CUADERNOS.INFO N° 50
Versión electrónica: ISSN 0719-367x
http://www.cuadernos.info
https://doi.org/10.7764/cdi.50.37525

CC BY-SA

Received: 25-01-2021 / Accepted: 04-08-2021

Framing of the Covid-19 pandemic and its organizational predictors

El *framing* sobre la pandemia de Covid-19 y sus factores predictores organizacionales

Enquadramento da pandemia Covid-19 e seus indicadores organizacionais

Frida V. Rodelo, Universidad de Guadalajara, Guadalajara, México
(frida.rodelo@academico.udg.mx)

ABSTRACT | The way in which the news media frame information can influence perceptions of public affairs among audiences and, therefore, the development of debates on these matters. This effect can be magnified in the face of health crises such as pandemics because people increase their media consumption in the face of issues that are unknown, related to their safety, and where multiple perspectives coexist. The study accounts for the news frames in the media coverage of the Covid-19 pandemic during the stage of increasing community transmission. It is based on a content analysis of national reach printed newspapers and newscasts in Mexico. The results show that the attribution of responsibility, human interest, and political actions frames predominated in the flow of information about Covid-19, while the scientific information and self-efficacy frames were kept to a minimum. The analysis suggests that media sector and political orientation were decisive factors for the construction of the health crisis in the media, as well as elements linked to journalistic routines, such as reporter beats, and the actors featured in the stories.

KEYWORDS: epidemic; journalism; mass communication; health communication.

HOW TO CITE

Rodelo, F. V. (2021). Framing of the Covid-19 pandemic and its organizational predictors. *Cuadernos.info*, (50), 91-112. https://doi.org/10.7764/cdi.50.37525

RESUMEN | *La manera en la que los medios informativos encuadran la información puede influenciar las percepciones sobre los asuntos públicos de las audiencias y, por ende, el desarrollo de los debates públicos sobre los asuntos. Este efecto puede magnificarse ante crisis sanitarias como las pandemias, debido a que las personas acuden más a los medios ante asuntos desconocidos, relacionados con su seguridad y en donde coexisten múltiples perspectivas. El estudio da cuenta de los encuadres informativos de la cobertura informativa de la pandemia de Covid-19 durante la etapa de incremento de transmisión comunitaria con base en un análisis de contenido de periódicos impresos y telenoticiarios de alcance nacional en México. Los resultados muestran que en el flujo de información sobre Covid-19 predominó la atribución de responsabilidad, el interés humano y la información política, y fueron mantenidos al mínimo la información científica y la información para la autoeficacia. El análisis sugiere que el sector de medios y la orientación política fueron determinantes para construir la crisis sanitaria en los medios, así como elementos asociados a rutinas periodísticas, como las secciones y los personajes principales de las piezas informativas.*

PALABRAS CLAVE: *epidemia; periodismo; comunicación de masas; comunicación de la salud.*

RESUMO | A forma como a mídia apresenta as informações podem influenciar a percepção dos assuntos públicos entre as audiências e, portanto, o desenvolvimento dos debates sobre esses assuntos. Esse efeito da mídia pode ser ampliado diante de crises de saúde como as pandemias, pois as pessoas aumentam seu consumo de mídia diante de questões desconhecidas, relacionadas à sua segurança e onde coexistem múltiplas perspectivas. O estudo dá conta dos quadros de notícias na cobertura da mídia da pandemia Covid-19 durante o estágio de transmissão crescente da comunidade. Baseia-se na análise de conteúdo de jornais impressos e noticiários de alcance nacional no México. Os resultados mostram que os quadros de atribuição de responsabilidade, interesse humano e ações políticas predominaram no fluxo de informações sobre a Covid-19, enquanto os quadros de informação científica e de autoeficácia foram reduzidos ao mínimo. A análise sugere que o setor de mídia e a orientação política foram fatores decisivos para a construção da crise de saúde na mídia e argumenta que os conteúdos associados às rotinas jornalísticas contribuem de forma significativa para a estruturação da informação em saúde.

PALAVRAS-CHAVE: epidemia; jornalismo; comunicação de massa; comunicação de saúde.

INTRODUCTION

The way in which the media frame information can influence the attitudes and behaviors of audiences, as well as the development of public debates on issues, and the decision-making of public officials (Chong & Druckman, 2007; Lee & Paik, 2017). It is to be expected that media effects will be magnified in the face of health crises such as pandemics, when people increase their media consumption in the face of unknown situations related to their safety and in which multiple perspectives coexist (Lee & Paik, 2017). In such contexts, people pay more attention to media reports, have more interest in seeking information on the subject, and are better prepared to take precautions to protect themselves (Muñiz, 2020).

Viral disease epidemics are different from other public health issues. In epidemics, there is an urgent need for interventions, effective communication, and cooperation in communication (Lee & Basnyat, 2013). This can make it easier for people to make informed lifestyle, consumption and voting decisions; prevent unnecessary anxiety, and ensure that individual and societal resources are focused on risks of the greatest magnitude rather than being used on risks of a lesser magnitude (Roche & Muskavitch, 2003). Since people perceive health crises through the media, they are essential for publicizing pandemics, and are decisive in the formation of meanings about them, since news coverage inevitably emphasizes certain aspects of the crisis while attenuating others (Lee & Basnyat, 2013). Likewise, the dissemination of information through the media can affect the ability of audiences to carry out informed risk assessments (Dudo et al., 2007).

The identification of needs for specific information during pandemics does not imply, however, that media organizations can realistically be expected to immediately adopt journalistic practices that will result in an alignment of their content with recommended features (Spratt, 2001). The literature on frame-building in contexts of health crises has identified factors explaining the news frames used by media organizations to construct an issue (Beaudoin, 2007; Lee & Basnyat, 2013; Lee & Paik, 2017). This is relevant, because research has demonstrated the effects of various frames on the way in which people process information about public issues (Dahlstrom et al., 2012; Iyengar, 1990; Otieno et al., 2013). However, few studies have focused specifically on the construction of frames about pandemics and health issues.

