Comunicar, n. 73, v. XXX, 2022 | Media Education Research Journal | ISSN: 1134-3478; e-ISSN: 1988-3478
www.comunicarjournal.com

The COVID-19 infodemic among young people and adults: The support of critical media literacy

La infodemia del COVID-19 en jóvenes y adultos: El soporte de la alfabetización crítica mediática

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ABSTRACT

The COVID-19 pandemic has flooded the public sphere with large amounts of information, engendering what some specialists have dubbed the infodemic. Among the mechanisms used to mitigate the effects of the infodemic, critical media literacy has proven a valuable approach. This study aimed to analyze the critical media skills (CMS) of young people and adults in relation to the variables of infodemic awareness (IPA), infodemic and wellbeing (ISW), emotional reaction (ERI), and media trust (MTC). A cross-sectional online study with 404 participants (Mage=32.8) was conducted in two virtual communities in Mexico during the first semester of 2021. Descriptive analysis revealed highly critical media skills in participants. Adults showed high levels of IPA, while young people presented high levels of ISW, ERI, and MTC. Observations by the age group indicated an association between CMS and ISW, and CMS and MCT, while the association between CMS and IPA was null. The COVID-19 outbreak has intensified the consumption of digital media and access to untrustworthy information. Critical media literacy may protect individuals from the risks of infodemic by enhancing critical roles and attitudes toward media discourse. This study supports the recommendation to promote media literacy initiatives that inoculate critical media skills as mechanisms to counteract the misinformation in health crises.

RESUMEN

La pandemia por la COVID-19 ha inundado de información poco confiable la esfera pública dando lugar a lo que algunos especialistas llaman la infodemia. Entre los mecanismos utilizados para mitigar los efectos de la infodemia, la alfabetización mediática ha demostrado tener un papel valioso. Este estudio tuvo como objetivo analizar las actitudes críticas hacia los medios (ACM) de jóvenes y adultos en relación con la percepción de infodemia (PAI), su influencia en el bienestar socioemocional (BSE), las reacciones emocionales (REI) y la confianza en los medios (CMC). Realizamos un estudio transversal con 404 participantes (M=32,8) en dos comunidades virtuales de México durante el primer semestre de 2021. El análisis descriptivo mostró niveles altos de ACM entre los participantes, mayores niveles de PAI en adultos y mayores niveles de BSE y REI en jóvenes. Las observaciones por grupo de edad revelaron una asociación entre ACM y las variables BSE y CMC, mientras que la asociación entre ACM y PAI fue nula. La pandemia de la COVID-19 ha intensificado el consumo de medios e información no confiable. La alfabetización crítica mediática puede proteger a las personas de los riesgos de la infodemia al mejorar sus competencias y habilidades para informarse. Los resultados de esta investigación respaldan la recomendación de promover iniciativas de alfabetización mediática que favorezcan las actitudes críticas como mecanismos de defensa en crisis sanitarias.

KEYWORDS | PALABRAS CLAVE

Media literacy, critical media skills, infodemic, media wellbeing, media trust, COVID-19.
Educación mediática, competencias críticas, infodemia, salud mediática, confianza, COVID-19.

Received: 2022-01-12 | Reviewed: 2022-04-03 | Accepted: 2022-05-12 | OnlineFirst: 2022-06-30 | Published: 2022-10-01
DOI https://doi.org/10.3916/C73-2022-06 | Pages: 67-76

1. Introduction

Amidst the COVID-19 pandemic, both digital and traditional media have served as a major source of information to palliate the effects of uncertainty. Paradoxically, they have also acted as a wellspring of misinformation, fake news, and conspiracy theories (Masip et al., 2020; Rocha et al., 2021). It was at the beginning of the COVID-19 outbreak when health authorities stated that the fight against COVID-19 was accompanied by a fight against the infodemic (World Health Organization, 2020), a complex phenomenon that involves the production and consumption of information regarding a topic of public interest.

The infodemic comprises the making and dissemination of large amounts of information, including deceitful content that spreads confusion and anxiety (Patel et al., 2020). Different studies suggest that the COVID-19 infodemic has been a key factor to disrupt the public opinion and affect the social environment (Lin, 2020; Patel et al., 2020). Moreover, the COVID-19 infodemic has affected the trust in, and the legitimacy of public media and the government in different countries (Xu, 2021; Zhao et al., 2020); in addition to cause people's emotional reactions such as fear, stress, and loneliness (de-Bruin et al., 2020; Green et al., 2020).

