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FORUM

Impacts of COVID-19 on organizations

Alessandra de Sá Mello da Costa | Ely Laureano Paiva | Marcus Vinícius Peinado Gomes | Vinicius Andrade Brei

Women in home office during the COVID-19 pandemic and the work-family conflict configurations

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Effects of information on job insecurity and work engagement in times of pandemic

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EDITORIAL

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RESEARCH AND DISSEMINATON OF KNOWEDGE IN THE PANDEMIC

In this issue, we present the articles selected for the call titled "Impacts of COVID-19 on organizations". Although research strategies in business administration during the pandemic had to be revised, since many investigations in the area are conducted in loco in organizations, the number of submissions for this call showed that research is alive and vibrant amid the pandemic. Organizations have been deeply impacted and, in the coming years, research will increase on new organizational formats, mental health in organizations, logistics and operations, consumer marketing, and we hope those will be new forms for the common good. The guest editors' article, "Impacts of COVID-19 on organizations", presents the main issues that emerged in this special call.

However, when it comes to scientific output during the pandemic period, we have some questions that need to be debated. First, while on the one hand, the pandemic has brought about the need for urgent research on a new reality that calls for quick responses on vital issues, on the other, it has affected academic publications, since there has been an increased concern about the review process by peers, who have had to speed up their work, thus increasing chances of error and, consequently, of fraud, as presented by Fabricio Marques in *Revista Pesquisa FAPESP*, in August 2020. In that text, a warning is made about the need to preserve research quality, since published articles do not always bring contributions that maintain research integrity, as pointed out by Marques (2020), based on various studies and measures adopted around the world.

But it was not only research directly linked to COVID-19 that suffered during the pandemic. Article evaluation and publication processes also had to be readjusted, due to difficulties faced by several researchers and reviewers regarding telework; such processes during the pandemic period should be considered by scientific journals' editorial evaluation bodies.

Secondly, in addition to publications, the ways of exchanging knowledge within the scientific community have also undergone changes in this period. We are now presenting works at virtual congresses, with the advantages – and hindrances – brought about by this type of interaction. Sidinei Santos de Oliveira (2020) shows that, with virtual congresses, air ticket and accommodation costs have decreased, thus allowing large attendances and worldwide reach. The lack of experience in this modality brought about technical snags that may be revised for the coming years, since the online modality will likely continue. However, these meetings definitely do not allow the talks, information exchange and potential new research networks that take place informally during coffee-breaks. Interactions at online conferences need to be scheduled and require specific etiquette "to look good on video", as Oliveira (2020) argues. Researchers need to offer, in addition to their research, adequate lighting, a good presentation script and strict time control in conferencing platforms. Not easy for those who have honed themselves over the years as researchers, rather than movie actors and actresses or TV show writers.

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Those aspects, along with the funds allocated to research and the definition on what projects should be supported, need to undergo changes in the coming years. We must be cautious not to throw the baby out with the bathwater. Undoubtedly, advances are needed in research, especially in themes linked to the UN Sustainable Development Goals. But, as always, the progress of science calls for democracy as a principle.

Speaking of future, next year, the RAE celebrates its 60th anniversary, and we are preparing a special issue to celebrate the anniversary of the longest running journal in the field of Business Administration, considering its six decades of uninterrupted publication. This is a milestone in the history of academic-scientific publications in the country. For the celebrations RAE's 60 years, we will have several new aspects to be presented throughout 2021, which include, for starters, the publication of articles on a continuous basis as of the next issue.

We wish you all a happy 2021, with respect for research and with health!

Enjoy your reading!

Boa leitura!

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IMPACTS OF COVID-19 ON ORGANIZATIONS

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The challenges for people, organizations and societies in the face of the impacts of COVID-19 and a global pandemic are numerous. How can we deal with such immediate changes in our daily routines? How can we stop and reflect on what we should do when faced with such urgent demands? How can we build a shared collective sense and make decisions at a time when the future is suspended and the past provides us with few answers? Since we are all faced with this same situation, we believe that the safest way out is to listen to what the science has to say to us.

It was in this spirit that we sought to mobilize researchers, reviewers and editors and charge them with the joint task of putting together a special issue of the journal that points to potential routes towards understanding the current scenario and the future of organizations. The task they faced was an arduous one: to produce and disseminate quality knowledge at the same time that the events described were occurring, and while working under the impact and constraints of social distancing. The response, however, has been was very positive.

Some areas of knowledge require a little more time to build their robust models and/or the analytical schemes required for understanding the phenomena. Others are able to contribute more immediately to the advancement of knowledge by taking already ongoing research and adapting it to shed light on new phenomena. The significant number of articles submitted clearly shows the effort and engagement of researchers in the field of Administration in the face to the pandemic's challenges; challenges that are being faced by people, organizations and society.

In pursuit of academic output on these transformations, the call from RAE received 165 papers from the various areas of knowledge that go to make up the academic-scientific related to the field of Business Administration. A total of 101 manuscripts were submitted to the peer review process, and at the end of a careful review and editing process, five papers were approved for publication.

Making such choices was no easy task, and we are most grateful for the contributions of all the researchers, even those whose articles were not approved. We hope that the opinions they received will help them improve their articles and, once the weaknesses have been addressed and reformulated, that they may be published in the future. We also thank all the reviewers who worked quickly and tirelessly at a time of pandemic, which has affected the life of the entire scientific community.

In the area of Organizations and People Management, 33 manuscripts were evaluated, which resulted in the article by Eduardo Moura, Liliane Furtado and Filipe Sobral, "The burnout epidemic during the COVID-19 pandemic: The role of LMX in alleviating physician burnout" being approved. This article shows us the importance of leadership in extreme situations, and suggests that a high-quality relationship between supervisors and physicians can help reduce the burnout rate of frontline professionals dealing with COVID-19 and its consequences.

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In Marketing, 14 articles were submitted, most of them related to consumer behavior. Within this broad thematic area, the articles addressed topics such as sustainable consumption, food waste, purchase decisions in different marketing channels, consumer well-being, risk perception, purchase intention and a comparison of the purchasing behavior of consumers in different countries. A small number of articles were also submitted on other marketing sub-areas, such as brands, digital marketing, e-commerce, the spread of fake news and social media. None of the submitted papers addressed aspects related to the teaching of marketing.