This article analyzes the news frames used in the coverage of the Covid-19 pandemic during the community transmission stage in the Mexican context. This study contributes several findings to the literature on health crisis coverage. In the first place, we measured the degree to which different frames were present in the content about Covid-19 in newspapers and television news, which confirmed that

the frames of scientific information and self-efficacy were relegated in contrast to other typical ways of framing health crises. Observing television newscasts and newspapers was crucial, as—according to a national representative Internet survey— television was the most important source of information about the Covid-19 epidemic in Mexico, followed by Facebook, and digital newspapers —the latter usually mirroring printed news (Saldierna et al., 2021). Secondly, the study provided evidence of factors at the levels of organizational and journalistic routine that can predict and explain frame-building during a health crisis. Thirdly, it validates a series of scales for framing pandemics based on the literature on journalistic coverage of health crises that can be used for further studies.

CONTEXT OF STUDY

In late 2019, reports emerged of a cluster of pneumonia cases caused by an unknown viral agent —later identified as the novel coronavirus or Covid-19— in the city of Wuhan, China. Following the spread of cases to 114 countries around the world, the World Health Organization (WHO) described the advance of the Covid-19 outbreak as a pandemic on March 11, 2020. In Mexico, the first three cases were confirmed on February 28. Following the detection of community transmission of the disease in the country, on March 23, 2020, the Mexican Ministry of Health launched a series of containment measures that included social distancing and the suspension of non-essential activities.

As a result of the official measures, the pandemic has not only put pressure on the health system but has had serious repercussions on aspects such as economic indicators, levels of employment, productive and educational activities, domestic violence, and mental health. Likewise, the need for information on the pandemic was shown in an increase in the levels of media consumption: during the March-May 2020 quarter —months that coincided with the beginning of community transmission of the infection in Mexico— television and radio consumption in the country increased by 14 and 4.4 percent, respectively, compared to the same quarter of the previous year ("Consumo de TV...", 2020). This need for information came, however, at a time of ongoing challenges to health and science journalism in Mexico: for years authors have pointed out the absence of a critical stance in the journalistic coverage of health issues (Mercado-Martínez et al., 2001) and scientific issues (Massarani et al., 2005); a lack of clarity in the journalistic coverage of chronic diseases (González Santos & Hernández Domínguez, 2013), and the combination of a preference for information from news agencies based in developed countries, and scant interest in local needs (Massarani et al., 2005), among other issues.

FRAMING AS A PERSPECTIVE TO MAKE SENSE OF THE MEDIA COVERAGE OF HEALTH CRISES

The advancement of biomedical knowledge and the spread of mass media do not guarantee that the public has a better knowledge of health matters (Spratt, 2001). Likewise, public knowledge is not a sufficient condition for the formation of *rational* attitudes and behaviors. However, the dissemination of quality information "at least provides the opportunity for readers to come to an informed risk assessment" (Dudo et al., 2007, p. 447). Quality information has been defined, in the context of science, environmental, and health-related risks as containing

> "(1) more quantitative information (specifically with a contextual denominator) about a risk issue's magnitude and potential magnitude than qualitative information...; (2) specific information concerning the measures an individual can take to increase their self efficacy as it relates to avoiding the risk...; (3) references to known risk scenarios similar to the risk issue at hand, to serve as a comparison...; (4) minimal sensational content...; and (5) a relatively equal distribution of thematic and episodic content" (Dudo et al., 2007, p. 435).

The advancement of biomedical knowledge coexists with disinformation processes, as evidenced by the significant existence of misperceptions about Covid-19 (Geldsetzer, 2020), and the high dissemination of false or erroneous information about the disease through the media —especially social media (Bridgman et al., 2020). There is evidence linking media exposure to misperceptions of the disease: the study by Bridgman and colleagues (2020) found that exposure to social media is positively associated with misperceptions of Covid-19, while the association between exposure to traditional media and misperceptions is negative.

One approach that makes sense of the media coverage of health crises is framing theory. Framing is the process by which definitions are promoted in discourses (Chong & Druckman, 2007). The term *frame in communication* refers to *how* information is introduced, a process in which certain elements are necessarily emphasized while others are attenuated (Otieno et al., 2013). It has been widely documented that frames in communication influence the formation of individuals' opinions, memory, attribution of responsibility, emotional reactions and perception of risk, as well as their construction of erroneous appreciations about a disease (Bridgman et al., 2020; Iyengar, 1990; Otieno et al., 2013).

As a part of their research into the framing of health crises, several authors have documented how news frames common in the news media worldwide have different effects on individuals:

- Inclusion of explicit images featuring blood —an instance of sensational news coverage—was associated with greater post-traumatic stress syndrome and a greater fear of the future up to six months after a terrorist attack in Boston (Garfin et al., 2020).
- Use of the human-interest frame, characterized by showing the human side of an issue, causes a greater perception of risk (Otieno et al., 2013). The presence of data on the magnitude of risk —i.e., information on how likely an individual is to become infected, ill, or die from the disease— is also linked to a higher level of risk perception (Dahlstrom et al., 2012). This is relevant as low levels of risk perception and the existence of erroneous appreciations are associated with a lower level of compliance with social distancing measures (Bridgman et al., 2020).
- The self-efficacy frame —which includes information about symptoms and how to protect oneself— has a significant effect on intentions to change behavior (Dahlstrom et al., 2012). The same frame had a greater presence in the coverage of H1N1 in Sweden compared to that of Australia, something that could partially explain the differences in the application of vaccines by the two countries (Sandell et al., 2013).
- The attribution of responsibility frame has the potential to influence public debate and even public policy —through pressure exerted by public opinion and the mobilization of voters (Lee & Paik, 2017).