Both governments and health authorities have implemented several mechanisms to diminish the effects of the infodemic (Lovari, 2020). Media literacy has proven to be an efficient resource to encourage people to apply more critical criteria to evaluate media information sources (Melki et al., 2021; Rajasekhar et al., 2021). Training in media literacy is therefore, considered a lifelong learning process that involves learning from both formal education and vivid experiences that activate self-protection mechanisms against deceitful media (Kendall & McDougall, 2012), and empower media users to deal with the infodemic.

The current COVID-19 pandemic has introduced an opportunity to acquire new media literacy competencies as well as to train individuals' inoculated skills (Basol et al., 2021; Rajasekhar et al., 2021). The need to assess the media competencies during the COVID-19 pandemic has led us to explore the role of critical media skills to deal with the infodemic. Considering the diversity of media consumption habits and preferences during the pandemic (Liu et al., 2021; Masip et al., 2020; Nguyen et al., 2021), we analyzed the critical media skills of young people and adults.

1.1. Critical media skills and mitigation of the infodemic

Academic literature offers numerous definitions of media literacy. According to authors such as Potter (2013), media literacy can relate to many different things in diverse fields. While some authors refer to media literacy as the ability to access and manage the media, others focus on people's ability to understand, analyze and evaluate the texts, images, and sounds that comprise contemporary audiovisual culture. In accordance with these ideas, Ferrés and Piscitelli (2012) propose media literacy as a generic framework of competencies that covers multiple dimensions such as people's attitudes, perceptions, and abilities in relation to the production, distribution, and reception of media information.

Scientific research has traditionally covered medium-centered literacies, but growing interest in the role of audiences has led to emerging fields of specialization. Critical media literacy has been underlined as a novel field for understanding difficult-to-observe practices such as people's management of information within a complex media structure (Kendall & McDougall, 2012). As a field of study, critical media literacy explores people's understanding of media messages and conventions, their ability to analyze stereotyped discourse and dominant values, and their attitudes and perceptions of media messages (Kellner & Share, 2007). Critical media literacy training can take place in both formal and less formal learning environments. It can be inherent to both the process and the outcome of situated learning practices where media users have to deal with media content, make decisions, and make sense of the information they consume or are exposed to (Kendall & McDougall, 2012; Sánchez-Reina, 2020).

In the context of the COVID-19 outbreak, scientific literature has identified critical media skills such as the ability to assess, synthesize, and analyze media content as weapons to defeat the infodemic. Indeed, according to scientific reports, critical media skills such as the evaluation, selection, and fact-checking of media information are likely to decrease the impact of the infodemic. Media literacy training projects conducted by Pérez-Escolar et al. (2021) and Scheibenzuber et al. (2021) during the

COVID-19 pandemic revealed that training in fact-checking skills may improve people's abilities to tackle disinformation. Additionally, Espina and Spracklin (2021) evidenced that these literacy skills can support health professionals by increasing their confidence when evaluating online information and specialized health journals.

Furthermore, research has highlighted correlations between critical media competencies and institutional (dis)trust. In their descriptive study, Austin et al. (2021) found a strong relationship between media literacy and the acceptance of official information disseminated by the government. In contrast, Pickles et al. (2020) observed that Australian citizens showed lower institutional trust and greater rejection of official governmental information mostly supported by misinformation (fake news, rumors, and myths). Additional studies have focused on the prebunking: the inoculation of knowledge and experiences to deal not only with disinformation, but also with associated situations t (e.g., deception, manipulation, and polarization). Basol et al. (2021) evaluated the efficacy of two pre-bunking interventions and determined that media literacy training can increase critical attitudes, including the ability to perceive manipulative information about COVID-19, the confidence to spot misinformation, and the willingness to share fake news with others. Similarly, Guldin et al. (2021) compared the performance of individuals to deal with misinformation by observing new and existing critical skills, concluding that people with previous training were better protected against the infodemic. Forsythe (2020) offers a different perspective, observing that although the infodemic can be diminished by enhancing critical media attitudes, training in information skills might not tackle the overall problem of many people's lack of health literacy, such as little knowledge of what a virus is, how contagion and immunization work, and so forth. To this argument, authors such as Brodsky et al. (2021) posit the idea of curricula, raising that to improve critical media skills, it is first necessary to equip the individual with a curriculum programmed for specific scenarios.

