

Original Article

## Interactions about Coping-Social Support during Pandemics by Brazilian Users: a Media Analysis Study

Interações entre usuários brasileiros sobre enfrentamento e apoio social durante pandemias: um estudo de análise de mídia

Interacciones sobre el apoyo social de afrontamiento durante la pandemia por parte de usuarios brasileños: un estudio de análisis de medios

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### Abstract

**Objective:** explore how the Brazilian online community mobilized its own coping resources during the COVID-19 pandemic to deal with mass vaccination concerns, manage and cope with personal stressors brought on by the pandemic, and seek social support. **Method:** the Canadian Population Health Promotion Model and the Transactional Model of Stress and Coping framed this media content analysis focusing on a socially impactful event: the authorization of COVID-19 vaccinations in Brazil. **Results:** the retrieval of posts (January-May 2021) found 488 contents distributed as *modus operandi* (n=117; 24%), coping strategies focused on emotion (n=175; 35.8%), on problem (n=40; 8.1%), on reflection (n=67; 13.7%), and offer of social support (n=89; 18.2%). Among the top-five (n=393; 80.5%) actions and coping strategies, 255 contents about coping strategies with a predominant discourse on emotion-focused coping (n=160; 63.2 %). **Conclusion:** interactions sustained a feeling of connection and created a context for belonging, support, and motivation.

**Descriptors:** Brazil; COVID-19; Science, Technology and Society; Social Media; Vaccination

## Resumo

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**Objetivo:** explorar como a comunidade online brasileira mobilizou seus próprios recursos de enfrentamento durante a pandemia de COVID-19 para lidar com as preocupações com a vacinação em massa, gerenciar e lidar com os estressores pessoais provocados pela pandemia e buscar apoio social.

**Método:** o Modelo Canadense de Promoção da Saúde da População e o Modelo Transacional de Estresse e Coping enquadraram esta análise de conteúdo midiático com foco em um evento de impacto social: a autorização da vacinação contra a COVID-19 no Brasil. **Resultados:** a recuperação das postagens (janeiro-maio de 2021) encontrou 488 conteúdos distribuídos como modus operandi (n=117; 24%), estratégias de enfrentamento focadas na emoção (n=175; 35,8%), no problema (n=40; 8,1%), na reflexão (n=67; 13,7%) e na oferta de apoio social (n=89; 18,2%). Entre as cinco principais (n=393; 80,5%) ações e estratégias de enfrentamento, 255 conteúdos sobre estratégias de enfrentamento predominaram com discurso de enfrentamento focado na emoção (n=160; 63,2%). **Conclusão:** as interações mantiveram um sentimento de conexão e criaram um contexto de pertencimento, apoio e motivação.

**Descritores:** Brasil; COVID-19; Ciência, Tecnologia e Sociedade; Mídias Sociais; Vacinação

## Resumen

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**Objetivo:** explorar cómo la comunidad brasileña en línea movilizó sus propios recursos de afrontamiento durante la pandemia de COVID-19 para hacer frente a las preocupaciones sobre la vacunación masiva, gestionar y hacer frente a los factores estresantes personales provocados por la pandemia y buscar apoyo social. **Método:** el Modelo Canadiense de Promoción de la Salud de la Población y el Modelo Transaccional de Estrés y Afrontamiento enmarcaron este análisis de contenido mediático centrándose en un evento de impacto social: la autorización de la vacunación contra la COVID-19 en Brasil. **Resultados:** la recuperación de publicaciones (enero-mayo de 2021) encontró 488 contenidos distribuidos como modus operandi (n=117; 24%), estrategias de afrontamiento centradas en la emoción (n=175; 35,8%), en el problema (n=40; 8,1%), en la reflexión (n=67; 13,7%) y en la oferta de apoyo social (n=89; 18,2%). Entre las cinco acciones y estrategias de afrontamiento más destacadas (n=393; 80,5%), 255 contenidos sobre estrategias de afrontamiento con un discurso predominante sobre el afrontamiento centrado en las emociones (n=160; 63,2 %). **Conclusión:** las interacciones mantuvieron un sentimiento de conexión y crearon un contexto de pertenencia, apoyo y motivación.

**Descriptorios:** Brasil; COVID-19; Ciencia, Tecnología y Sociedad; Redes Sociales; Vacunación

## Introduction

Since the beginning of the COVID-19 pandemic, unprecedented efforts have been made worldwide to mitigate the rapid spread of the virus<sup>1</sup> including protective and restrictive measures (e.g., social distancing, travel restrictions, and quarantine),<sup>2</sup> which had psychological implications (e.g., social isolation, reduced social support, and loneliness) for individuals of all ages.<sup>3</sup> To overcome barriers to face-to-face communication, social media platforms were widely and increasingly used to facilitate interpersonal communication and reduce feelings of loneliness and social isolation, which is strongly protective against mental health problems.<sup>4-7</sup>

New online communities came together to discuss issues of common concern during the pandemic. These communities facilitated dissemination of information by users who created, shared, or commented on posts, realizing the promise of digital platforms to enhance opportunities for individual expression and collective socializing.<sup>8</sup> Significant technological advancement has advanced social life and interactions, as well as mutual support contributing thus, to ensuring subjective well-being.<sup>9</sup>

To conduct our media analysis, we chose the most used platform (also in Brazil), with over 2.8 billion active users worldwide.<sup>10</sup> This platform was chosen due to its popularity and user engagement in sharing information with friends, communities, or groups.<sup>7</sup> Brazilian users of this platform expressed their opinions, described their experiences, voiced their criticisms, and advocated their positions regarding the pandemic, vaccination, coping strategies, and support. Our study sought to understand how Brazilian online community mobilized their own coping resources during this difficult period and the contributions made by their interactions aiming to educate, protect, support, and help themselves.