The submissions on marketing topics were initially examined by the Guest Editors, and, after redirecting some articles to other thematic areas and some desk-rejections, which were motivated by poor contributions, seven papers addressing marketing topics underwent blind peer review. These seven papers were evaluated by 14 experienced reviewers and, subsequently, by the Guest Associate Editor, before being evaluated by the Editor-in-Chief. Based on the Editorial Board's judgment, none of the marketing articles was accepted for publication. In general, the two main reasons for rejection were the lack of theoretical contribution and weaknesses in methodological procedures.

The call for papers on the impacts of COVID-19 on organizations apparently led authors to submit papers that focused on purely descriptive aspects of these impacts. Since RAE is a traditional academic journal, the Editorial Board was expecting that the articles submitted would present new or innovative approaches with regard to how this pandemic may transform, modify or generate new theoretical approaches to marketing phenomena that are motivated by the atypical situation the world is experiencing. That did not happen. Almost all the submitted articles merely described the impacts of COVID-19, and there was no further discussion on the theoretical implications for Marketing. This was the most common justification for rejection by the reviewers. There were also other problems related to theoretical aspects, such as inconsistent hypotheses and framework proposals that were weakly supported in literature.

Several types of methodological problem were, perhaps, more frequent than problems relating to the theoretical contribution of the papers. The most frequent methodological problem was the use of small, unrepresentative samples composed of respondents whose criterion for inclusion was based on convenience. Even in articles that provided a more relevant theoretical contribution, methodological aspects such as scales with validity and reliability problems, poorly defined constructs, and samples with insufficient statistical power to test the hypotheses meant that their authors were unable to reach consistent conclusions. No paper presented an innovative methodological approach that might overcome its theoretical weaknesses and, thus, be reason for accepting it for publication. The final decision, therefore, was to not publish any articles in the Marketing area.

It is known that extreme changes in Operations Management resulting from the COVID-19 pandemic have heavily impacted organizations in different industries and multiple supply chains, which have required prompt innovation in products and processes. Based on this rich context of often unprecedented experiences, 23 articles were submitted that addressed different topics, such as technological innovation, the resilience of supply chains and adaptations in service operations.

The two articles selected for this special issue discuss how organizations responded to the needs brought by the pandemic, based on innovation and adaptations in their processes. The first article, "Effects of information on job insecurity and work engagement in times of pandemic", by Anderson Frare and Ilse Maria Beuren, is a survey with a sample composed of employees from a large Brazilian startup in the financial area. The authors used structural equation modeling for analyzing the data. The results suggest that during the pandemic period, sharing vertical information has mitigated job insecurity issues and exerted a positive effect on employee engagement. The second article, "An engaged university: rescuing SMEs during the COVID-19 Crisis" was written by a group of researchers: Daniela Brauner, Fernanda Reichert, Raquel Janissek-Muniz, Aurora Zen, Daniela Callegaro-De-Menezes, Lisiane Closs, Wendy Carraro, Carla Ruppenthal, Fernanda Maria Müller, Marcelo Lubaszewski and Marisa Rhoden. The article analyzes how a regional, socially engaged university has provided support for SMEs during the pandemic crisis. As a result, the central elements for the promotion of social engagement were identified as: teamwork, multidisciplinarity, project management, agility, alliances, communication strategy, institutional support and reputation.

In the Organizations, Sustainability and Inequalities area, we received 31 manuscripts addressing issues related to the environment, the different impacts on inequality and minorities, and teaching issues in Administration for responding to the need for content adaptation, disciplines and programs in the online environment. Considering the speed with which the pandemic has changed our routines in different dimensions of the academic life, including impacts on research and work overload, receiving so many manuscripts for this special call was a very positive outcome.

Considering this scenario, 13 manuscripts were selected for review. There was a variety of papers representing the diversity of

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the area itself. Most of them discussed the impact of the pandemic on many aspects of vulnerability, including gender and race issues, but we also received studies addressing the use of personal data during the pandemic, feelings in social media and the challenge of the pandemic being faced by civil society organizations. In general, all manuscripts had a tendency to be strongly descriptive of the impacts of the pandemic, this being the main reason for not submitting them for publication.

Two manuscripts were accepted. however, In the first, "Business action on sustainability and resilience in the context of COVID-19", Mariana Nicolletti, Gabriela Appugliese, Marta Blazek, Paola Fillippi and Luis Bismarchi present a systemic look at sustainability-oriented business performance. The study presents an analysis from the point of view of resilience as a way of analyzing and understanding company realignment and value creation for society. In "Women in Telework during the COVID-19 Pandemic and the Work-family Conflict Configurations", Ana Heloísa Lemos, Alane Barbosa and Priscila Monzato examine how the pandemic had an impact on work-family conflict in the light of the adoption of teleworking. They found that despite work overload, teleworking did not increase the work-family conflict for the interviewees. In fact, the authors point out that teleworking has allowed the interviewees to be closer to their families, in addition to providing them with more time for physical and leisure activities

We are still suffering the effects of the pandemic, and its consequences will continue to be analyzed and discussed from business, social and environmental perspectives. We will certainly find many articles in *RAE* and other journals that will analyze, reflect on and theorize about the changes the pandemic has brought to our societies. We hope that the knowledge produced and disseminated by academia can help bring about positive changes in our societies, allowing us to face up to the social inequalities and environmental impacts that lie ahead.

AUTHORS' CONTRIBUTIONS

All authors collaborated in the writing and final revision of the text.

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WOMEN IN HOME OFFICE DURING THE COVID-A9 PANDEMIC AND THE WORK-FAMILY CONFLICT CONFIGURATIONS

Mulheres em home office durante a pandemia da Covid-19 e as configurações do conflito trabalho-família

Mujeres en home office durante la pandemia de COVID-19 y las configuraciones del conflicto trabajo y família

ABSTRACT

The aim of this research was to understand the impacts that working from home during the COVID-19 quarantine period had on the work-family conflict for Brazilian female workers. To reach the objective, fourteen professionals with different family arrangements, were interviewed. All the interviewees reported work overload due to organizational requirements, and the demands placed on them by their children and the home. Despite this, it is worth noting that, according to the testimonies, this work overload did not intensify the work-family conflict for all of them, contrary to what is claimed in the literature. Some interviewees stated that working from home brought them closer to their children and husbands and provided more time for physical and leisure activities. This finding can contribute towards broadening the debate on work-family conflict, by postulating that it is not only time, pressure and behavior that are the sources of this conflict, but also the physical distance imposed by the hours spent working away from the home.