In the context of an unprecedented event in modern history such as the COVID-19 outbreak, media literacy has emerged as a resource for dealing with the infodemic. Fake news, conspiracy theories, and other myths around the COVID-19 pandemic have variously influenced populations in correlation with the lack of media education and health literacies (Forsythe, 2020; Patel et al., 2020). Both inoculated skills and the current implementation of media literacy programs have succeeded as important tools to fight the negative impacts of the COVID-19 infodemic. While current literature has focused on assessing the outcomes of interventions, few studies have explored the role of inoculated critical media literacies and their relation to other subsidiary variables. In this respect, this study observed the following concepts:

Infodemic perception and awareness (IPA): Described as the ability to evaluate the state of information, IPA encompasses the ability to monitor one's media consumption and execute copying skills against unreliable and deceitful information. In line with the studies conducted by Espina and Spracklin (2021), Pérez-Escolar et al. (2021), Scheibenzuber et al. (2021), and Vraga et al. (2020), higher critical media attitudes correspond to higher infodemic awareness. It was thus hypothesized that high levels of infodemic awareness would be associated with high levels of critical media literacy (H1). Infodemic and socio-emotional wellbeing (ISW): This refers to both the physiological and socio-emotional mechanisms that the exposure of information produces in individuals, as well as the strategies they develop to protect themselves from them. As discussed by recent studies, higher critical media skills may be associated with lower levels of stress, fear, and anxiety (de-Bruin et al., 2020; Ouedraogo, 2020). Moreover, critical media skills may decrease the emotional reactions to infodemic (ERI) (Borah et al., 2021; Scribano & Lisdero, 2020). In this line, we hypothesized that the higher levels of critical media literacy would be associated with lower levels of socio-emotional effects and emotional reactions (H2).

Media trust and confidence (MTC): This refers to the confidence people grant in media sources. It comprises people's acceptance and reliability of information elaborated or coming from it. According to prior research (Austin et al., 2021; Okan et al., 2020; Pérez-Escoda et al., 2021; Pickles et al., 2020), a higher level of critical media attitudes correlates with higher trust in information from primary sources (e.g., institutional media, government media) and less reliability in non-formal media (e.g., social media, and primary circles of socialization). We, therefore, hypothesized that higher levels of critical media literacy might be associated with higher institutional media trust and confidence (H3).

2. Method

2.1. Sample and procedure

A cross-sectional descriptive study was designed using an online questionnaire to measure media consumption habits, perceptions, and attitudes towards information during the COVID-19 outbreak. As in similar studies conducted in virtual environments (Baltar & Brunet, 2012; Rife et al., 2016), convenience sampling was used. Two project researchers shared the online questionnaire with non-official social media groups of two university virtual communities, namely FCCom BUAP (N=4,100), and Facultad de Psicología, BUAP (N=3,400). To gain wider heterogeneity in the sample, the snowball technique was applied by asking participants to share the questionnaire among potential participants. Additionally, the questionnaire was shared via researchers' social media profiles on LinkedIn and Twitter.

Data collection took place from March to June 2021 from a total of 414 individuals. After data verification and cleaning, the final sample was set at 404 participants. Demographically, 41.1% (n=166) of participants were men, 57.9% (n=234) were women, and 2% (n=4) preferred not to specify. The mean age of participants was 32.8 years (SD=12.65). The highest educational attainment was university studies (79.2%, n=320), and 65.6% of respondents (n=265) declared themselves to be employed.

The expressly designed questionnaire was adapted to Google Forms and consisted of five sections with a total of 55 items. Collected data included a) demographic information, b) a self-report of media consumption habits, c) a self-report of news consumption, d) assessment of perceptions and attitudes towards media information, and e) assessment of the socioemotional effects of the infodemic. All participants were informed of the project's purpose, and the questionnaire included an information sheet on the nature of the project and the participants' right to withdraw at any time. In compliance with the ethical protocol of Pompeu Fabra University and the GDPR 2018 regulation, the questionnaire was fully anonymous and only non-sensitive information was collected.