## Background

During the pandemic, social media use increased significantly in Brazil both in terms of the number of users and frequency of use, as individuals sought to maintain social connectedness.<sup>11-13</sup> Brazil has more than 150 million active social media users, representing 70.3% of the country's total population.<sup>13</sup> The social media platform we chose to study is the third most used in Brazil with more than 130 million active accounts, a majority of which are owned by women (53.5%). The typical user over the age of 18 "likes" an average of 12 posts, makes 8 comments, shares two posts, and clicks on 14 advertisements each month.<sup>13</sup> There are variations regarding sex; women tend to like, comment, and click on more advertisements.<sup>13</sup> Use also tends to increase with age.<sup>11</sup>

A recent survey of the chosen social media platform reported that 79% of the participants come from either the middle- or low-income social strata. Many indicated high engagement with the platform: 39% said they log on several times a day, 26% at least once a day, and 14% leave it open all day.<sup>12</sup> Respondents described a range of activities while engaging with the platform: following and liking photos of friends (67%); participating in groups (57%); posting photos (53%); commenting on and interacting with publications (53%); and

remembering friends' birthdays (71%). The survey also indicated that there are some downsides to social media use. For example, 73% said they believe that fake news was posted on it, and 42% indicated friendships had come to an end because of discussions on the platform.<sup>13</sup>

At the beginning of the pandemic, Brazilian users of this platform showed an increase in posts and hashtags about home activities, old photographs, etc.<sup>14</sup> Using social media to chat and view posts had some impact during the initial stages of the pandemic since the population suffered even greater stress due to contradictory official information, having the need to seek information on social media to seek clarification.<sup>11</sup> Social media conversations resulted in feelings of wellness (79%), and most users (61%) had positive personal experiences due to the opportunity these conversations had to relieve their concerns.<sup>11</sup> Yet, many users (47.4%) also experienced sadness related to learning about other individuals experience with COVID-19. Politics and public health decisions were the topics most likely to produce misunderstandings and disputes on this platform.<sup>11</sup> Between May and June 2020, Brazilian social media users increased their engagement with humorous content,<sup>15</sup> probably as a strategy to deal with pandemic-related stress and uncertainties.<sup>16</sup> User comments focused on sharing support and affection and discussed the negative aspects of the quarantine. Information focused on religion and faith, family care, and mental and physical self-care strategies to deal with negative pandemic-related news.<sup>15</sup>

Emotions ran high in social media posts due to polarization between social groups regarding the threat posed by the pandemic, with some seeing it primarily as a threat to public health and others to the country's economy.<sup>17</sup> Due to the sociopolitical context strongly influenced by federal government's ideology at that time, the pandemic has been a major public threat with significant social, humanistic, and political repercussions.<sup>18-19</sup> Social media increased the visibility of the human impacts of the pandemic by portraying distressing systemic situations (e.g., difficulty in organizing and coordinating strategies, impossibility of working at home, etc.).<sup>18-19</sup> Moreover, it was uncovered manifestation of the uncertainty that impacted the population's adherence to mass vaccination initiatives resulting in polarized discussions and lack of public consensus about the most appropriate citizens' behaviors regarding measures to tackle the pandemic. To respond to increased circulation of disinformation in Brazil and to counteract the lack of credible information coming out of the Federal Ministry of Health and its imposed restrictions on information dissemination, in June

2020 the professional media united in a consortium to produce trustworthy data about infection and vaccination rates.<sup>20</sup> It's worth noting that these debates about public health measures and vaccinations occurred in a country with a solid tradition of mass vaccination stretching back almost 70 years.<sup>21</sup>

Considering that the Brazilian population suffered enormously due to polarization regarding public health measures, vaccination, and contradictory official information, how Brazilians dealt with and expressed their feelings using social media remains underexamined. Our goal is to understand how Brazilians used social media as a strategy to deal with daily stressors and to consider the types of interactions and strategies they used in this online community to cope and find social support.

#### Literature review

There is vast international literature on the use of social media, online communities, and other forms of online interaction to cope with challenging emotions. There is also an emerging literature on use of social media to cope during the pandemic, but the extensive review of internet use and its multidimensional impacts are beyond the scope of this section. Here we highlight specific evidence about social media use to cope with stress and find social support. It was probable that extensive social media use contributed to the anxiety of parents and older children in the U.S. who were already experiencing high levels of pandemic-related anxiety.<sup>22</sup> Italians increasingly turned to social media to cope with isolation and increased anxiety during periods of imposed social distancing measures.<sup>5</sup>

Several studies found evidence to suggest social media use during the pandemic had specific benefits for users from all age groups. The number of seniors accessing various support services was significantly reduced during the pandemic.<sup>23</sup> Social media became an important strategy to provide social support to individuals, and evidence suggests that seniors who used social media were more likely to report lower levels of loneliness.<sup>24</sup> Another study found that middle-aged and senior Japanese individuals reported finding new friends on a social media platform, and a greater number of individuals provided them with instrumental support due to increased communication with friends and family, especially through video calls.<sup>25</sup>

Social media users who share photographs and keep up with friends and family were

better able to deal with daily life issues.<sup>26</sup> During the pandemic, social media use by Chinese individuals was associated with reduced fatalism and pessimism and increased perceived control over one's destiny.<sup>6</sup> Young adults who were able to engage with peers despite social distancing measures were mostly likely to report these benefits from social media use.