KEYWORDS | Family-work conflict telework, COVID-19, quarantine, double shift.

RESUMO

Esta pesquisa objetivou compreender os impactos que a adoção do home office, no período da quarentena da Covid-19, teve no conflito trabalho-família vivido por trabalhadoras brasileiras. Para alcançar o objetivo, foram entrevistadas 14 profissionais com diferentes arranjos familiares. Todas as entrevistadas relataram sobrecarga de trabalho devido às exigências organizacionais, às demandas com os filhos e com a casa. Apesar disso, cabe destacar que, de acordo com os depoimentos, a sobrecarga de trabalho não intensificou o conflito trabalho-família para todas, o que vai na contramão do previsto na literatura. Algumas entrevistadas alegaram que o home office aproximou-as dos filhos e maridos e propiciou mais tempo para atividade físicas e de lazer. Tal achado pode contribuir para ampliar o debate sobre o conflito trabalho-família, ao postular que não apenas o tempo, a pressão e o comportamento são fontes deste conflito, mas também a distância física que as horas dedicadas ao trabalho fora de casa requerem.

PALAVRAS-CHAVES */ Conflito trabalho-família, home office, Covid-19, quarentena, dupla jornada.*

RESUMEN

Esta investigación tuvo como objetivo comprender los impactos que la adopción del home office, durante el período de cuarentena de la COVID-19, tuvo sobre la relación trabajo-familia de las trabajadoras brasileñas. Para alcanzar el objetivo se entrevistaron catorce profesionales, con diferentes arreglos familiares. Todas las entrevistadas relataron sobrecarga laboral debido a las exigencias organizativas, obligaciones con sus hijos y con el hogar. A pesar de ello, cabe señalar que, según los testimonios, para ninguna de ellas la sobrecarga laboral dificultó la administración de la relación trabajo-familia, al contrario de lo previsto en la literatura. Algunas entrevistadas afirmaron que trabajar en el hogar las acercó a sus hijos y maridos y les proporcionó más tiempo para actividades físicas y de recreación. Este hallazgo puede contribuir a ampliar el debate sobre la relación trabajo-familia, a menudo conflictiva, al postular que no solo el tiempo, la presión y el comportamiento son fuentes de ese conflicto, sino también la distancia física impuesta por las horas dedicadas al trabajo fuera del hogar.

PALABRAS CLAVES */ Conflicto trabajo-familia, oficina en casa, COVID-19, cuarentena, doble turno.*

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INTRODUCTION

On December 31, 2019, the World Health Organization (WHO) was warned about cases of pneumonia in the city of Wuhan, China, caused by a new virus. A few days later, the WHO stated that the coronavirus outbreak constituted a Public Health Emergency of International Concern and, on March 11, 2020, the COVID-19 was classified by the WHO as a pandemic (OPAS, 2020).

Given WHO's warning, the Brazilian Ministry of Health defined a series of measures to be taken to combat the coronavirus (Agência Brasil, 2020). To comply with these guidelines, many companies totally or partially suspended their activities or, where possible, started to operate on a telework basis. The interruption of several productive activities had immediate impacts on the workforce, but those impacts affected it unevenly. According to Barbosa, Costa & Hechsher (2020), workers who were already in fragile work conditions, such as young people, blacks, women, people with little education and informal workers, were more affected by the crisis, losing jobs and income to a greater extent than economically privileged groups.

The crisis caused by the pandemic aggravated unemployment and furthered the trend towards precarious work that has been in course in Brazil in recent decades (Martins, Lipp & Monteiro Junior, 2020; Melo & Cabral, 2020). The National Household Sample Survey (PNAD Covid-19), which began in May 2020, found a 33% increase in unemployment in September, which translates into 3.4 million people looking for jobs. Data from this survey also indicate that inequalities in the Brazilian labor market have worsened: while unemployment among women was 17%, the percentage among men was 11.8%, in September. Among blacks, it was 16.1%, compared to 11.5% for whites (IBGE, 2020).

Because it affects the workforce unevenly, the pandemic has had different impacts on different occupational groups. While on the one hand, as said earlier, it increased the share of workers excluded from the labor market, on the other hand it forced better-off workers to adapt to remote work as a way of keeping their jobs. Remote work, or telework, was adopted by 46% of Brazilian companies (Agência Brasil, 2020b). However, initiatives for this type of work aggravated the social inequality already mentioned. A Datafolha survey commissioned by C6 Bank shows that, in Brazil, the top income tiers concentrate the number of workers who managed to change to telework, making up 52% of teleworkers. Middle-income workers account for only 29% of the country's remote workforce; and workers in the lower strata represent an even smaller percentage of the total of teleworkers: 26% (C6Bank news, 2020). The survey also points out that the inequality in telework adoption under pandemic conditions reflects gender, class and racial inequalities.

The sudden adoption of telework during the quarantine (Savic, 2020; Waizenegger, McKenna, Cai & Bendz, 2020) forced workers and their families to adapt to the new reality: household chores increased due to the absence of the services normally hired; schools and universities started to teach their contents via digital platforms; socializing and physical activities started to be done remotely. Such changes produced different impacts on Brazilian workers' professional life, which has motivated recent studies about the effects of telework adoption on work productivity in the context of the pandemic (Mendes, Hastenreiter Filho and Tellechea, 2020).

A survey conducted in April 2020 by LinkedIn indicated that 62% of respondents are more stressed about work than before. That group says it has been working longer hours (68% have been working at least one more hour per day, with 21% working up to four additional hours). In addition, 20% reported difficulties harmonizing work demands and the care for children. However, despite such difficulties, 59% of interviewees say that, with the quarantine, they have had more quality time with family (Tobias, 2020).