2.2. Measurement

The study encompassed how the following variables were impacted by critical media skills (CMS): infodemic perception and awareness (IPA), infodemic and socio-emotional wellbeing (ISW), emotional reactions to infodemic (ERI), and media trust and confidence (MTC). Following recent literature on media literacy and the COVID-19 infodemic, a list of variables and indicators was compiled and translated into a questionnaire. A first version of the questionnaire was revised by two senior researchers in media communication and sociology, and piloted with a group of university students. Adjustments were made to improve interaction and readability. An overall description of the analyzed variables is provided below. Table 1 summarizes the frequencies for the measured items in the employed scales.

Critical media skills (CMS). We constructed a 6-item scale to assess CMS toward media information based on the indicators of media literacy competencies proposed by Ferrés and Piscitelli (2012). The CMS scale was reported on a 5-point scale rating agreement from (1) strongly disagree to (5) strongly agree. The section yielded scores of $M=21.8$ and $SD=5.0$ and a reliability coefficient of $\alpha=.86$.Infodemic perception and awareness (IPA). This variable measured perceptions and attitudes towards the infodemic using a 6-item scale reported on 5-rating points (1=strongly disagree, 5=strongly agree). The section results had a mean of 18.67, SD=3.72, and $\alpha=0.61$. Infodemic and socio-emotional wellbeing (ISW). This variable assessed the self-perceived effects of the infodemic on physical health, stress, and emotions. The variable was measured with three items reported on a 5-point Likert scale (1=strongly disagree, 5=strongly agree). The scale reported an average score of $M=9.02$, $SD=3.36$, and $\alpha=0.83$. Additionally, respondents were asked to grade their emotional reactions to news information (ERI). As per prior research (Scribano & Lisdero, 2020), ERI was rated on a 4-point scale (1=not at all, 4=very much). The scale yielded values of $M=21.60$, $SD=4.94$, and $\alpha=0.79$.

Media Trust and Confidence (MTC). In line with prior research (Losada-Díaz et al., 2020; Zhao et al., 2020), confidence in the news and COVID-19 information disseminated by mass media, the government, social media, and the primary social sphere (family and friends) was measured. MTC was reported on a 5-point scale (1=not at all to 5=very much). This section yielded scores of $M=11.46$, $SD=2.56$, and $\alpha=0.64$. As part of the descriptive analysis, media consumption habits (MCH) were also measured. This

variable included self-reporting of news consumption during the pandemic in terms of the frequency of consumption and media preferences. While frequency was measured using a 5-point scale for news consumption ("How often have you consumed news concerning the COVID-19 outbreak?"; 0=never to 5=always), media preference was measured via a multiple-choice question to identify the most and least consumed media sources. Responses were classified into two categories, namely digital media and traditional media consumption.

Table 1. Descriptive statistics for measured variables

		Disagree N (%)	Somewhat N (%)	Agree N (%)	Mean
CMS	I am used to in-depth reading	56 (13.9)	135 (33.4)	213 (52.7)	3.52
	I reflect on the veracity of what I read/see/listen to	31 (7.7)	107 (26.5)	266 (65.8)	3.81
	I contrast the information I read/see/listen to with third-party sources	57 (14.1)	103 (25.5)	244 (60.4)	3.64
	I verify news features such as the date, media source, or journalist's name	87 (21.5)	87 (21.5)	230 (56.9)	3.50
	I do fact-checking before sharing news on social media	52 (12.9)	81 (20.0)	271 (67.1)	3.83
	I can identify fake news	68 (16.8)	126 (31.2)	210 (52.0)	3.51
IPA	My information consumption has increased during the COVID-19 outbreak	105 (26.0)	128 (31.7)	171 (42.3)	3.22
	Having a lot of information makes me feel safe	165 (40.8)	157 (38.9)	82 (20.3)	2.71
	I find myself well-informed	67 (16.6)	150 (37.1)	187 (46.3)	3.34
	There is an excess of information concerning the COVID-19 outbreak	75 (18.6)	65 (16.1)	264 (65.3)	3.79
	The excess of information prevents me from understanding what is happening	140 (34.7)	127 (31.4)	137 (33.9)	3.01
	I prefer to avoid information so as not to alter my emotional state	195 (48.3)	111 (27.5)	98 (24.3)	2.61
ISW	The excess of information has affected my well-being	190 (47.0)	115 (28.5)	99 (24.5)	2.69
	The COVID-19 outbreak has affected my emotional state	94 (23.3)	109 (27.0)	201 (49.8)	3.38
	I have experienced stress after being exposed to COVID-19 news/information	165 (40.8)	87 (21.5)	152 (37,6)	2.95
		Not at all	**Some**	**Very much**	**Mean**
ERI	Awe: Fear / Sadness	63 (15.6)	230 (56.9)	111 (27.5)	2,69
	Contempt: Anger / Disgust	44 (10.9)	216 (53.4)	144 (35.6)	2,92
	Optimism: Joy / Surprise	93 (23.1)	283 (70.1)	28 (6.9)	2,23
	Worriedness: Anxiety / Uncertainty	50 (12.4)	181 (44.7)	173 (42.8)	2,94
		Not much	**Rather**	**A lot**	**Mean**
MTC	Trust in news and information disseminated by the government	119 (29.5)	119 (29.5)	166 (41.1)	3.09
	Trust in news and information disseminated by the mass media	105 (26.0)	179 (44.3)	120 (29.7)	3.00
	Trust in news and information disseminated on social media	116 (28.7)	184 (45.5)	104 (25.7)	2.93
	Trust in news and COVID-19 information disseminated by family and friends	222 (55.0)	130 (32.2)	52 (12.9)	2.44