Social media was also a popular way of expressing sentiments towards mass vaccination. Since April 2020, mixed opinions regarding COVID-19 vaccinations have circulated on global social media, but researchers found that in English language posts trust was the most prominent emotion, followed by anticipation, fear, joy, sadness, anger, surprise, and disgust.<sup>27</sup> Researchers found that trust peaked in November 2020 when a pharmaceutical company first announced their vaccine had an efficacy rate of 90%.<sup>27</sup> However, although updated and credible information about the vaccine circulated at this time, the researchers also found that many social media users continued to express uncertainty, fear, and insecurity, and this affected some individuals' willingness to be vaccinated.

Globally, online communities at the time were struggling to deal with growing challenges related to the repeated waves of infection and vaccine hesitancy. The decision to be vaccinated may be influenced by popular and professional media, circulation of fake news, politics, and religious pressures. Hesitancy was frequently justified by distrust in the health care system or the efficacy of vaccines. Perception of low risk for infection and inconvenience were other factors in vaccine hesitancy,<sup>28</sup> as were low education level, poor adherence to other vaccines, specific chronic diseases, other health conditions, and the perception that COVID-19 did not pose a significant danger to one's health.<sup>29</sup>

While there have been several studies examining the use of a popular social media to cope with pandemic-related stresses in other jurisdictions, this study is unique in its focus on Brazilian social media users.

### Study overview

This study explores how Brazilian users of a social media platform engaged with friends and family and shared information to promote coping skills and social support during the pandemic, and specifically during the period in which the COVID-19 vaccines were authorized by the Brazilian government. The guiding analytical question of this research was: How did Brazilians utilize an online platform to deal with mass vaccination concerns, manage

and cope with personal stressors brought on by the pandemic, and seek social support? The study's objective was to identify types of coping strategies and the kinds of social support offered by users' social media contacts, as expressed in users' posts about prevention and protection, as well as treatment, recovery, cures, and death.

The study's objective was to explore how the Brazilian online community mobilized its own coping resources during the COVID-19 pandemic to deal with mass vaccination concerns, manage and cope with personal stressors brought on by the pandemic, and seek social support.

### Conceptual framework

An original conceptual framework (Figure 1) was designed to guide the identification and retrieval of raw information available as users' social media posts. Our conceptual framework is informed by the Canadian Population Health Promotion Model (PHPM),<sup>30</sup> its proposed social determinants of health (SDH), and integrative, simultaneous actions to promote health. The PHPM approaches health promotion by addressing the SDH (e.g., age, sex, geographical location, coping skills, social support networks, etc.).<sup>31</sup> The PHPM proposes comprehensive, integrative health promotion actions to optimize the SDH including strengthening community action, creating supportive environments, developing personal skills, building a healthy public, and reorienting health systems toward a health promotion perspective. Among these SDH, we studied coping and social support since our study only focuses on the level of individual and their multidimensional emotional experiences during the COVID-19 pandemic as narrated in postings on the social media platform. Other SHD were not identifiable in the postings.

To study coping strategies, we used the Transactional Model of Stress and Coping.<sup>32</sup> The model suggests that individuals conduct a primary appraisal of any given situation to determine if it is irrelevant, being-positive, or stressful (e.g., harm/loss, threat, or challenge). A secondary appraisal evaluates the resources and coping options available. The model<sup>31</sup> defined two coping styles: (a) emotional-focused, which anchors on the evoked emotion during a stressful situation, such strategies involving avoidance, minimization, distancing, selective attention, positive comparisons, or wrestling positive value from negative events, which can be adaptive or maladaptive; (b) problem-focused, which involve an active search to

solve a stressful situation. Recent reviews of this model<sup>33-34</sup> introduced an additional coping style: meaning-focused coping, which involves the individual attempting to reshape the significance, priority, and value of a situation. The focus here is on one’s beliefs and values to maintain motivation and sustain coping strategies during a stressful situation. This is done by using one of the following meaning-focused coping strategies: benefit finding, benefit reminding, adaptive goal processes, and recording priorities.<sup>33</sup>

Social support was defined in this study as a resource that can lead to positive psychological outcomes such as increased self-esteem, resilience, and self-efficacy. We identify two types of social support: instrumental and informational.<sup>35-36</sup> Instrumental social support is a type of support manifested through actions to respond to actual needs in daily life. Informational social support refers to the provision of details and knowledge about a given topic that prove helpful to individuals.

The first and second authors created the original conceptual framework that guided the identification and retrieval of raw pieces of information about users’ lives (e. g., fragments of one’s life; timely, short, objective, and simple information) as well as of other COVID-19-related concepts embedded in the posts. The framework also displays areas of analysis as proposed by the chosen media analysis method and allowed the researchers to understand of how coping strategies and mobilization/use of social support resources helped social media users in their quest for emotional wellness.