The media framing of health crises has been studied in different contexts, but, generally speaking, studies tend to find that the episodic frame —present in the news items that focus on specific event-driven cases related to an issue, often featuring sensational and emotional appeals — is usually more frequent compared to the thematic frame —which focuses on the underlying issues, providing contextual information to the audiences (Dudo et al., 2007; Sandell et al., 2013). Sensational framing tends to have a strong presence in news coverage (Dudo et al., 2007; Sandell et al., 2013). It has also been found that there is greater sensationalism when the health threat is perceived as distant, and that there is less of it when the threat directly affects the community where the media organization is located (Dudo et al., 2011). Frames that tend to have a significant presence in contexts of health crises are that of attribution of responsibility (Kee et al., 2010; Sandell et al., 2013), and that of human interest (Lee & Paik, 2017; Sandell et al., 2013).

In view of the above, we asked:

> *Q1.* What journalistic frames predominated in the news coverage of the Covid-19 pandemic during the stage of increasing community transmission in newspapers and newscasts in the Mexican context?

Organizational factors that influence frame-building during health crises

As mentioned above, frame-building research has investigated the role of individual, organizational, systemic, and temporal-contextual factors. Systemic factors include the characteristics of the political and media systems in which media organizations function, such as features of the political regime and the country's past, and the kind of State participation in the media system. On the other hand, temporal-contextual factors include the characteristics of the health crises, and their stage of development. Investigating both factors, however, is reserved for researches with comparative and longitudinal designs, respectively.

Factors related to organization include aspects such as the political orientation of the media organization, its sector, scope, commercial or public nature and, finally, its format or target audience. Political orientation influences not so much the amount of coverage for public issues and political actors, as the definitions of problems, causal attributions, and moral evaluations featured in the news coverage (Rodelo & Muñiz, 2017). The political orientation of the media organization can influence news content in contexts of health crises: in South Korea, for example, there were variations in the frequency with which left and right newspapers attributed in their contents responsibility for dealing with a viral disease (Lee & Paik, 2017).

Another frame-building factor at the organizational level is the media sector. Comparing content samples not only from different media organizations but also from different sectors is relevant, as levels of exposure —as well as the profiles of their audiences— differ. Television, Facebook, and digital newspapers, in that order, were the dominant sources of information about Covid-19 in the Mexican context, while newspapers and radio lagged in importance (Saldierna et al., 2021).

Differences in content translate into differentiated repercussions on audiences. For example, exposure to information about Covid-19 in social media was positively associated with a greater probability of individuals having erroneous appraisals of the disease, while exposure to traditional media coverage was negatively associated (Bridgman et al., 2020). The formats and language used in the production of news content, as well as the particularities of the historical-structural conditions of the medium, can produce differences in the frames used in the news coverage of different media sectors (Rodelo, 2020). Specifically, in separate media systems, newspapers have been characterized as media with greater tendencies toward political parallelism, while commercial television has been primarily described until recent years as seeking to a greater extent to attract a broad sector of audiences —that is, as a *catch-all* medium (Hallin & Mancini, 2004). More specifically, television in Latin America has been considered a primarily commercial media sector free from effective control over content by

regulatory authorities (Hallin & Papathanassopoulos, 2002). Comparisons between the contents of newspapers and newscasts are scarce, even though they enable us to delve into their differentiated patterns of content, and to go deeper into the relationship between them and the development of their industries, as well as their historical relations with the public and private powers. Specifically, there is no known study regarding news coverage of health crises that compares content from different media sectors.

Journalistic routines are part of the analysis of journalism at the organizational level and include the ways in which media workers do their work and the —mostly informal— rules that news organizations impose on them, ultimately influencing the media's representation of reality (Shoemaker & Reese, 2013). Journalistic routines, understood as practices to achieve objectives in the context of a media organization, help explain why something is considered newsworthy, since they lead reporters to identify certain things as news (Shoemaker & Reese, 2013). Journalistic routines come from three areas: news sources —as news organization must adapt to the conditions imposed by the suppliers of information—, media organizations themselves, and audiences —as news media strive to meet audience needs, known through feedback and content consumption statistics (Shoemaker & Reese, 2013). Some elements of journalistic content can be directly associated with specific routines for dealing with the information. Two of them are: first, the traits of the main actors of the story and, second, the reporter beat, i.e., the division of labor consisting in deploying reporters to different news sources and/or locations (Shoemaker & Reese, 2013).

The traits of the actors in the story and the reporter beat can both provide predefined story angles (Shoemaker & Reese, 2013). There is evidence that shows that the traits of the protagonists of the news items influence media contents. For example, in an analysis of electoral coverage, having a male protagonist of the story was a factor that significantly predicted the use of thematic framing, which addresses the proposals of the candidates and social problems (Rodelo, 2020). The main actor in the news story is usually also a source of information, an important framing element because it influences the definition of the problem within the stories (Coleman, 1995). In health crises, the most widely used news sources often have authority, derived either from government or from science (Berry et al., 2007; Coleman, 1995; Vasterman & Ruigrok, 2013).

Studies have found gender biases in the way sources are featured in journalistic content, identifying more male sources in stories about public affairs and more female sources in stories about entertainment and education (Mitchelstein et al., 2019), and revealing that male sources are more likely to be used as news

subjects or as expert commentators whereas women are more likely featured as eyewitnesses or common citizens (Ross & Carter, 2011). In fact, in the journalistic coverage of the Covid-19 pandemic in six English-speaking countries, men appear to a greater extent as expert sources of information (Kassova, 2020). The latter imbalances suggest the existence of journalistic routines welcoming women to provide personal narrations in lieu of professional or authoritative accounts (Ross & Carter, 2011). These authors explain that this kind of reinforcement of the associations between men and public sphere and women and private sphere may contribute to degrade women's value to society.

Journalistic routines associating the gender of actors in the stories with news frames can be explained both by journalism's reliance on official and authority sources —in which men are overrepresented— as well as by the special obstacles women must face to occupy such positions of power and authority (Gallagher, 2002; Mitchelstein et al., 2019).

Just as the association between men and authority may be firmly embedded in journalistic routines, the reporter beat can also activate specific ways to address public issues. For example, news items in police and crime sections, usually created by specialized journalists, are more likely to have an infotainment frame in Latin American newspapers (Mellado et al., 2017).