Note. Percentages represent recorded rating scale values.

2.3. Data analysis

The age variable was divided into two age groups constructed according to the criteria of the Panamerican Health Organization (2009): youth included participants from 18 to $\leq$ 26 years (n=187, 46.3%), while adults included participants from 27 to 65+ years (n=217, 53.7%). The first level of analysis included descriptive statistics analysis and normality tests for both age groups. A chi-square test observed the differences in CMS, IPA, ISW, ERI, and MTC scale items. The second level of analysis included hypothesis testing. As a first step, the average score of the scales was computed considering the transformation of the Likert items that required inversion (Suárez-Álvarez et al., 2018) and a Pearson test was performed to observe zero-order correlations. The second level of analysis included an ANOVA test for age groups according to their CMS levels (i.e., youth with lower CMS, youth with higher CMS, adults with lower CMS, and adults with higher CMS). CMS levels were computed as a binary variable according to the distribution of percentiles of CMS-scored values. Lower CMS was defined as a score $\leq$ the 50^{th} percentile (6–22 points), while higher CMS was defined as a score $\geq$ the 50^{th} percentile (23–30 points).

3. Analysis and findings

3.1. Descriptive analysis

Adults reported higher values for the frequency of news consumption (M=3.24, SD=.94) in comparison to youth (M=3.00, SD=.86, t(402)=-2,52, p=<0.05). Regarding media preferences, both

groups were more likely to use digital media to be informed. Preference for digital media was greater among adults (M=1.66, SD=.88 vs M=1.22, SD=.80, t(402)=5.30, p=<0.05). Media consumption preferences varied between age groups: digital press, websites, and social media were preferred by youth over traditional media (press, radio, and television). Concerning media formats, audiovisual content such as podcasts, videos, and infographics were mostly preferred among young people. Table 2 summarizes the reported media consumption habits and preferences for media formats.

Table 2. Media consumption habits in youth and adults

	X2 (df)	Youth (N %)	Adults (N %)
Paper Press	1.87(1)	9.6 (18)	6% (13)
Radio †	5.21 (1)	20.9 (39)	30.9 (67)
Television	0.30 (1)	46.5 (87)	43.8 (95)
Average Score for Traditional Media		**M=0.77 (SD=.77)**	**M=0.81 (SD=.76)**
Digital Press	2.47 (1)	67.9 (127)	60.4 (131)
Websites†	14.38 (1)	31.0 (58)	15.2 (33)
Social Media†	18.65 (1)	67.9 (127)	46.5 (101)
Average Score for Digital Media		**M=1.66 (SD=.88)**	**M=1.22 (SD=.80)**
Preferred media formats			
Newspaper Articles	0.00 (1)	44.9 (84)	44.7 (97)
Audiovisual Clips	2.32 (1)	43.9 (82)	36.4 (79)
Alternative Media Sites	3.43 (1)	34.8 (65)	26.3 (57)
Podcasts †	7.74 (1)	23.5 (44)	12.9 (28)
Infographics †	9.95 (1)	35.8 (67)	21.7 (47)
News (Digital Press) †	12.16 (1)	75.4 (141)	59.0 (128)
News Special Reports	0.00 (1)	50.3 (94)	50.7 (110)
Videos †	4.26 (1)	34.8 (65)	25.3 (55)

† Statistically significant differences for age groups reported with a chi-squared test p<.05.