Our awareness that telework adoption in the context of the pandemic has affected the relationship between work and family life for workers in general and female workers in particular motivated us to conduct this study, which sought to understand the impacts of the adoption of this type of work on female workers' work-family conflict. This interest is due to the fact that, historically in Brazil (Melo & Thomé, 2018), the greatest share of responsibility for housekeeping and care for children is placed on women. Data released by the IBGE (2019) about "other forms of work" show that 92.2% of women perform some domestic work while for men this percentage is 78.2% (IBGE, 2019). Such indicators led us to assume that the sudden need to work from home and take care of household chores and children has entailed an additional burden to women.

The literature on work-family conflict corroborates this assumption by showing that the conflict, when it occurs, affects women more heavily, especially those who are mothers (Greenhaus & Beutell, 1985; 2012; Roman, 2017). Thus, the present study sought to contribute to the debate with an emphasis on the gender issue. It is worth noting that, while there is significant literature on the COVID-19 pandemic in the field of Brazilian management, most studies address issues related to tourism (Coelho & Mayer, 2020; Trigo, 2020) and public administration (Santos , 2020; Costa, 2020). Few studies address the impacts

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of telework and the occurrence of work-family conflict, which reinforces the relevance of studying the topic.

To achieve the study's goal, we conducted interviews with 14 women with and without children, married and single. The study's conceptual bases, methodology and results are presented in the following sections.

WORK-FAMILY CONFLICT

Work-family conflict is defined as a set of pressures that occur when professional and personal roles are played in a way in which fulfilling one role makes it difficult to conform to the other (Eby, Casper, Lockwood, Bordeaux & Brimley, 2005; Netmeyer, Boles & McMurrian, 1996; Leslei, King & Clair, 2019; Zhao, Cooklin, Richardson, Strazdins, Butterworth & Leach, 2020).

There is evidence that, for those who have children, work matters can invade family life, sometimes in a positive way, considering the financial gains involved, and others in a negative way, since the time dedicated to work limits the attention given to family (Baxter & Alexander, 2008). Struggles in work and family management occur almost daily and have consequences for both professional activities and personal life (Pluut, Lies, Curseu & Liu, 2018).

The main sources of work-family conflict are: time, pressure and behavior. The more important a role is for an individual, the more time he will dedicate to it, and the greater the amount of pressure and specific behaviors required to play one of these roles, which will result in less time and energy for the other. Obligation to perform a certain function interferes with performing the other, and the level of performance in one function can sacrifice the other (Greenhaus & Beutell, 1985).

Conflict is more common among couples with children than without children and is more frequent when the children are under 18 (Baxter & Alexander, 2008; Greenhaus & Beutell, 1985; Gordon and Whelan-Berry, 2004). Some factors related to work and family differ between men and women (Beutell & O'Hare, 2018), which makes gender a central factor, since mothers usually report higher levels of conflict than fathers (Minnotte, 2012; Roman, 2017; Leslei, King & Clair, 2019). In Brazil, studies show that 92.2% of women perform some domestic work while for men this percentage is 78.2% (IBGE, 2019). This inequality of time and energy makes it more difficult for women to dedicate to professional matters (Melo & Thomé, 2018).

In the family model formed by a man and a woman, the husband's support and dedication to housework is essential for the woman to advance her career and manage to harmonize the family and work spheres (Gordon & Whelan-Berry, 2004; Huffman , Casper & Payne, 2014; Lee, Zvonkovic & Crawford, 2014). In addition, it is well-known that other family members can help parents in caring for their children (Dessen & Braz, 2000). Outsourcing the care for children to babysitters and daycare centers can also help mothers harmonize motherhood and work (Lemos & Cavazotte, 2018).

Women's entry into the market furthered work-family conflict (Santujá & Barham, 2005), which leads many mothers to restrict their participation in the workforce so as to meet family needs (Beutell & O'Hare, 2018; Peters & Blomme, 2019) or even interrupt their careers (Elliot, 2002; Warner, 2013).

The increase in the prevalence of single-parent families has often been mentioned as an important demographic change. In Brazil, in recent decades, women are increasingly becoming the head of their households (IPEA, 2017). However, little research has explored the experiences of single-parent families in balancing work and family. Research with single mothers shows that their conflict levels tend to be higher than those of mothers living with partners (Roman, 2017; Minnotte, 2012).

The number of working hours and their inflexibility have been associated with work-family conflict (Greenhaus & Beutell, 1985; Beutell & O'Hare, 2018); consequently, flexible working hours become an ally in harmonizing these spheres. And telework is one of the means adopted to allow this flexibility. However, these arrangements do not always offer more balance, which causes work demands to interfere with the time available for personal life (Greenhaus & Powell, 2006; Azara, Khana & Eerdeb, 2018; Beutell & O'Hare, 2018).

Physical exhaustion is constantly present in work-family conflict precisely because of the overload involved (Pluut, et al., 2018). In addition, problems such as stress, depression, hypertension, anxiety, mood disorders and substance abuse (e.g., increased alcohol consumption) may arise (Eby et al., 2005; Oliveira, Cavazotte & Paciello, 2013).

TELEWORK: A TREND ON THE RISE?

According to the International Labor Organization (ILO), remote work or telework can be defined as activities carried out in places other than central offices, with the integration between workers being mediated by digital technologies such as smartphones, laptops and desktop computers, among others. It is worth noting that the terms telework, virtual work, telecommuting and remote work are interchangeably used to refer to work that is done outside traditional work environments (ILO, 2017; Zerbini & Zerbini, 2020).

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In recent years, telework has grown among Brazilians: from 2016 to 2017, the number of teleworkers increased by 16.2%, and from 2017 to 2018, by 21.1% (Agência Brasil, 2020b).

The literature on the subject highlights that telework has advantages as it allows for greater harmony between working hours and the time dedicated to domestic and family responsibilities, thus bringing about increased productivity and a better balance between these spheres. In addition, its adoption reduces commuting costs. As a downside, work may tend to become overly individualized, which can cause social, professional and political isolation. Longer working hours are also reported as a negative consequence of telework (Ferreira Jr., 2000; ILO, 2017; Haubrich & Froehlich, 2020).

Not all workers adapt to telework as it requires self-discipline, organization, autonomy and a pleasure in working alone (Haubrich & Froehlich, 2020). Workers with young children face more difficulties working from home, which indicates that this option is not convenient for many (Habib & Conrford, 1996).