This research focuses on the factors related to the media organization and its production routines. In view of the above, the following hypothesis and research question are proposed regarding the role of organizational factors in frame-building:

> *H1.* The levels of presence of frames in the news coverage of the Covid-19 pandemic varied significantly between newspapers and newscasts.
> *Q2.* Which frame-building factors at the organizational level predict the frames in the news content on the Covid-19 pandemic?

METHOD

To account for the news frames used in the news coverage of the Covid-19 pandemic, we applied a content analysis. This technique is useful to make "replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use" (Krippendorf, 2004, p. 18).

The corpus included news items from eight national-reach media in Mexico: three national newscasts produced by the commercial broadcasting companies Televisa, Azteca and Imagen, and five elite newspapers produced by different media organizations: *El Universal*, *Reforma*, *La Jornada*, *Excélsior* and *Milenio*. The sample

was representative of May 2020, a month with a significant increase in community transmission and the number of deaths from Covid-19 in Mexico. To represent this period, we randomly constructed a week of news coverage.[1] The unit of analysis was the news item. The total number of analyzed news items was 2742 stories focused on Covid-19 (1617,59%, from newspapers, and 1125,41%, from newscasts). As the study focused on news items, opinion pieces (op-eds) were excluded from the sample.

The codebook included three sets of scales for measuring attributes in journalistic content: generic frames (Semetko & Valkenburg, 2000), journalistic role performance (Mellado, 2014), and pandemic frames, a set of scales created especially for the occasion and based on the literature on news coverage of health crises (Beaudoin, 2007; Gadekar et al., 2014; Luther & Zhou, 2005; Sandell et al., 2013) (see appendix).

Trained undergraduate and graduate students carried out the coding of the news items. An analysis of intercoder reliability conducted on a subsample of newscasts items (n= 193, or 13%) achieved an average agreement (Holsti formula) of .91 in the study variables, while newspaper articles (n= 237, 13%) reached an average agreement of .90.

To validate the frequency scales for pandemic frames, we undertook a factor analysis with five factors, which main components were the extraction method, and varimax with Kaiser normalization as the rotation method. The criteria used to proceed with the analysis were: determinant, .125; Kaiser-Meyer-Olkin (KMS) measure of sampling adequacy, .630; Bartlett's test of sphericity: $X2(378) = 5672.18$, $p<.001$. The factor loadings in the matrix of rotated components are reported in table 1.

We measured the presence of the scales in each news item, as well as the internal consistency of each scale. For the generic frame scales, the following Cronbach's alpha scores were obtained: attribution of responsibility: .469; human interest: .744. For the infotainment role scale, .580 was obtained. Finally, for the pandemic frame scales, the following scores were obtained: self-efficacy: .460; scientific information: .490; political actions: .479; leadership: .460. As .5 has been suggested as the minimum value of alpha (Gliem & Gliem, 2003), results derived from the frame scales with the lowest internal consistency values (pandemic frames scales and attribution of responsibility) must be taken with caution.

To explain the variation in the scores indicating frame presence, we conducted a series of multiple linear regressions; each one had a frame score as the dependent variable.

1. The constructed week included May 5, 13, 17, 22, 25, 28 and 30.

The analysis included as independent variables the media organization's sector and its political orientation, the section in which the item was published and, finally, the gender and domain of the main actor in the news item. Categories of the gender variable included male, female and other/cannot be determined.

To operationalize the predictor variable political orientation, we used a scale from 1 (political left) to 5 (political right). The scores for each media organization are the means obtained from consulting nine academic experts in media, journalism, and political communication about the political orientation of the selected media.[2]

Item	1	2	3	4
Information on high-risk and most vulnerable groups	.537			
Personal hygiene practices	.367			
Prevent the spread of infection	.473		.426	
Sanitary recommendations	.524			
Be alert if you are part of a risk group	.629			
Uncertainty about crisis		.593		
Nature of virus and infection		.418		
Search for remedies and vaccines		.649		
Advances in understanding disease		.694		
Diagnostic tests		.399		
Government containment measures			.659	
Government pandemic action plan			.699	
Changes in alert levels			.511	
Collaboration between organizations and institutions			.319	
Government achievements in response to crisis				.304
Government weaknesses and problems in response to crisis				.673
The plan is praised or criticized in the face of the pandemic				.735
Impact on the population of government measures				.551
Personal aspects of political actors				.340

Note: Coefficient values below .30 were deleted. Components: (1) self-efficacy, (2) scientific information, (3) political actions, (4) leadership.

Table 1. Rotated components matrix

Source: Own elaboration.

2. The scores were: *La Jornada*, 1; *El Universal*, 3; *Milenio*, 3; *Excélsior*, 4; Azteca, 4; Televisa, 4; *Reforma*, 5; Imagen, 5.

RESULTS

Journalistic frames in the news coverage of the Covid-19 pandemic

Research question 1 deals with the news frames that predominated in the news coverage of the Covid-19 pandemic in newspapers and newscasts. It was found that the frames with the greatest presence in the analyzed sample, both in newspapers and newscasts, were those of attribution of responsibility and human interest (table 2). The attribution of responsibility frame politicizes the Covid-19 pandemic, as it defines this issue as a public problem that must be addressed by someone—instead of defining it as a catastrophic phenomenon, a scientific mystery, a human drama, or other alternative definitions. This attribution is frequently conveyed through the discourse of the political actors concerned with the problem —i. e., criticizing the actions of others, or giving information on their own initiatives.

The human-interest frame gives a human face to the pandemic, *personalizes* the issue using personal descriptions, and often explains it based on a specific episode or situation. For example, an article from *La Jornada* gave a voice to researchers justifying the federal government's call to donate part of their salary by appealing to the need for solidarity in times of social turbulence (Sánchez Jiménez, 2020). Another generic frame but one that was identified to a lesser extent than those of attribution of responsibility and human interest was infotainment. This frame, like the human-interest one, can include notions of personalization, but it also has a tendency to emphasize the unusual, the morbid, or the emotional.