As shown in Table 3, both youth and adults reflected high mean values for CMS scale, and no statistically significant differences were reported in the scale items.

Table 3. Mean values for observed variables in young people and adults

		X2 (df)	YOUTH (M, SD)	ADULTS (M, SD)
CMS	I am used to doing in-depth reading	5.23 (4)	3.55 (1.07)	3.50 (0.94)
	I reflect on the veracity of what I read/see/listen to	3.50 (4)	3.79 (0.95)	3.84 (1.04)
	I contrast the information I read/see/listen to with third-party sources	6.17 (4)	3.55 (1.04)	3.71 (1.03)
	I verify news features such as the date, media source, or journalist's name	2.32 (4)	3.43 (1.27)	3.56 (1.17)
	I do fact-checking before sharing news on social media	2.06 (4)	3.86 (1.14)	3.80 (1.13)
	I can identify fake news	7.52 (4)	3.61 (1.11)	3.42 (1.09)
	Mean Score for Averaged Scale		**3.63 (0.84)**	**3.63 (0.83)**
IPA	My information consumption has increased during the COVID-19 outbreak† **	15.09 (4)	3.41 (1.04)	3.05 (1.22)
	Having a lot of information makes me feel safe	8.81 (4)	2.82 (1.01)	2.60 (1.09)
	I find myself well-informed† *	12.12 (4)	3.46 (0.88)	3.23 (1.06)
	There is an excess of information concerning the COVID-19 outbreak†*	10.38 (4)	3.96 (1.14)	3.65 (1.36)
	The excess of information prevents me from understanding what is happening	2.73 (4)	2.97 (1.17)	3.04 (1.18)
	I prefer to avoid information so as not to alter my emotional state	8.52 (4)	2.44 (1.24)	2.76 (1.26)
	Mean Score for Averaged Scale		**3.09 (0.46)**	**3.17 (0.54)**
ISW	The excess of information has affected my well-being	1.81 (4)	2.75 (1.29)	2.64 (1.21)
	The COVID-19 outbreak has affected my emotional state	5.00 (4)	3.50 (1.29)	3.28 (1.25)
	I have experienced stress after being exposed to COVID-19 news/information	7.24 (4)	2.89 (1.45)	3.00 (1.31)
	Mean Score for Averaged Scale		**3.04 (1.18)**	**2.97 (1.06)**
ERI	Awe: Fear / Sadness	5.10 (2)	2.66 (0.86)	2.70 (0.79)
	Contempt: Anger / Disgust	6.00 (3)	2.94 (0.83)	2.91 (0.94)
	Optimism: Joy / Surprise† **	12.33 (2)	2.30 (0.70)	2.17 (0.66)
	Worriedness: Anxiety / Uncertainty	.042 (3)	2.97 (0.93)	2.93 (0.93)
	Mean Score for Averaged Scale		**2.71 (0.60)**	**2.68 (0.62)**
MTC	Trust in news and information disseminated by the government† **	21.76 (4)	3.33 (0.97)	2.88 (1.15)
	Trust in news and information disseminated by the mass media† *	15.58 (4)	3.14 (0.77)	2,88 (0,96)
	Trust in news and information disseminated on social media† **	14.36 (4)	3.03 (0.79)	2,85 (0.88)
	Trust in news and other COVID-19 information disseminated by family and friends	6.16 (4)	2.37 (0.98)	2,51 (0,93)
	Mean Score for Averaged Scale		**2.96 (0.60)**	**2,77 (0,66)**

Note. *p<.05, **p<.01 †Statistically significant differences as reported in chi-square test.