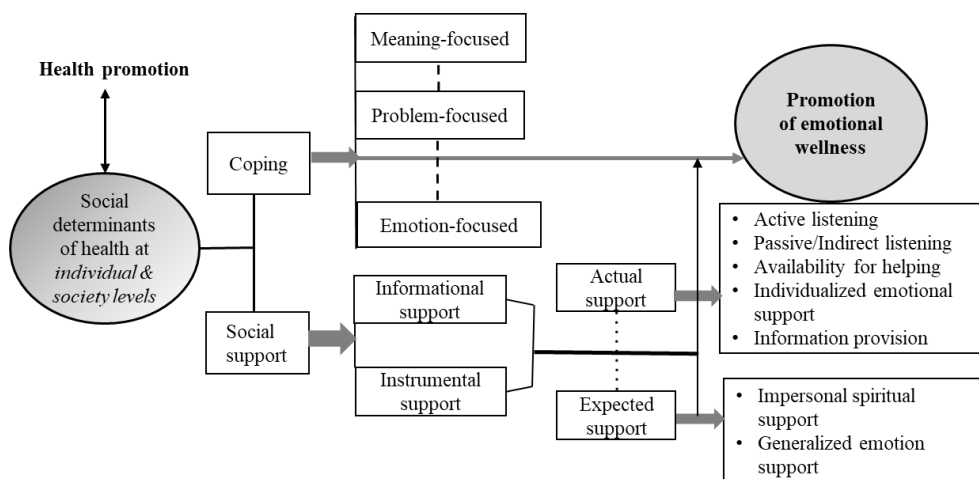


Figure 1- Conceptual framework



## Method

### Design and procedures

We undertook a media content analysis.<sup>37-38</sup> The method recommends that media analysis be focused on a socially impactful event. For this study, the chosen event with high emotional meaning was the authorization of COVID-19 vaccinations in Brazil and the consequent discourse offered by users of a social media platform. Data retrieval covered the period January to May 2021, which coincided with the vaccination authorization in Brazil and its effective rollout.

As recommended<sup>37-38</sup> a preliminary retrieval table was created for the collection of media content focused on the contents of postings featuring personal experiences with COVID-19 and related information. The table was organized in columns to retrieve the following contents: month, sharing, number of comments, 6 types of readers' reactions, as well as identification and copy-paste of the used coping mechanism. All three researchers who retrieved the postings used the conceptual framework (Figure 1) as a lens for selecting and reading the posts. Reactions to postings guided the manual search of postings, their initial counting, and classification. Manual retrieval focused on accounts/narratives, numbers of shares and comments by other users, and users' reactions as expressed by emojis. The retrieval was wide and focused on the most popular hashtags at that time (Display 1). The retrieval table was completed by three researchers: two registered nurses (one Brazilian and one Canadian born) and one fourth-year Brazilian undergraduate psychology student. The researchers worked independently from one another, without any discussion or debriefing among them to maintain neutrality in interpretation.

**Display 1 - Hashtags for contents retrieval (Jan-May 2021)**

Original hashtags in Portuguese	Free translation to English
#COVID19; #Covid_19; #CovidBrasil; #distanciamentosocial; #emcasa; #emcasacomsegurança; #emcasadeboa; #euveni; #eviteaglomeracao; #ficaemcasa; #isolamentosocial; #linhadefrente; #pandemia2021; #pandemiabrasil; #pandemicoronavírus; #quarentena; #secuide; #usemascara; #vaipassar; #vacina; #vacinajá; #VacinaSIM	#COVID19; #Covid_19; #CovidBrazil; #socialdistancing; #athome; #athomewithsafety; #safeathome; #iwon; #avoidcrowding; #stayathome; #socialisolation; #frontline; #pandemic2021; #pandemicbrazil; #pandemiccoronavirus; #quarantine; #careyourself; #usemask; #itwillend; #vaccine; #vaccinenow; #VaccineYES

The method of thematic analysis<sup>39</sup> inspired the analysis and interpretation of the posts' textual contents. The following procedures were applied: (a) intensive reading of the posts with annotations of emerging ideas; (b) recording first impressions after reading the posts; (c) preparation of a preliminary list of topics to guide subsequent reading, selection, and classification of the posts using the preliminary areas of *modus operandi* (one's habits of operating) (n= 26); coping strategies focused on emotion (n=9), problem (n=8), and reflection (n=11); and offer of social support (n=8); (d) apply the list of topics to select the posts' contents to be analyzed; (e) extract phrases and sentences from the posts corresponding to the topics; (f) analysis of the retrieved phrases/sentences; (g) creation of a log with analysts' reflections on emerging ideas after discussion about the discourse contained with the posts; (h) identification of analytical themes with their affinities (e.g., shared links or characteristics) and complementarity (e.g., being useful when combined); and (i) reflection on the central themes to answer the research question.

This type of social media study does not require review and approval by a research ethics board.

## Results

This section describes the findings regarding how Brazilian social media users dealt with the authorization of the COVID-19 vaccines via two key SDH: coping strategies and social support. The first exploration of the data identified general reactions to the posts based on attributed emoticons (Table 1). The high number of reactions can be explained by the number of friends in the user's network and their level of engagement. Original posts were chosen for analysis (but not comments on them) as a way of examining users' spontaneous disclosure of thoughts. Users described a multiplicity of coping strategies and various forms of indirectly offered social support.

Using the dimensions of the conceptual framework and the list of topics, a critical reading, retrieval, and selection of relevant posts allowed for the organization of a primary set of all 301 posts. From these posts, it was extracted and grouping 488 contents according to specific areas (Display 2 displays the retrieval and classification systems). A summary of

contents was generated for the following groups: *modus operandi* (n=117; 24%), coping strategies focused on emotion (n=175; 35.8%), on problem (n=40; 8.1%), on reflection (n=67; 13.7%), and offer of social support (n=89; 18.2%).