Pandemic frames tended to be recorded less frequently in newspaper and newscasts than the generic frames of attribution of responsibility and human interest. As its name implies, generic frames are suitable for applying to any public matter and have been found to emerge in journalistic contents from different parts of the world, whereas pandemic frames are content patterns found specifically during health crises.

The pandemic frame with the greatest presence was that of political actions, which focuses on institutional actions to deal with the epidemic, such as action plans, containment measures, issuing of alerts, and collaborative initiatives. On the other hand, the leadership frame —which was used in Covid-19 coverage to a lesser extent— introduces a critical appraisal of the performance of the governments and political leaders in charge of the situation, evaluating actors in terms of their achievements, weaknesses, and political strategies.

The aforementioned pandemic frames —political actions and leadership—, along with the attribution of responsibility frame, ask for a political reading of the crisis. In contrast, the self-efficacy and scientific information frames, with a modest presence in this analysis, provide the information necessary for individuals to take measures to prevent infection (table 2).

Frame	Newspapers M (DE)	TV M (DE)	t (g.l. = 2740)	p
Pandemic frames				
Political actions	.10 (.18)	.12 (.20)	–1.74	.082
Leadership	.03 (.10)	.02 (.08)	3.23	.001
Self-efficacy	.03 (.09)	.02 (.09)	1.19	.234
Scientific information	.02 (.09)	.03 (.12)	–3.01	.003
Generic frames				
Attribution of responsibility	.18 (.20)	.15 (.21)	3.32	.001
Human interest	.15 (.23)	.14 (.26)	1.34	.181
Infotainment role	.03 (.10)	.04 (.14)	–3.64	.000

Table 2. Pandemic and generic frames in news items on Covid-19

Source: Own elaboration.

The self-efficacy frame includes information on forms of prevention that anyone can apply, as well as prescriptions on how to act. An article from *El Universal*, for example, reported on the sanitary measures recommended by the highest epidemiological authority in the United States government, and on his differences of opinion with President Donald Trump (Sancho, 2020). On the other hand, the scientific information frame includes information on the nature of the infection, its possible solution, scientific discoveries about the disease, as well as detection tests. For example, based on agency material, a Mexican newspaper reported on a scientific finding that can help treat lung injuries caused by Covid-19 (Europa Press, 2020).

Differences between newspapers and television newscasts

Hypothesis 1 indicates that the levels of presence of news frames in the news coverage of the Covid-19 pandemic in newspapers and newscasts varied significantly between the two. The results support the previous assertion: differences related to the media sector were found in most of the frames examined. When comparing the two sectors, the newspapers distinguished themselves by including to a greater extent the attribution of responsibility and leadership frames. Newscasts had a significantly higher amount of scientific information, and infotainment role (table 2). The foregoing suggests a greater inclination of newspapers towards politicized content, and a greater inclination of newscasts towards entertainment and addressing scientific issues.

Frame-building factors in the news coverage of the Covid-19 pandemic

In the previous paragraphs, it was shown that newspapers and newscasts had different patterns in their coverage of the Covid-19 pandemic. To inquire into the role of additional frame-building factors, an aspect that research question 2 deals with, we performed a series of multiple linear regressions; these had the frame scores as dependent variables, and factors at the organizational and routine levels as predictor variables. The results of the regressions are found in table 3 and are described below:

The *political actions frame* is associated with the selection of story protagonists from the government and, at the same time, with the non-selection of actors from civil society, as well as with the news item being positioned in sections other than social and cultural information, and, lastly, with television.

The *leadership frame* is associated with the selection of actors mainly from the government and from the international arena. The use of this frame is also linked to newspapers, as well as with the selection of a male actor.

The *self-efficacy frame* has as its strongest predictor a male protagonist; likewise, the frame is associated with the selection of female leading actors —in contrast to news items in which the actors' gender was non-binary, not identifiable or null, such as in institutions. It is also linked to the local information section and with media organizations closer to the left of the political spectrum.

The *scientific information frame* is associated with the selection of a male and international actor. This frame is also associated with the international information section and with television contents.

The *attribution of responsibility frame* is associated with the selection of male or female leading actors —in contrast to news items with non-binary actors, unidentifiable or null in regard to gender, such as institutions. Media organizations closer to the political left, and news sections other than cultural or social affairs also predict this frame.

The *human-interest frame* is associated with the presentation of actors from civil society (or not from government) and with women. In addition, the frame is associated with the local information section (and negatively associated with the sports section), and with media organizations closer to the left.

Lastly, the *infotainment role* is associated with the presentation of leading actors from civil society and with an identifiable gender. Likewise, with the television media, and the local and international information sections.

Independent variables	Political actions	Leadership	Self-efficacy	Scientific information	Attribution of responsibility	Human interest	Infotainment
Sector (1 = TV)	0.045*	-0.061**	0.000	0.057**	-0.038	0.016	0.074***
Political orientation. (1 = left, 5 = right)	-0.031	-0.009	-0.045*	-0.036	-0.069***	-0.107***	-0.027
Sectiona							
International	0.075*	0.053	0.007	0.095**	0.086**	-0.038	0.068*
Local	0.113***	0.040	0.069*	-0.040	0.135***	0.072*	0.080*
Sports	0.084**	-0.029	-0.020	-0.057	-0.062*	-0.118***	-0.035
National	0.123***	0.061	-0.037	0.018	0.112**	-0.040	0.059
Actor-genderb							
Male	0.037	0.043*	0.082***	0.097***	0.045*	0.027	0.045*
Female	0.008	-0.008	0.063**	-0.002	0.042*	0.150***	0.116***
Actor-domainc							
Government	0.223***	0.181***	0.039	0.037	0.272***	-0.119***	-0.009
Civil society	-0.112***	0.033	0.020	0.038	0.189***	0.204***	0.186***
International	0.023	0.113***	-0.023	0.089***	0.162***	-0.037	-0.005
Adjusted R2	0.10	0.05	0.02	0.04	0.13	0.12	0.05

Notes: The reference variables are (a) social-cultural section, (b) other / not identifiable, and (c) other / none. ***: $p<0.001$, **: $p<0.01$, *: $p<0.05$.