The telework implemented in the wake of the COVID-19 pandemic is a circunstantial arrangement as it was the work modality adopted by many companies to overcome the crisis (Agência Brasil, 2020b). People who are working from home often have had their working hours changed, and the likelihood of interruptions and distractions is increased by the presence of the family, who is also at home due to the pandemic (Spurk & Straub, 2020).

Table 1. **Profile of interviewees**

Interviewees	Age	Marital status	Number of children	Children's ages (years)	Education	Organization	Position
Carolina	42	Married	0	-	Secondary education	Private-sector company	Accounting executive
Cassia	35	Widower	1	9	Secondary education	Private-sector company	Manager
Diana	55	Married	0	-	Marketing	Self-employed	Vice-president (partner)
Fátima	42	Married	2	10 e 1	Law	Self-employed	Partner in a law firm
Fernanda	45	Single	4	18, 11, 3 e 3	Mathematics	State-owned	Manager
Larissa	42	Married	2	11 e 4	Pedagogy	Military	Division assistant
Lourdes	50	Single	1	10	Information Technology	Private-sector company	IT analyst
Marcela	42	Divorced	2	12 e 1	Engineering	State-owned	Senior civil engineer
Maria	33	Married	0	0	Tourism	State-owned	Planning advisor
Mariana	33	Married	0	-	Pedagogy	State-owned	Coordinator
Nayara	33	Married	1	2	Accounting	Private-sector company	Senior analyst
Renata	34	Married	0	-	Pedagogy	Private-sector company	Supervisor
Valesca	38	Married	2	5 e 2	Management	Private-sector company	Manager
Vilma	48	Married	2	16 e 14	Marketing	State-owned	Director

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METHODOLOGY

To achieve the goal of this study, we chose a qualitative approach and interviewed 14 women aged 33-55 years old via a digital communication platform, in June 2020. Most of the interviewees are from Rio de Janeiro, all used to work in a traditional work environment and adapted to telework due to the pandemic. As regards their profile, we sought workers with consolidated careers working in different industries. We first interviewed women from our circle of acquaintances, then complemented the sample using the "snowball" technique. Among the interviewees there are married, single, widowed and divorced women with and without children. The interviews were based on a semi-structured script with questions addressing the work routine before and after the pandemic, as well as the strategies used to harmonize work and personal/family life in the new context.

The interviews were recorded and lasted from 20 to 40 minutes. The accounts obtained were analyzed using content analysis (Bauer & Gaskell, 2002) in order to identify the elements that would allow answering the main question in this study: what effects did telework adoption have on female workers' work-family conflict in the context of the COVID-19 quarantine? Table 1 shows the interviewees' profiles and fictitious names.

ANALYSIS AND DISCUSSION OF RESULTS

This study sought to understand the impacts that telework adoption had on the work-family conflict of female workers during the COVID-19 quarantine period.

The first point to be highlighted from the accounts concerns the fact that all interviewees reported an increase in the workload during the studied period. This is hardly surprising, given the exceptional condition in which the transition to telework took place, which combined the demands of corporate work with housekeeping and care for children (for those who are mothers). In addition, mandatory social confinement kept the whole family home at the same time. The work overload was due, in part, to the interviewees' need to dedicate themselves to domestic chores, since the cleaner services they used to hire were no longer available; they also had to dedicate more time to their children, who were now attending school remotely. In addition to these aspects, the suddenness in which the transition to remote work took place (Savic, 2020; Waizenegger, McKenna, Cai & Bendz, 2020), without planning or prior preparation, contrary to what is recommended by the literature on the topic (Haubrich and Froehlich, 2020), though understandable in the context studied, also increased interviewees' trouble. Some found themselves lacking adequate material, such as computers and office furniture; others had difficulty organizing their work, which added to their overload.

However, the increased workload experienced by the interviewees did not intensify the work-family conflict for all of them, as one might suppose based on the findings of the literature on the subject (Greenhaus & Beutell, 1985; Beutell & O'Hare, 2018). It is true that several interviewees confirmed this situation: overburdened with housekeeping, care for children and work demands, they reported not being able to cope with the multiple demands, and they feel very distressed about the current state of things. They claim they are unable do anything satisfactorily: they are failing to take care of the home and children as they would like, and failing to meet work demands as they should. Feeling stressed, some resort to daily consumption of alcohol to unwind. Thus, their accounts corroborate the assumptions that inspired this study and indicate an aggravation of the conflict in the quarantine context.

However, several other interviewees, while also feeling overwhelmed, do not seem to have experienced the change to telework as an aggravator of work-family conflict (Ferreira Jr., 2000; ILO, 2017; Haubrich & Froehlich, 2020). Contrary to what the literature on the subject would lead us to assume, they say they are enjoying the experience as they are now closer to their children and husbands, in addition to having more time for physical and leisure activities. This led us to seek further insights into the nuances behind these disparate experiences: aggravation of work-family conflict for some of the interviewees, and mitigation of the conflict for others, judging by their accounts. To deepen this discussion, two topics were created: the first discusses the reasons that led some interviewees to increase their conflict experiences; the second deals with the conditions that eased the conflict.

Telework in the quarantine and aggravation of work-family conflict

As pointed out earlier, some of the interviewees, overwhelmed by the multiple work demands arising from the quarantine context – corporate and domestic work and/or care for children –, were dissatisfied with their current situation. This group is formed by Marcela, Fernanda, Larissa, Maria, Mariana and Fátima. Marcela, 42, divorced with two daughters, a 12-year-

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old and a 1-year-old, reports difficulties harmonizing the two spheres with an emblematic statement:

> "Impossible, they know it's impossible! My boss, thank God, is a nice guy. It's not like I'm some grudging, lazy employee, I've never been that, but I'm in a situation where it's impossible (...) I'll attend meetings like I'm talking to you now; I only turn the audio on when I'm going to speak, and even then, sometimes she (the one-year-old) is screaming here."

Fernanda, also single with four children aged 18, 11 and 3-year-old twins, explains her situation:

> "I feel bad about it because I'm not taking part in anything; at the same time, my team understands, but I don't know for how long. I don't feel good (...) soon after my working tool arrived, it was gone because three people want to use it in this house, but I can't concentrate; they (the twins) are always clinging on my back."