**Table 1-** General reactions to the posts (n=678,809)

Reactions	Number (%)
like	475,669 (70.07%)
share	8,3317 (12.27%)
love	74,353 (10.95%)
sadness	26,197 (3.86 %)
care	16,743 (2.47%)
laugh	1,279 (0.18%)
surprise	968 (0.14%)
angry	283 (0.04%)

The posts varied in tone and by the perspectives they offered, for example, (a) political tone with criticisms of the federal or local governments' handling of the public health situation; (b) denunciation of professional and political misdeeds; (c) advice for collective preventative behaviours; (d) updating of the clinical evolution of COVID-19 cases; (e) religious messages; (f) advocacy for science; and (h) intimate disclosure of personal issues. Table 2 shows the distribution of the top-five (n=393; 80.5%) actions and coping strategies. Among these, 255 contents were specific to coping strategies, among which emotion-focused coping (n=160; 63.2%) was predominant. The section below presents significant extracts from posts representative of the five most frequently cited coping strategies. The anonymous original posts in Portuguese were freely translated by the first and second authors.

## Display 2- Retrieval and classification systems

Evidence	Classification
Modus operandi (actions)	Accept; Advise; Ask; Care; Celebrate; Congratulate; Criticize; Denounce; Do; Empathize; Expect; Guide; Honor; Learn skills; Perceive; Promise; React; Remind; Resist; Share; Thank; and Trust.
Emotion-focused coping (strategies)	Express gratitude (with emphasis and more emotion); Express hope; Pray; Public behaviour (without personal contact); Public behaviour with high visibility (with direct personal contact); public behaviour with low visibility (without direct personal contact); and private behaviour; and Seek support on faith.
Problem-focused coping (strategies)	Adapt behaviours to possibilities; Ask for material help in public space; Identify what should be done; Implement solution; Reassess the situation; Request information in public space; and Take advantage of possible alternatives.
Reflection-focused coping (strategies)	Build individual meaning; Build meaning with someone's help; Expand awareness of personal potential; Expand awareness of collective risk; Find purpose; Recognize individual benefits; Recognize collective benefits; Reflect on attitudes/behaviours; Re-signify experiences; Review acquired individual emotional learning; and, Revisit life priorities.
Social support	Ask for spiritual support; Ask for support; Guide to physical health care; Guide to emotional health care; Guide to care for the spiritual life; Inform about services; Offer concrete help; Offer stimuli to sustain motivation; Offer spiritual support; Perceive social support; Provide financial support; Provide emotional support; Receive concrete help; Receive emotional support; Reflect on social support; Report status data; and, Warn about imminent risks.

**Table 2-** Distribution of top-5 actions and coping strategies identified in the posts (n=393 contents)

Modus operandi	Top posts	Coping: emotion	Top posts	Coping: problem	Top posts	Coping: reflection	Top posts	Social support	Top posts
unburden	20 (4.09%)	express gratitude	68 (13.93%)	take advantage of possible alternatives	12 (2.45%)	re-signify experiences	23 (4.71%)	advise physical health	29 (5.9%)
testify	15 (3.07%)	express hope	36 (7.37%)	adapting behaviours to possibilities	9 (1.84%)	build individual meaning	12 (2.45%)	warn about imminent risk	12 (2.45%)
criticize	13 (2.66%)	look for faith	32 (6.55%)	reassess situation	9 (1.84%)	expand awareness of	8 (1.6%)	advise mental	11 (2.25%)

	refuge		collective risk		health				
advise	12 (2.45%)	pray 13 (2.66%)	identify course of action	7 (1.45%)	review life's priorities	7 (1.45%)	stimulate to sustain other's motivation	10 (2.04%)	
honor	10 (2.04%)	ironize 11 (2.25%)	-	-	acknowledge collective benefits & reflect on attitudes and behaviours	6 (each (1.22%)	offer spiritual support	8 (1.6%)	
<b>Sub-total</b>	<b>70</b>	<b>-</b>	<b>160</b>	<b>-</b>	<b>37</b>	<b>-</b>	<b>56</b>	<b>-</b>	<b>70</b>

### *Modus operandi*

The Brazilian modus operandi while using the online platform was diverse and multifunctional. Most posts expressed emotions, such as unburden from difficult emotions; testify about accomplishments, professional actions; criticize political decisions and society's attitudes; advice for individual protective self-care; and honour relatives and friends' memories. For example, one individual wrote:

*coming and going again to the hospitals, they gave me the wrong medicine, but there's still a worse side!!! 'the loneliness of the room', the isolation, inside your own home, missing going out...*

Due to social isolation, the online platform may have offered a safe space for some individuals to express negative emotions and describe the difficulties they faced. Potentially, giving voice to these concerns could help users to revisit feelings, understand the reasons for the emergence of negative emotions, and, indirectly, reach out to sources of support. The online platform was also intensively used to post testimonies of faith and religiosity, and to request God's help to overcome difficult experiences during the pandemic. The most common posts were about individuals requesting divine help for themselves or for a family member to recover from COVID-19 infection or to be discharged from a hospital. Testimonies also frequently shared the rewards of one's faith. For example, one individual offered thanks to God and those who prayed for his father's recovery:

*Thanks to God and everyone who helped us in prayers... share the altar with*

*my father and be able to talk about the love of Jesus, and the life transformation that he can provide us.*

Posts of celebration were often intertwined with religious content. For example:

*Thank God no symptoms and social limitations are ending today. I was dying to post this. How many friends didn't have the same opportunity?! Don't criticize me for celebrating...*

Moreover, posts honouring friends and family members who died due to COVID-19 were also common. The affective discourse tended to express grief, acceptance of loss, and the honoured memory of the deceased:

*our [name of deceased name] strength, we know that the bonds of love never break, what remains is the pain of leaving and the time of absence, but the spirit is eternal, and we will all meet again one day...*