Table 3. Factors predicting the presence of frames in news coverage about the Covid-19 pandemic

Source: Own Elaboration

DISCUSSION

This study aimed to contribute to knowledge of the frame-building processes during health crises by accounting for news frames that predominated in the coverage of the Covid-19 pandemic during the stage of increased community transmission, as well as explaining the organizational factors that might predict such frames. This analysis enabled us to recognize trends in media coverage, its failures or shortcomings, and their possible causes.

The study found that the news coverage of the Covid-19 pandemic in Mexican newspapers and newscasts reproduced patterns previously detected in content

analysis in other health crises, such as the high prevalence of attribution of responsibility and human-interest frames (Kee et al., 2010; Lee & Paik, 2017; Sandell et al., 2013), but, additionally, gave priority to frames related to the performance of political actors over frames related to scientific information on the disease. The frames of attribution of responsibility, human interest and political actions were the main frames for interpreting the reality around the Covid-19 pandemic, and, at the same time, scientific and self-efficacy information was kept to a minimum. Some contextual factors that could have contributed to the distribution of frames found in this study are the tendency of newspapers in Mexico and Latin America to politicize their content and feature political opinion (Mellado et al., 2017), the growing trend for political polarization among the Mexican electorate (Moreno, 2018), and the deficiencies of health and science journalism in Mexico and the Latin American region (Mercado et al., 2001; Massarani et al., 2005; González & Hernández, 2013).

Several organizational factors were found that help to explain the variation of frames on the Covid-19 pandemic. Among them, the media sector is relevant, since news items from newscasts were more likely to use the political actions, scientific information, and infotainment frames. In these three frames, information is presented without necessarily making an assessment or criticism of the government or other entities. Newspapers, on the other hand, were more likely to use the leadership frame, which leads to a critical assessment of the actions of political leaders. These findings are consistent with the literature on Latin American media that emphasizes the orientation of newspapers towards the politicization of information, and the inclination of television towards commercialism and infotainment (Hallin & Papathanassopoulos, 2002).

The potential role of political orientation as a frame predictor had already been registered in the literature (Lee & Paik, 2017). The Covid-19 pandemic happened in Mexico amid a high ideological polarization with a left-wing government in office. Therefore, articles by media on the left of the political spectrum tended to have frames that do not include criticism of the government (i.e., human interest and self-efficacy frames) or that introduce an attribution of responsibility not necessarily directed towards government authorities.

Several factors related to the routines of news production were found that help to explain the frame variation in Covid-19 news coverage. The gender of the news protagonists was one of these. Male actors were associated with two frames: leadership (in which government actions are criticized or evaluated in the face of a health crisis), and scientific information. Likewise, this feature is the main predictor of self-efficacy and scientific information frames. Women were linked

to the human-interest frame, which seeks to give a human face to public affairs by using, for example, the personal stories of victims. The association of health news frames with male actors is consistent with studies that find that male and female sources tend to fulfill different roles within journalistic content (Kassova, 2020; Mitchelstein et al., 2019; Ross & Carter, 2011).

The above suggests that journalistic routines might include an expectation that the scientific information frame is driven by a male actor—which in turn reflects the higher hierarchy of men in health systems and the political sphere—and reveals that routines seeking to satisfy journalistic norms that are not gender-neutral play a significant role in frame-building (Ross & Carter, 2011). The domain of the main actor in the stories also plays a role, since it was found that the selection of civil society actors was associated with the infotainment and human interest frames, and the selection of international actors with the use of the scientific information frame, which coincides with the already known bias of Latin American science journalism towards materials coming from first world news agencies (Massarani et al., 2005).

CONCLUSIONS

The findings of this study suggest patterns of frame-building specific to health crisis settings. Specifically, the scientific information frame was one of the least used in newspapers and television newscasts, despite being one that provides crucial information for understanding the pandemic. This frame was associated with the selection of a male main actor from the international arena, the international information section, and the television media. All of the above suggest the journalists' bias towards reporting— through their own news articles or agency materials —on international scientific events, as domestic information sections were not predictors of this frame. Additionally, these results hint at the effects of the persistent gender expectations about male authority in science. Further research should inquire into the conditions leading to these biases.

As a limitation of this study, it must be noted that the low internal consistency ratings reported for some of the frame scales affirm the need for further development of the pandemic frame scales. Furthermore, this study's results may reflect the singularity of the selected media. For example, the leftist newspaper *La Jornada* has a science section, something uncommon in Latin American generalist newspapers. Likewise, the results should be complemented with studies with a longitudinal and comparative perspective that make it possible, in the first case, to clarify the stages of media construction of epidemics, and, in the second, to delve into factors related to the media and political systems.

FINANCING

This article was developed within the framework of the research project entitled "Analysis of media coverage of the COVID-19 pandemic in Mexico and its impact on the development of attitudes and behaviors among citizens". Code 312437, CONACYT-Mexico, within the 2020-1 Call Support for Scientific Research Projects, Technological Development and Innovation in Health in the face of the Contingency by COVID-19.

APPENDIX: ITEMS ON THE PANDEMIC FRAMES SCALE

Self-efficacy

1. The story includes information on groups at high risk and most vulnerable to the disease.
2. The story includes information on basic hygiene care (wash hands, wear mask, do not touch any part of the face, etc.)
3. The story includes information on how to help prevent the spread of infection (stay home when sick, avoid crowds, postpone non-essential travel, respect quarantine, etc.)
4. In the story, appeals are made for individuals to seek credible information, consult doctors, take medications as prescribed, etc.
5. In the story, appeals are made for individuals to be alert if they belong to a group of high risk or that is especially vulnerable to the disease.

Scientific information

1. The story includes information that discusses uncertainty in any aspect of the crisis, including causes, possible cure, spread, risks, and so on.
2. The story includes information about the nature of the virus, how it spreads, how it affects the human body, symptoms, and so on.
3. The story includes information on the search for a solution or a vaccine, its development and future application to the population, etc.
4. The story includes information about the discovery of new evidence that helps advance understanding of the disease.
5. The story includes information on diagnostic tests for the disease, how and where to take them, types of infections that can be detected, and so on.