These two statements show the difficulty meeting the work demands experienced by these two interviewees who are mothers of young children, a circumstance that is highlighted in the literature as an aggravator of the conflict (Greenhaus & Beutell, 1985; Gordon & Whelan-Berry, 2004). Furthermore, the fact that they do not live with their children's father increases their difficulties, which has been pointed out by studies that highlight that women with this family arrangement face even greater challenges to harmonize the domestic/family and professional spheres (Minnotte, 2012; Roman, 2017). These interviewees are not being able to dedicate themselves to work as they need to, so they have to rely on the goodwill of managers and teams, which is probably only possible due to the exceptional pandemic context. And they are failing to give proper attention to their children. In the reported cases, the interviewees are frustrated not only about a poor performance at work, but also about the lack of attention to their children:

> "*Sometimes I don't put in my best at home, I keep pushing myself, but some days I don't read for them, some days I don't play, because I'm fed up and not feeling patient, and being with them doesn't mean I have the time to dedicate myself nicely".* (Fernanda, single with four children aged 18, 11 and 3-year-old twins)

But women with this family arrangement are not the only ones who report an increased imbalance between the family and work spheres in this context. Larissa and Fátima, married with children, are also distressed about the new situation:

> *"I'm getting a lot more tired; besides these things (housework) you have to keep an eye on the (son's) duties all the time ... I just followed, so it was easier; now no, you have to watch the video , there is a back and forth, you have to do the job, review the video. "(Larissa,* single with children aged 11 *and 4-year-old daughter)*

> *"There were times, I'm working and suddenly I go, 'Oh, my God! Oh boy! He's gotta have dinner.' Then I take him off the cradle, the child is soaked in pee because I was so focused on the job [...] I've taken too long. I feel like crying when that happens".* (Fátima, two sons, a 10-year old and a 1-year-old)

As noted in the accounts, while the presence of young children in the home can increase the conflict experienced by these women, Maria and Mariana, who are married but without children and in management positions, were not satisfied about telework either:

> *"The work overload that the pandemic caused in my sector, I can't seem to find time for anything else, I can't seem to balance this home function, the lack of structure to work from home, to manage people that work with you, that's even worse".* (Maria)

> *"...now I'm coordinating this team [...] I had to provide guidelines of something I wasn't trained for, and I didn't even know how I myself was to deal with it."* (Mariana)

The difficulty harmonizing the work and domestic/family spheres, in the case of the interviewees who are mothers but live alone with young children, can be explained to a large extent by the fact that there is no other adult at home to share the care for children (Minnotte, 2012; Roman, 2017). It is worth noting that the quarantine context increased this difficulty, since classes were suspended, daycare centers closed and cleaners and nannies dismissed. Without much help, these female workers had to take

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care of the home and children by themselves, which impacted their work performance heavily.

In an effort to harmonize these different spheres, the interviewees had to devise some strategies: Marcela and Fernanda rely on the help of their older children to cope with their multiple tasks:

> *So I ask her (12-year-old daughter) to watch (1-year-old daughter) so I can do the dishes, (...) dust the house, hang the clothes to dry."* (Marcela)

However, it is worth noting that the presence of a partner in the home does not guarantee a more balanced division of domestic tasks:

> *"...he needs to be told and managed, it's really annoying, I can see he's willing, but it's like, 'What am I gonna do for dinner? When are we gonna sweep up?' I'm the one who's organizing all this. I can't seem to balance it, I think my home is just tasks (...) I'm dying to work at the office again because the pandemic is turning out just awful to me"* (Maria, married without children)

The husband's lack of participation in these chores is dramatically described by Fátima:

> *"Some days I'd do the cleaning in tears, by myself, while he's lying in bed watching TV [...] he wouldn't help me basically because he wanted me to get the cleaner to come."* (Fátima, married, two children)

The increased stress experienced in the quarantine led to increased alcohol consumption, to which some of these women resorted to withstand pressure (Eby et al., 2005; Oliveira, Cavazotte & Paciello, 2013):

> *"I've always enjoyed drinking on weekends, and in the pandemic, any day is fine; to get out of stress, to have some time to relax, I was drinking beer every day, alcohol consumption increased."* (Fernanda, single, four children)

> *"And you drink a lot, too, [...] you end up drinking to relax."* (Fátima, married, two children)

These women's testimonies corroborate to a large extent the literature that points out that work-family conflict is greater for women who have young children (Greenhaus & Beutell, 1985; Gordon and Whelan-Berry, 2004). This conflict is due to the accumulation of tasks related to both work and care for the home and children that occurred during the quarantine. However, it is worth mentioning that two married women, much like the single ones, feel overwhelmed by care tasks: their husbands do not participate much in them, to the extreme case of Fatima, who gets no collaboration whatsoever from her husband. Their cases confirm the findings of studies that highlight that women have historically borne the greatest share of responsibility as regards housekeeping and care for children (Gordon & Whelan-Berry, 2004; Lee, Zvonkovic & Crawford, 2014; Melo & Thomé, 2018). In the case of the interviewees who are married, this inequality is evident, for though their partners are home, the burden of household chores fell on these women's shoulders.

Telework in the quarantine and mitigation of work-family conflict

As said earlier, despite being overloaded, some of the interviewees say they have found in the new situation conditions to better balance the relationship between work and family life. Contrary to what is usually pointed out in the literature on the subject (Greenhaus & Beutell, 1985; Beutell & O'Hare, 2018), the increase in the corporate and domestic workload did not reinforce the experience of imbalance, judging by their accounts. This reinforced our interest in understanding the conditions that allowed such an experience. These aspects are explored in this section.

Of the interviewees who reported an increased balance between the spheres of work and personal/family life, three have no children: Renata, Carolina and Diana. The absence of young children in the home and the participation of husbands in domestic chores explain, to a large extent, why the conflict has not worsened for these women. Their accounts indicate that male participation in care for the home and children increased during the pandemic. As highlighted in the literature, the participation of partners is key for harmonizing the work and domestic spheres for female workers (Huffman, Casper & Payne, 2014; Lee, Zvonkovic & Crawford, 2014). Renata, married without children, describes the new routine:

> "My job is more supervised, with meetings, I end up being busier during the day, and my husband has much more flexible hours because he works with his partner and on demand. So while I'm in

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> a meeting in the morning, he's fixing breakfast, and if there's anything to cook in advance for lunch, he'll do it. "

In the case of Diana, married without children, her husband has been participating in household chores since before the pandemic, which allowed for better conditions in the balance between family and professional life:

> "We'll share domestic chores rather well, (her husband) is quite willing to share those, (...) I didn't have much trouble compared to the groups of women I've heard (...) I meditate, these things can help, they can make you a little more balanced."