In general, posts frequently addressed the new phenomenon of social distancing. These protective measures obviously limited how individuals could help each other, but users took advantage of the social media platform as the easiest and safest way to offer support. Reactions and replies to posts were about prevention of COVID-19, advice regarding physical and emotional self-care, as well as promoting self-esteem. Other topics included advice about learning to enjoy the present moment and being in contact with friends and family members. The following post is representative of these topics:

*Take care of all, love more and more, be a 'light' even when distant, value those who are close, do not neglect each other, take care of physical immunity...  
Luxury today is flaunting mental health! Just for today take care and have self-esteem! Live in the present moment! The past causes depression and the future generates anxiety. LIVE THE PRESENT: It's in the name: it's a gift.*

Posts were also frequently used to amplify political criticisms and advocacy. These kinds of messages included criticisms of politicians' decisions and behaviours, the lack of medical equipment and investment in hospitals, and non-adherence to internationally adopted preventative measures. For example, one individual wrote:

*May the Covid leave us and take this disgraced government away.*

In response to citizens protesting and marching in rallies against the government mismanagement of the pandemic, posts tended to offer strong support for the protestors and dissatisfaction with the measures taken in response to the pandemic:

*a shame! all of this after so many lives taken by the carelessness and negligence of the state.*

Furthermore, criticisms also frequently targeted Brazilian citizens who chose not to adhere to preventive measures:

*groups of individuals drinking and sharing glasses... Young individuals are tired of staying home... I am too, and I'm even more tired of doing consecutive [hospital] shifts and seeing death getting closer and closer...*

As this quote suggests, some users also expressed sympathy for those who chose to violate the measures, even as they criticized the individuals for not respecting public health guidelines.

### Emotion-focused coping

Posts displaying emotion-focused coping often expressed mixed feelings of gratitude and hope, and looked for refuge in faith, prayer, and irony. Many of these posts offered gratitude for others' positive or supportive attitudes and their concrete actions. Some posts offered gratitude to specific individuals or institutions, for example, the Unified Health System (SUS) or the cleaning and kitchen staff at hospitals. Other posts expressing gratitude were more general in nature, as when "thanks" was given to science and scientists or to all who chose to get vaccinated. For example, one user wrote:

*Long live the SUS!! Long live science!" The arrival of the vaccines was also a focus of gratitude: "My turn has come! First dose of hope. Gratitude for this day! The happiness in the eyes, which only a vaccine brings.*

The start of the vaccination campaign and the opportunity to a nurse to take one's first shot was emphatically presented by the media as an event sparking hope:

*Joy in the face and hope in the heart of those who took the vaccine for Covid - 19. My heart is filled with joy to see this day come.*

The release of the vaccines was particularly important to those living in some hard-hit regions such as the Amazon:

*Rondônia receives a new batch tomorrow, with 51,200 doses! It is hope that is renewed, day after day! We will win!*

There was a strong religious and spiritual trend in posts referencing Brazilians' search for shelter, support, and hope. These posts also reflected a humanistic attitude. Consequently, many posts thanked God for His guidance and help, offered gratitude for others' prayers, or offered prayers themselves:

*Thank God we already have a vaccine that soon we will all be taking and, God willing, we will be immunized! The Lord has kept us this far! So let's keep*

*taking care of ourselves!*

Many users acknowledged that faith helped them to overcome their fear, uncertainty, and anguish, for instance:

Everyday we live with news and death. We've been through hard days. Moment of contrition. Time to humble ourselves before God. Moment of silence and of pouring his heart on the altar of the Lord.

Other posts suggested that irony helped some people to cope with uncertainty and negative emotions. For example, some users focused on the conflict between the Brazilian president and the minister of health and his renowned public health team. Each offered sharply contrasting perspectives on the appropriate public health response to the pandemic. Some posts adopted an ironic stance towards the President's ludicrous anti-vaccination claims that: the vaccine for COVID-19 would transform individuals into alligators; by referencing the Brazilian Center-west swamp, which is home to many alligators, with one user writing:

*I already made a reservation for Mato Grosso in case I become an alligator...*

Other ironizing posts joked about boredom during quarantine as a way of attenuating its emotional impact:

*Imagine if the quarantine happened 18 years ago. We would be stuck at home with a Nokia 3310, with limited SMS and only with the snake game.*

### Problem-focused coping

Posts expressing strategies for problem-focused coping tended to focus on taking advantage of possible alternatives, adapting behaviours, reassessing situations, and identifying a course of action, mainly during the period of quarantine. As illustrated in the following posts, the idea of possible alternatives focused on ways individuals could take joy in life even while in quarantine:

*The moment calls for adaptation! The gym opens and closes, but my students have the option of live classes, video classes, training prescriptions, etc.! The important thing is not to get discouraged!*

The idea of reassessing situations involved re-evaluations of stressful conditions. These posts included users reviewing the personal tools available to them to help them face unpleasant events, describing actual support provided by others, and detailing their own capacity to deal with and solve emerging problems. For example, one user wrote:



*The reality of the lockdown is harsh. It's sad. But necessary... I hope that this extreme measure really helps us to save lives and get out of this very acute moment.*

In short, reassessing situations posts offered attempts to re-evaluate problems by decreasing the stress associated with a given situation. Posts identifying a course of action involved users acknowledging the problem and providing a solution:

*The night lockdown is so important! ... Don't go to parties, clubs, or gatherings. Do this for your health and that of your whole family.*

#### Reflection-focused coping

Reflection-focused coping posts offered religious and spiritually grounded strategies for dealing with stress during the pandemic. Major themes within these posts were as follows: re-signifying experiences, building individual meaning, reviewing life's priorities, expanding awareness of collective risk, acknowledging collective benefits, and reflecting on attitudes and behaviours. Re-signifying experiences occurred when users attached religious meaning to the experience of COVID-19, for example, as when it was framed as a divine ordeal or lesson. At the core of many of these reflections were unanswered questions:

*There are many inexplicable questions in moments of panic and pain... none of them reach the purpose of what God wants.*

Building individual meaning occurred when a user attempted to identify the uniqueness of their lived experience. A post from a self-identified nurse is exemplary of the building individual meaning theme as this individual looked for a way of making their professional experiences meaningful by exploring their reasons to pursue this line of work:

*It's a WAR scenario! but everything in life has a purpose... God knew people would need me in this war...*

The unpredictable, difficult period of the pandemic frequently encouraged users to create posts in which they reviewed life priorities, values, and meanings. For example, one user wrote:

*Sometimes we don't understand God's purpose... why certain things go through our lives and why all this happens?*

Users also posted to raise awareness of the risk of infection for themselves and their wider communities. Such posts often revealed a high level of scientific and health literacy, was addressed superficially addressed by few posts:

*For the first time, the hypertension that I have had for over 20 years was in my favour.*

Other posts argued that the problem should not be approached only as an individual problem despite the unquestionable importance of personal care to take care of the collective health. One post illustrated well how much the broad sense of awareness of multiple risk and related impact was:

*Since March 2020, we have been experiencing days of economic, political, and social instability.*

Posts in which users acknowledged collective benefits was supported by the idea that vaccination could create an equitable access to measures to save lives. For example, one user wrote:

*Vaccinating transcends what is right or wrong, it is a humanitarian issue, of taking responsibility for the collective.*

Finally, posts in which users reflected on attitudes and behaviours resulted from challenges posed by the pandemic and the losses many individuals incurred to create a new way of living/doing:

*Over time, caring for patients with Covid-19, wiping away every tear from those who lost someone and giving a hug with the eyes became a life purpose.*

## Social support

Social support-related posts were related either to actual support or expected support. It is noteworthy that the nature of established communication in the social media platform restrained the offer of concrete supportive actions. Therefore, social support-related posts predominantly offered information and advice as the simplest way to help and support others. Such posts were mainly about self-care (e.g., physical activity, good sleep routine, good diet, and seeking psychotherapy, if necessary) and adherence to protective measures (e.g., mask wearing, use of hand sanitizer, and social distancing). For example, one user wrote:

*More than ever, we need to keep the body healthy and a calm mind. With that in mind, we've separated some healthy food tips that will help lift your mood and reduce anxiety in this period of social isolation...*

Similarly, short testimonies of perseverance were sometimes used to motivate others:

*It wasn't easy, but today I can say 'I WON COVID', that my story can boost your*

*faith and nourish your hope that you are going through this.*

Other posts provided religious support such as a call for prayer in critical moments:

*very sad to see so many sick individuals and bereaved families! Let's intercede for them every day. I believe that our fight is already coming to an end!*

As this section illustrates, Brazilian social media users offered a range of ways of dealing with and expressing feelings during the first months following the authorization of the vaccines. While the strategies varied, the overall discourse was characterized by hope, solidarity, and faith, with a good dose of political criticism.

## Analysis

Two major themes emerged during thematic analysis: 1) overcoming challenges through acceptance, religiosity, and the regulation of feelings; and 2) hoping to survive and live better by rebuilding life prospects through taking immediate opportunities. These themes were used to respond to our guiding analytical question, which centred on the ways Brazilians used an online platform to deal with reactions related to the launch of the vaccination program while they coped with the challenges of the pandemic and accessed social support when it was available.

Overcoming challenges through acceptance, religiosity, and the regulation of feelings

Emotion-focused coping was the most common way of dealing with immediate emotional impacts of the pandemic. It was done by sharing experiences and seeking out support from acquaintances. Users also turned to social media to “vent,” that is, to express strong emotions as a way of processing difficult experiences and ultimately accept them. Life during the pandemic was characterized by many difficulties, uncertainties, fear, and pain. Individuals expressed themselves through social media posts as a strategy to overcome personal and family adversities. Replies and reactions aided the original author and their readers in understanding other individuals’ pandemic experiences. Ultimately, this collective sharing of experiences probably minimized the emotional burden carried by Brazilian social media users. It was found<sup>11</sup> that 26.5% of social media users expressed relief when they read posts reporting difficulties like those, they had experienced.

Acceptance of problems was another strategy social media users employed to overcome emotional distress. Acceptance can allow individuals to cope with difficult

circumstances, deal better with stressful events, and can be essential for improved quality of life.<sup>40-41</sup> Acceptance can happen when an individual is willing to experience their emotions and sensations without attempting to control them.<sup>40</sup> Our evidence suggests that social media posts often focused on individuals acknowledging difficult experiences and the emotions arising from them. Moreover, such posts can also be seen as evidence of users learning to feel emotions and deal with them. During the COVID-19 pandemic, individuals with acceptance skills reported feeling better able to cope with and respond effectively to distressing experiences.<sup>42</sup> According to these researchers, acceptance of the reality of the pandemic and the challenging emotions related to it enabled individuals to seek out alternatives to adapt to these difficult times. The posts we analyzed suggest that committing to behaviours aligned with one's personal values can encourage individuals to persevere through difficult thoughts or emotions.<sup>41-43</sup>

Hoping to survive and live better by rebuilding life prospects through taking immediate opportunities.

