 9, 10, 11 and 12 as well as the interpretation presented above lead us to state that hypothesis 6 is statistically supported.

5. Conclusions

The objectives of the study were met, the working hypotheses are statistically supported by the data and results obtained, and the variables established in the research design proved to be relevant in relation to the need to highlight the implications of the „fake news" phenomenon on the emotional states induced by them, as well as the role of some psychological characteristics as mediators between the external stimuli represented by the „fake news" information flow and the final action behaviors of people in different situations.

At the same time, we can appreciate that the results obtained participate with scientifically validated evidence to substantiate the concern about: *Why the response reactions of people in such situations are different, some overcome the situation without difficulty, as if nothing had happened, and others even need expert support to overcome?*

In terms of how to deal with news content, both the direct and especially the mediating role of rational versus irrational cognitions involved in stimulus processing has been

highlighted, so that we can predict which individuals prove to have the ability to understand and discern between news with advert content and news with „fake news" content, and in turn the cognitions will trigger some positive versus negative emotional states, followed by acted, responsive, adaptive versus maladaptive behaviors.

At the same time, the important role of the locus of control was also highlighted, as it has been shown to mediate the relationship between emotional states induced by „fake news" and generic life satisfaction. It is important to note that people who are characterized by an ambiverted orientation of the locus of control, who attribute the causality of the unfolding of events to moderate subjective determinations, who also take into account the role of life situations, of the conjunction of factors, of chance, will have an adequate self-image in relation to stimuli, in this case with informational content of the „fake news" type.

In other words, it has been shown that people with some characteristics of the rational cognitive profile, as well as those specific to the ambivert locus of control, will optimally manage the emotional states induced by „fake news" and will acquire a higher level of generic life satisfaction compared to people with some characteristics of the irrational cognitive profile and the locus of control located much towards externality or internality.

With regard to generic life satisfaction, addressed as a psychological characteristic specific to adaptation, in this case with reference to people who are used to easily access information content from social-media networks related to the social, economic, political and military context, but who simultaneously develop interpersonal relationships in the institutional context, respectively universities and within professional companies/institutions, it was found that the two variables, respectively the cognitive profile variable and the locus of control variable explained 64% of the variance in the total effect of „fake news" induced emotional states.

The detailed analysis and interpretation of the results of the research led to some pertinent conclusions about the phenomenon of „fake news" and the role of some psychological characteristics in mediating the impact that „fake news" can have on the action behaviour of people in different situations and contexts.

Even though this study is limited, as it takes into account data from a limited number of people, it provides some scientifically validated evidence that „fake news" content can affect a significant number of people, and their behavioural actions can be damaging to individuals and to the organisation to which they belong, whether for educational or productive purposes. We plan to continue the study in the future using data from a representative sample.

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