Carolina, also married without children, had an experience similar to that of Renata and Diana, and she reports the positive balance for this new arrangement:

> "I'm able to do more than I used to, I take my nap, watch a soap, do my treadmill, do my Pilates with my mother and sister via video call, [...] it's being incredible for me."

However, a fact stood out: the interviewees without children and married to partners who share domestic chores were not the only ones who experienced an increased balance between the family and work spheres. Interviewees with children, single and married, also reported that teleworking during the quarantine has helped them achieve a greater balance. This statement of Nayara, married with a 2-year-old daughter, summarizes the new scenario:

> "My workload is bigger now, but I'm also satisfied because I have more time with my daughter and my husband, which I didn't have because it was basically just weekends, because I'd be out the whole day. We end up spending more time together and that's really good."

Vilma, married with two children, aged 16 and 14, also sees positive aspects to the new situation:

> "I'm working much more... both (with) domestic chores, I'm working more, and job tasks, but I still think it's better this way because I get to define my working hours, make plans for myself."

Valesca, married with two children, has had significant collaboration from her husband in caring for their children during the pandemic, and she also reported adaptation to telework:

> "My routine was really absent from my personal life (...) but during the pandemic, my youngest had a fever, and I was able to be with him, hold him, cuddle him, which was impossible before."

Thus, the flexible working hours allowed by telework seem to be conducive to work-family harmonization, at least for some of the interviewees (Ferreira Jr., 2000; ILO, 2017; Beutell & O'Hare , 2018; Haubrich & Froehlich, 2020).

Although they live alone with their children and cannot rely on the help of partners, which makes them even more overwhelmed, Cassia and Lourdes value the increased physical nearness to their daughters that is allowed by telework in the quarantine. Even though they are working more:

> "*I think I'm working more (...) because now things are taking a little longer, you don't have everyone together, so information is taking longer to pass from one person to another*".

Cassia values mainly the fact that she is closer to her only 9-year-old daughter:

> "I have more time with her, I can watch a movie with her, which I could rarely do before; I can have lunch with her, which used to be just on weekends."

Lourdes, the mother of a 10-year-old girl, feels equally overwhelmed, but the fact that she is closer to her daughter and can participate more in her routine leads her to celebrate:

> *"My job chose to reduce the working hours. We're still working under a 25% reduction, so that means I'm working 6 hours, but in practice it's not like that... for the last two weeks I'm working 11 to 12 hours. [...] Now it's going to be 100% telework, and I just love it, I love it!"* (Lourdes, single, one daughter)

But it is worth noting that, except for Diana, who had her work demands reduced in the quarantine period in virtue of the industry she is in, all the others recognized that the workload has

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increased. Thus, Lourdes' statement that she 'loves' telework is significant:

> *"I was extremely tired, I won't deny it, because I'm teleworking and I had to deal with the new thing which was her (her daughter's) online classes, and I had [...] our meals to think about, I had to order food."* (Lourdes, single, one daughter).

Despite having the home as a place of overlapping roles (Ferreira Jr., 2000; ILO, 2017; Haubrich & Froehlich, 2020), these women seem to have better endured the telework overload during the quarantine because they were also able to have moments with their families that were possible thanks to the physical nearness contingent to the studied context.

FINAL CONSIDERATIONS

Developed with the purpose of understanding the impacts that telework adoption during the COVID-19 quarantine had on the work-family conflict for female workers, the present research brought some findings to the debate about the present conflicts, which are explored below.

All respondents reported an increase in their workloads. However, this increase cannot be attributed only to the increased corporate workload arising from telework adoption that is described in the literature (Ferreira Jr., 2000; ILO, 2017; Haubrich & Froehlich, 2020). Although this fact appears in many accounts, the quarantine context brought more overload to the interviewees, since in addition to dedicating themselves to remote work, they also had to take care of their home and children. The dismissal of maids and cleaners forced them to perform chores they did not always use to perform, and the closing of schools and daycare centers demanded more attention to their children, who were now staying home. In this exceptional context, it stood out that many reported their partners' participation in household chores. Only Renata, Diana, Vilma and Mariana said they had always shared housework with their husbands; the others said that their partners started to "help more" during this period, a phrase used by many to refer to this participation, which reinforces the notion that such activities are fundamentally the woman's responsibility. However, it is worth questioning whether this "help" will be present in the post-pandemic scenario or if it will prove only a participation associated with the exceptional context.

The weight of machismo did not appear only in the use of the word "help". Maria and especially Fátima did not have much "help" from their husbands, which made their telework experience more painful. The accumulation of activities weighed heavily on the interviewees who were single with young children, which is perfectly understandable, since the dismissal of their cleaners left them facing the triple task of care for children, housekeeping and work demands. In Marcela's words, such a combination is "impossible". As pointed out earlier, for many interviewees, the accumulation of activities that characterized the quarantine period furthered the work-family conflict, a finding that is in line with much of the literature on the subject, which describes this accumulation as an aggravator of the conflict (Minnotte, 2012; Pluuit, et al., 2018; Roman, 2017).

However, it is worth highlighting that a significant group of interviewees, who also felt their workload increased, mentioned gains in this situation. Carolina, for example, said it is being "incredible", and Lourdes, says she "loves" it. For most married women without children, the experience allowed for a better balance between the different tasks performed, and the reported work overload refers mainly to corporate work. The absence of children largely explains this reality (Greenhaus & Beutell, 1985; Gordon & Whelan-Berry, 2004; Baxter & Alexander, 2008). In addition, their husbands' increased participation in domestic chores in the quarantine context has alleviated the overload resulting from these tasks, which allowed these women to have more time for themselves and to be with their partners.