With regards to IPA, young people showed higher mean values for the perception of larger media consumption in comparison to adults (M=3.41 vs M=3.05), and higher mean values for infodemic awareness (M=3.96 vs M=3.65). Adults, on their part, reported larger mean values for feeling confused due to the excess of information (M=3.04 vs M=2.97) and avoiding information to prevent emotional stress (M=2.76 vs M=2.44). Significant statistical differences were found only in three scale items. Similarly, the ISW variable had larger mean values among youth for items such as the effects of the

infodemic on well-being and emotional state. Adults reported higher values for feeling stress after being exposed to COVID-19 information (M=3.00 vs M=2.39). No statistically significant differences were reported in the scale items. Aligned with this, ERI was higher among young people in comparison to adults, with anxiety and uncertainty being revealed as the most frequently manifested emotions. Positive emotional reactions such as joy and surprise reported statistically significant differences as youth reported higher mean values (M=2.30 vs M=2.17). Lastly, the MTC analysis yielded larger mean values among youth for information sources such as the government, mass media, and social media. Significant statistical differences were found in these items. Adults reported higher trust in information from family and friends.

3.2. Critical media skills in young people and adults

Table 4 displays the descriptive statistics of the scales and zero-order correlations. On average, CMS, IPA, and ISW had large mean values, while ERI and MTC yielded moderate numbers. Correlational analysis revealed a significant association between CMS, IPA, ISW, ERI, and MTC. However, correlations were weak. IPA was also positively associated with ISW and ERI and negatively correlated with MTC. ERI was moderately correlated with ISW, whereas the MTC was generally negatively correlated with IPA.

Table 4. Descriptive statistics and zero-order correlations (general sample)

	Descriptive Statistics				Zero-Order Correlations				
	Min.	Max	M	SD	1	2	3	4	5
1. Critical Media Skills (CMS)	1.00	5.00	3.63	0.84	-				
2. Infodemic Perception and Awareness (IPA)	1.83	4.67	3.14	0.51	0.110*	-			
3. Infodemic and Socio-emotional wellbeing (ISW)	1.00	5.00	3.00	1.12	0.230**	0.302**	-		
4. Emotional Reactions to Information (ERI)	1.00	3.88	2.70	0.61	0.218**	0.145**	0.623**	-	
5. Media Trust and Confidence (MTC)	1.00	4.50	2.86	0.63	0.203**	-0.113*	0.100*	0.109*	-

Note. *p<.05, **p<.01.

Group observations according to CMS level (Table 5) indicate the lowest IPA value for youth with L-CMS (M=3.05) and the highest for adults with H-CMS (M=3.19). However, no significant statistical differences were reported. Youth and adults with H-CMS had higher mean values for ISW (M=3.19 and M=3.20, correspondingly), and significant statistical differences were observed (p<.001). Consistent with this, youth and adults with H-CMS also reported higher values for ERI. Lastly, youth and adults with H-CMS had larger values for MTC, and statistically significant differences confirmed the mean differences within groups (p<.001).

Table 5. Mean comparisons for CMS levels in youth and adults

		N	M	SD	gl	F	P
IAP	Youth L-CMS	95	3.05	0.48	3	1.29	p>.05
	Youth H-CMS	92	3.15	0.45			
	Adults L-CMS	113	3.15	0.52			
	Adults H-CMS	104	3.19	0.58			
ISW	Youth L-CMS	95	2.91	1.21	3	3.92	p<.01
	Youth H-CMS	92	3.19	1.15			
	Adults L-CMS	113	2.77	1.11			
	Adults H-CMS	104	3.20	0.95			
ERI	Youth L-CMS	95	2.64	0.59	3	3.80	p<.01
	Youth H-CMS	92	2.80	0.62			
	Adults L-CMS	113	2.58	0.63			
	Adults H-CMS	104	2.81	0.61			
MTC	Youth L-CMS	95	2.94	0.64	3	3.90	p<.01
	Youth H-CMS	92	2.99	0.57			
	Adults L-CMS	113	2.71	0.69			
	Adults H-CMS	104	2.84	0.62			

4. Discussion and conclusions

Media literacy is an arsenal to set back the misleading role of media and counteracts the effects of misinformation. Research has traditionally approached the study of critical media skills as an outcome when most trained abilities are more likely deployed in a situated context such as the COVID-19 infodemic. This study aimed to analyze the critical media skills (CMSs) practiced by Mexican youth and adults to

deal with the infodemic. The findings indicate that CMSs were high in the overall sample. Activities such as fact-checking, media contrasting, and fake news identification were performed by both youth and adults. Conversely, levels of infodemic perception reflected differences, with youth reporting greater awareness of their media/information consumption and a higher belief in being well-informed than adults. Concerning the ISW, the study revealed physical and emotional discomfort among both youth and adults due to exposure to information; in fact, worry stood out as the most prevalent emotion in describing participants' reactions to COVID-19 news. Beyond emotions, people's trust in media information was also affected by the infodemic. In this respect, this study found that youth have higher confidence in the information provided by the media and the government, while adults rely to a greater extent on information from their primary circle (i.e., friends and family).