Religiosity and spirituality are both valued in Brazil as 88.3% of the population practices a religion.<sup>44</sup> Religious practice was constrained during the pandemic by the temporary closure of places of worship. Many individuals of faith turned to social media as a new space for assembling and giving and receiving religious support. Most of the posts in our sample with religious or spiritual content concerned the positive or negative impacts of religion on one's life. Religious practice is associated with better physical and mental health, an increased sense of purpose and meaning in life, and improved resilience.<sup>45</sup> On the other hand, such practice may also lead to denial of illness and feelings of shame and guilt.<sup>46</sup>

The authorization of the vaccines in Brazil gave the public a "dose of hope". This hope improved many individuals' ability to cope, increased their motivation, and helped them to deal with or solve problems.<sup>45</sup> Increased hope assisted individuals to engage in active coping strategies (e.g., maintaining personal hygiene, seeking support, and conducting positive reappraisals of situations), enhance meaning in life,<sup>47</sup> reduce stress, and dismiss feelings of instability and lack of control.<sup>46</sup> While hope was influential for the adoption of coping strategies, social support was mainly expressed in posts about self-care, adherence to the protective measures, and spiritual support. Many of the social media interactions we examined led to positive outcomes, mainly support from others who were living similarly

stressful experiences.<sup>46</sup>

## Discussion

Our evidence indicates that social media was used by many Brazilian users to deal with daily stressors, to express their feelings, and seek social support. The benefits of social media use during the pandemic, specifically during periods of quarantine, have been documented in other countries. For example, most Canadians (82.1%) reported that maintaining social media connections with friends and family was a key coping strategy during the pandemic.<sup>48</sup> Indonesians used social media to increase awareness about COVID-19 and change their behaviour regarding public health measures.<sup>4</sup> Moreover, these researchers also found that social media was used for social support, which took many forms: sending good wishes, prayers, comments, and pictures; inquiring about others' health; and sending audio messages and videos about COVID-19.<sup>4</sup>

In Brazil, the wider online environment was used for a variety of purposes, including entertainment, socializing with others, and sharing memes and ironic posts about difficult situations. Similar results were found in Pakistan where individuals also used online social networks to overcome their fear of being alone.<sup>49</sup> These researchers found that individuals with higher levels of life satisfaction tended to use social media to share positive information and engage in fewer discussions about COVID-19.<sup>49</sup> By contrast, among Chinese users, those who used social media intensively or those who were involved in more pandemic-related discussions tended to have higher anxiety and lower life satisfaction.<sup>50</sup>

Although not evident in the retrieved posts, hesitancy for vaccination in Brazil was low (17.5%)<sup>28</sup> and occurred simultaneously with a resistance against COVID-19 protective measures.<sup>10</sup> Currently, the hesitancy rate among Brazilians oscillates in reaction to official government measures and mass education actions by community stakeholders (e.g., sports, philanthropic, religious, social groups, etc.), because hesitancy seems to be greatly shaped by the spread of disinformation/misinformation in social media.<sup>28,51</sup> The country relies on a public health system, the SUS, and it is highly regarded by most Brazilians. For that reason, many of the posts in our sample expressed trust in science and showed support for the SUS in its fight against fake news about COVID-19<sup>52</sup> and vaccination<sup>53</sup> using the same social media platform.<sup>54</sup>

Our evidence shows that users offered discourse on a range of subjects such as herd immunity, flattening the infection curve, and the mortality rate. Due to lockdowns that restricted their ability to socialize with others in person, individuals turned to the virtual world and its lack of territorial boundaries.<sup>55</sup> Media supports individuals to deal with the world with capacity for expansion and exchange of information.<sup>56-57</sup> Our evidence corroborates ideas that sociability potentially may redesign routines of emotion-based interactions.<sup>58</sup> These new ways of dealing with emotions relates to other evidence<sup>16</sup> that posting messages on social media networks helped to improve mental health of Brazilians during the pandemic.

#### Strengths and limitations

The main strength of this media study was its use of a popular online social media platform to offer a snapshot of the way Brazilians from many social strata responded to a meaningful event affecting the whole country. Our study was limited by our ability to only access publicly available posts, which limited the situations and contexts users discussed without expanding the analysis to the reactions to them.

#### Implications for practice and research

Exploration of popular discourse on a social media platform can reveal how users experience illness and other life stressors during a difficult period such as a global pandemic. Our results suggest that disclosures of sensitive experiences, opinions, beliefs, and values via social media posts may inform the design of mass education initiatives aimed at improving scientific literacy, even without clearly identifying the primary target audience aiming to prevent unnecessary distress. We recommend that further research be conducted on virtual communities to better understand the dynamics of seeking, offering, and receiving social support within these communities. The Brazilian population's awareness of the social, political, and medical dimensions of the pandemic seem to gradually increase as the pandemic wore on. An accurate understanding of COVID-19 – its transmission, associated harms, and the benefits of vaccination – is crucial to informed decision-making.<sup>59</sup> As contented: “As a public health strategy, health literacy as a social vaccine will enable individuals and communities to mitigate the spread of the virus by understanding and applying information as provided through governments and health authorities.”<sup>60:1</sup>

#### Conclusion

Our findings suggest that social media use had a significant and positive on many Brazilians during the pandemic. Social media enhanced feelings of connection and created a context for belonging, support and motivation. Our findings are suggestive of the power of social media to enhance community health literacy during the public health crisis brought on by the pandemic. Health literacy was crucial to the effective implementation of the vaccination campaign, and the campaign itself helped to relieve the stress brought on by the pandemic and its associated public health measures. Collective stress and suffering were partially mitigated by a sense of social solidarity that supported the online community actions. Such actions were instrumental in facilitating the reduction of loneliness, social isolation, social vulnerability, and emotional pain.

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