Political actions

1. The story mentions how the administration takes containment measures.
2. The account mentions the government's action plan for the pandemic, reporting on it.
3. The report mentions changes in the alert levels decreed by the government or the WHO.
4. The story mentions collaboration between different organizations and institutions.

Leadership

1. The story analyzes the main achievements/milestones of the government in response to a crisis.
2. The story analyzes the main weaknesses and problems of the government in response to a crisis.
3. The story praises or criticizes the government's plan for the pandemic.
4. The story discusses the impact on the population of the management measures carried out by the government in the face of the crisis.
5. In the story, personal aspects of the political actors are mentioned.

REFERENCES

Beaudoin, C. E. (2007). SARS news coverage and its determinants in China and the US. *International Communication Gazette*, *69*(6), 509-524. https://doi.org/10.1177/1748048507082839

Berry, T. R., Wharf-Higgins, J., & Naylor, P. J. (2007). SARS wars: an examination of the quantity and construction of health information in the news media. *Health Communication*, *21*(1), 35-44. https://doi.org/10.1080/10410230701283322

Bridgman, A., Merkley, E., Loewen, P. J., Owen, T., Ruths, D., Teichmann, L., & Zhilin, O. (2020). The causes and consequences of COVID-19 misperceptions: Understanding the role of news and social media. *Harvard Kennedy School Misinformation Review*, *1*(3). Retrieved from https://misinforeview.hks.harvard.edu/article/the-causes-and-consequences-of-covid-19-misperceptions-understanding-the-role-of-news-and-social-media/

Chong, D. & Druckman, J. N. (2007). Framing theory. *Annual Review of Political Science*, *10*, 103-126. https://doi.org/10.1146/annurev.polisci.10.072805.103054

Coleman, C. L. (1995). Science, technology and risk coverage of a community conflict. *Media, Culture & Society*, *17*(1), 65-79. https://doi.org/10.1177%2F016344395017001005

Consumo de TV y radio en contingencia (TV and radio consumption in contingency). (2020, July 13). *Nielsen Ibope*. Retrieved from https://www.nielsenibope.com/2020/07/13/consumo-de-tv-y-radio-en-contingencia/

Dahlstrom, M. F., Dudo, A., & Brossard, D. (2012). Precision of information, sensational information, and self-efficacy information as message-level variables affecting risk perceptions. *Risk Analysis: An International Journal*, *32*(1), 155-166. https://doi.org/10.1111/j.1539-6924.2011.01641.x

Dudo, A. D., Dahlstrom, M. F., & Brossard, D. (2007). Reporting a potential pandemic: A risk-related assessment of avian influenza coverage in US newspapers. *Science Communication*, *28*(4), 429-454. https://doi.org/10.1177%2F1075547007302211

Europa Press (2020, May 13). Investigación señala al cerebro como punto terapéutico para atender lesión pulmonar (Research points to the brain as a therapeutic point to treat lung injury). *La Jornada*.Retrieved from https://www.jornada.com.mx/2020/05/13/ciencias/a02nlcie?partner=rss

Gadekar, R., Krishnatray, P., & Ang, P. H. (2014). Framing of the H1N1 flu in an Indian newspaper. *Journal of Creative Communications*, *9*(1), 49-66. https://doi.org/10.1177%2F0973258613517438

Gallagher, M. (2002, November 12-15). *Women, media and democratic society: In pursuit of rights and freedoms*. Paper presented at the Expert group meeting on participation and access of woman to the media, and the impact of media on, and its use as an instrument for the advancement and empowerment of women, Beirut, Lebanon. Retrieved from https://www.un.org/womenwatch/daw/egm/media2002/reports/BP1Gallagher.PDF

Garfin, D. R., Silver, R. C., & Holman, E. A. (2020). The novel coronavirus (COVID-2019) outbreak: Amplification of public health consequences by media exposure. *Health Psychology, 39*(5), 355-357. https://doi.org/10.1037/hea0000875

Geldsetzer, P. (2020). Knowledge and perceptions of COVID-19 among the general public in the United States and the United Kingdom: A cross-sectional online survey. *Annals of Internal Medicine, 173*(2), 157-160. https://doi.org/10.7326/M20-0912

Gliem, R. R. & Gliem, J. A. (2003, October 8-10). *Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales*. Paper presented at the Midwest research-to-practice conference in adult, continuing, and community education, Ohio State University, Columbus.

González Santos, P. & Hernández Domínguez, M. (2013). ¡Recuérdame! La obesidad infantil debatida y olvidada en los medios (Remember me! Childhood obesity debated and forgotten in the media). *Revista Iberoamericana de Comunicación*, *24*, 45-69.

Hallin, D. C. & Mancini, P. (2004). *Comparing media systems: Three models of media and politics*. Cambridge University Press.

Hallin, D. C. & Papathanassopoulos, S. (2002). Political clientelism and the media: Southern Europe and Latin America in comparative perspective. *Media, Culture & Society*, *24*(2), 175-195. https://doi.org/10.1177%2F016344370202400202

Iyengar, S. (1990). Framing responsibility for political issues: The case of poverty. *Political Behavior*, *12*(1), 19-40. https://doi.org/10.1007/BF00992330

Kassova, L. (2020). *The missing perspectives of women in COVID-19 news*. Retrieved from https://www.iwmf.org/women-in-covid19-news/

Kee, C. P., Ibrahim, F., & Mustaffa, N. (2010). Framing a pandemic: analysis of Malaysian mainstream newspapers in the H1N1 coverage. *Journal of Media and Information Warfare*, 3, 105-122.Retrieved from https://ir.uitm.edu.my/id/eprint/46937

Krippendorf, K. (2004). *Content analysis. An introduction to its methodology* (2nd edition). Sage.