Hypothesis testing revealed a correlation between CMSs and IPA (H1). However, contrary to prior studies (Mathews et al., 2021; Veeriah et al., 2021), age did not reflect a statistically significant difference. Rating levels for IPA were generally similar, and young people with low CMS reported the lowest mean value. Although authors such as Jamsheed and Bin-Naeem (2020) have emphasized the media literacy divide and the poor critical skills of young people, such differences were not evident in the analyzed sample. A possible explanation could be supported by variables such as the educational levels and socio-economic status of participants. While cited research has observed a larger and heterogeneous sample, findings from this study should be contextualized as adults belonging directly or indirectly to a university community: people with higher media consumption, media literacy skills, and communication practices. Future research should provide evidence, however.

In relation to H2, zero-order correlation indicated an association between CMS and ISW, and CMS and ERI. Observations by age group yielded statistically significant differences. CML decreases the effects of infodemic in both youth and adults. Plus, it is associated with fewer emotional reactions. This finding connects with prior research and validates the idea that better levels of critical media skills may reduce the effects of infodemic (Borah et al., 2021; Ouedraogo, 2020). Nevertheless, newer research, considering a more heterogeneous sample is needed for the extrapolation of these results.

Regarding H3, this study found an association between CMS levels and MTC as both youth and adults with higher CMSs had better values for information reliability. These findings are consistent with prior research (Losada-Díaz et al., 2020; Zhao et al., 2020) as they showed acceptable levels of institutional information. Contrary to Mathews et al. (2021), MTC did not report differences for age groups.

This work analyzed CMSs in the context of the COVID-19 pandemic and therefore, provides a better understanding of how youth and adults have managed the accompanying infodemic. Nonetheless, this research has several important limitations. Results are limited to the context of the study in terms of sample characteristics and the data collection method. Although the study of social media communities may provide an approach to a heterogeneous field of practices, the results may still be difficult to extrapolate beyond this space of socialization, particularly when the majority of participants represent a group with similar practices, which in this case is users who mostly depend on digital media and therefore have advanced literacy skills. Hence, variables such as social class, education level, and prior media education training should be considered as interfering factors. Future research must provide an understanding of these variables and greater heterogeneity in samples. Additionally, similar to studies conducted by Basol et al. (2021) and Brodsky et al. (2021), experimental testing is recommended for the performance of CMSs through the recreation/simulation of real communication scenarios; such testing can better evaluate the performance of critical media literacies in environments facing infodemic linked to public health concerns.

The COVID-19 pandemic has kickstarted media learning and practices, including how to deal with misinformation. Media literacy can operate as a form of protection against an infodemic, but training in media literacy is necessary to equip citizens with these skills. Policy makers, media educators, and health practitioners should understand the current pandemic as an opportunity to prevent future health crises and provide specialists, media educators, and citizens with tools to better understand health literacies and scientific, as well as popular, knowledge. Inoculating CMSs is the most beneficial weapon to counteract future public crises.

Authors' Contribution

Idea, R.S.R., F.G.L.; Literature review (state of the art), R.S.R., F.G.L.; Methodology, R.S.R., F.G.L.; Data analysis, R.S.R., F.G.L.; Results, R.S.R., F.G.L.; Discussion and conclusions, R.S.R; Writing (original draft), R.S.R., F.G.L.; Final revisions, R.S.R; Project design and sponsorship, R.S.R.

Funding Agency

This project has been funded by the research groups Communication, Advertising & Society research group (CAS) and the Distributed Technologies for Education Research (TIDE) of Pompeu Fabra University (UPF; Barcelona). The project was conducted in collaboration with the Center for Scientific Research Outreach Rizoma Redes (Mexico).

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