Lee, S. T. & Basnyat, I. (2013). From press release to news: mapping the framing of the 2009 H1N1 A influenza pandemic. *Health Communication*, *28*(2), 119-132. https://doi.org/10.1080/10410236.2012.658550

Lee, S. & Paik, J. E. (2017). How partisan newspapers represented a pandemic: the case of the Middle East respiratory syndrome in South Korea. *Asian Journal of Communication*, *27*(1), 82-96. https://doi.org/10.1080/01292986.2016.1235592

Luther, C. A. & Zhou, X. (2005). Within the boundaries of politics: News framing of SARS in China and the United States. *Journalism & Mass Communication Quarterly*, *82*(4), 857-872. https://doi.org/10.1177%2F107769900508200407

Massarani, L., Buys, B., Amorim, L. H., & Veneu, F. (2005). Science Journalism in Latin America: A case study of seven newspapers in the region. *Journal of Science Communication*, *4*(3), A02. https://doi.org/10.22323/2.04030202

Mellado, C. (2014). Professional roles in news content: Six dimensions of journalistic role performance. *Journalism Studies*, *16*(4), 596-614. https://doi.org/10.1080/1461670X.2014.922276

Mellado, C., Márquez-Ramírez, M., Mick, J., Oller Alonso, M., & Olivera, D. (2017). Journalistic performance in Latin America: A comparative study of professional roles in news content. *Journalism*, *18*(9), 1087-1106. https://doi.org/10.1177%2F1464884916657509

Mercado-Martinez, F. J., Robles-Silva, L., Moreno-Leal, N., & Franco-Almazan, C. (2001). Inconsistent journalism: the coverage of chronic diseases in the Mexican press. *Journal of Health Communication*, *6*(3), 235-247. https://doi.org/10.1080/108107301752384424

Mitchelstein, E., Andelsman, V., & Boczkowski, P. J. (2019). Joanne Public vs. Joe Public: news sourcing and gender imbalance on Argentine digital media. *Digital Journalism*, *7*(10), 1311-1327. https://doi.org/10.1080/21670811.2019.1680301

Moreno, A. (2018). *El cambio electoral. Votantes, encuestas y democracia en México* (The electoral change. Voters, Polls, and Democracy in Mexico). Fondo de Cultura Económica.

Muñiz, C. (2020). Media System Dependency and Change in Risk Perception During the COVID-19 Pandemic. *Trípodos*, *1*(47), 11-26. https://doi.org/10.51698/tripodos.2020.47p11-26

Otieno, C., Spada, H., & Renkl, A. (2013). Effects of news frames on perceived risk, emotions, and learning. *PLOS ONE*, *8*(11), e79696. https://doi.org/10.1371/journal.pone.0079696

Roche, J. P. & Muskavitch, M. A. (2003). Limited precision in print media communication of West Nile virus risks. *Science Communication*, *24*(3), 353-365. https://doi.org/10.1177%2F1075547002250300

Rodelo, F. V. (2020). Antecedents of strategic game and issue framing of local electoral campaigns in the Mexican context. *Comunicación y Sociedad*, *17*, 1-28. https://doi.org/10.32870/cys.v2020.7643

Rodelo, F. V. & Muñiz, C. (2017). La orientación política del periódico y su influencia en la presencia de encuadres y asuntos dentro de las noticias (The political orientation of the newspaper and its influence on the presence of frames and issues within the news). *Estudios sobre el Mensaje Periodístico*, *23*(1), 241-256. http://doi.org/10.5209/ESMP.55594

Ross, K. & Carter, C. (2011). Women and news: A long and winding road. *Media, Culture & Society*, *33*(8), 1148-1165. https://doi.org/10.1177%2F0163443711418272

Saldierna, A. R., Marañón, F., Prado Maillard, V. P., & Barrientos, R. (2021). Consumo de medios durante la pandemia. El caso de México (Media consumption during the pandemic. The case of Mexico). In C. Muñiz (Coord.), *Medios de comunicación y pandemia de Covid-19 en México* (Media and Covid-19 pandemic in Mexico) (pp. 53-79). Tirant Lo Blanch.

Sánchez Jiménez, A. (2020, May 17). Son tiempos de solidaridad, destacan investigadores. (These are times of solidarity, researches higlight). *La Jornada*. Retrieved from https://www.jornada.com.mx/2020/05/17/politica/005n2pol

Sancho, V. (2020, May 13). Vidas en juego, con reapertura precipitada (Lives at stake, with hasty reopening). *El Universal*.

Sandell, T., Sebar, B., & Harris, N. (2013). Framing risk: communication messages in the Australian and Swedish print media surrounding the 2009 H1N1 pandemic. *Scandinavian Journal of Public Health*, *41*(8), 860-865. https://doi.org/10.1177%2F1403494813498158

Semetko, H. A. & Valkenburg, P. M. (2000). Framing European politics: A content analysis of press and television news. *Journal of Communication*, *50*(2), 93-109. https://doi.org/10.1111/j.1460-2466.2000.tb02843.x

Shoemaker, P. J. & Reese, S. D. (2013). *Mediating the Message in the 21st century: A Media Sociology Perspective*. Routledge.

Spratt, M. (2001). Science, Journalism, and the Construction of News: How Print Media Framed the 1918 Influenza Pandemic. *American Journalism*, *18*(3), 61-79. https://doi.org/10.1080/08821127.2001.10739324

Vasterman, P. L. & Ruigrok, N. (2013). Pandemic alarm in the Dutch media: Media coverage of the 2009 influenza A (H1N1) pandemic and the role of the expert sources. *European Journal of Communication*, *28*(4), 436-453. https://doi.org/10.1177%2F0267323113486235

ABOUT THE AUTHOR

FRIDA V. RODELO,PhD in Social Sciences and full time professor in the Department of Social Communication Studies at the University of Guadalajara. Member of the National System of Researchers, level I. Her research analyzes frame-building and journalistic practices in relation with the processes of mediatization of politics, the media representation of women, and the conditions of journalistic work.

https://orcid.org/0000-0002-7547-2446