But the finding that surprised us concerns the fact that some interviewees with children, whether married or not, reported simultaneously an increased workload and greater satisfaction from being able to be with their families. Contrary to the literature that points out that lack of time is one of the main sources of work-family conflict (Greenhaus & Powell, 2006; Azara, Khana & Eerdeb, 2018; Beutell & O'Hare, 2018), for these women, teleworking during the quarantine, rather than aggravate the conflict, has mitigated it. We argue that this finding provides a relevant contribution to the debate. Apparently, these female workers have endured and somewhat belittled their work overload, given the opportunity provided by telework to be closer to their families. Possibly accustomed to managing a usual work overload, these women consider that the nearness to the family allowed by the new routine outweighs its resulting increase in workload.

Thus, in line with the literature that highlights the flexibility brought by telework (Spurk, Daniel; Straub, Caroline, 2020), we found that this arrangement allowed them more time

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with their families, especially during meals and between work breaks. The combination of flexibility and physical nearness allowed Valesca to take care of her son when he had a fever and Lourdes to watch her daughter's presentation, experiences that would not have been possible had they been in conventional work. It stands out that the blurred boundaries between the spaces of work and non-work, which appear in the literature as one of the causes of aggravation of the conflict (Peters & Blomme, 2019), have, in these cases, contributed to alleviate it.

To broaden the debate on the subject, it is worth noting that not only time, pressure and behavior aggravate the conflict (Greenhaus & Beutell, 1985), but also physical distance seems to impact it. Understanding the impact of this fourth factor – i.e., the physical distance from the family that the hours dedicated to regular, office-based work requires – would help explain the fact that, despite the work overload, several interviewees have experienced this circumstance as a mitigator of work-family conflict. This finding reinforces the notion that female workers who are mothers want to exercise both professional and maternal activities, even at the expense of work overload, and that the combination of flexibility and physical nearness to the family that quarantine telework allowed was valued by the interviewees who are in more balanced family contexts.

However, we cannot lose sight of the fact that several interviewees who are mothers reported exhaustion and difficulty working. This finding raises a relevant issue for the near future discussion on the expanded implementation of telework in the post-pandemic context: although this work model can bring gains for some employees and employers, its homogeneous adoption for the workforce as a whole, disregarding the particular features of the different domestic/family arrangements, can further aggravate the inequalities between workers.

To conclude, the finding that telework seems to meet the desires for harmonization of these two spheres, at least for some of the interviewees, indicates that this modality should be considered by the organizations that wish to be more inclusive, even if such a discussion needs to be weighed according to the different family arrangements in their workforce.

It is worth highlighting, as a limitation of the present study, the fact that, due to the researched profile and the way of accessing the participants, there is considerable homogeneity in the group of interviewees, since they are all white heterosexual, middle-class women. In this sense, the research findings reflect the specific features of this subgroup of women. The specificity of the context studied – the COVID-19 quarantine – also implies limitations, since this has both aggravated work overload and increased male participation in domestic chores. Thus, we suggest that future studies look further into the impacts of telework adoption on the work-family conflict for women with different family arrangements, but in a non-atypical context, such as the one studied.

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AUTHORS' CONTRIBUTIONS

Ana Heloísa da Costa Lemos and Alane de Oliveira Barbosa worked on the conceptualization and theoretical-methodological approach. The theoretical review was conducted by Alane de Oliveira Barbosa. Data collection was coordinated by Priscila Pinheiro Monzato. Data analysis was conducted by Ana Heloísa da Costa Lemos, Alane de Oliveira Barbosa and Priscila Pinheiro Monzato. All authors worked together in the writing and final revision of the manuscript.

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EFFECTS OF INFORMATION ON JOB INSECURITY AND WORK ENGAGEMENT IN TIMES OF PANDEMIC

Efeitos da informação na insegurança e engajamento no trabalho em tempos de pandemia

Efectos de la información sobre la inseguridad y compromiso laboral en tiempos de pandemia

ABSTRACT

Pandemics raise scenarios of uncertainty that afflict even people who are used to promoting information congruence, as in fintechs. Thus, the purpose is to investigate the effects of vertical information sharing on mitigating job insecurity and on work engagement, moderated by the credibility of the social media information about the pandemic. A survey was carried out with employees of the largest Brazilian financial startup and structural equation modeling and fuzzy-set QCA were applied to the data analysis. The results show that vertical information sharing mitigates job insecurity and exerts effects on work engagement. Vertical information sharing and absence of job insecurity are, respectively, almost always and always necessary, and sufficient for high work engagement. Furthermore, information credibility moderates the relationship between job insecurity and work engagement. These results provide contributions by revealing effects that are antecedents of job insecurity and work engagement in a unique period of pandemic.

KEYWORDS | Job insecurity, Work engagement, Vertical information sharing, Information credibility, times of pandemic.

RESUMO

Pandemias suscitam cenários de incerteza que afligem até mesmo pessoas acostumadas a promover congruência de informações, como em empresas fintechs. Assim, objetiva-se investigar os efeitos do compartilhamento vertical da informação na mitigação da insegurança no trabalho e no engajamento no trabalho, moderada pela credibilidade da informação de mídias sociais sobre pandemia. Uma survey foi realizada com funcionários da maior startup financeira brasileira e, na análise dos dados, aplicou-se modelagem de equações estruturais e fuzzy-set QCA. Os resultados apontam que compartilhamento vertical da informação mitiga insegurança no trabalho e exerce efeitos no engajamento no trabalho. Compartilhamento vertical da informação e ausência da insegurança são, respectivamente, quase sempre e sempre necessárias, e suficientes para alto engajamento no trabalho. Ademais, a credibilidade da informação modera a relação entre insegurança e engajamento no trabalho. Esses resultados proporcionam contribuições ao revelar efeitos de antecedentes da insegurança e do engajamento no trabalho num período singular de pandemia.

PALAVRAS-CHAVE */ Insegurança no trabalho, engajamento no trabalho, compartilhamento vertical da informação, credibilidade da informação, tempos de pandemia.*

RESUMEN

Las pandemias plantean escenarios de incertidumbre que afectan incluso a las personas acostumbradas a promover la congruencia de la información, como en las empresas fintech. Así, el objetivo es investigar los efectos de la compartición vertical de información para mitigar la inseguridad laboral y garantizar el compromiso en el trabajo, moderada por la credibilidad de la información de las redes sociales sobre la pandemia. Se realizó una encuesta con empleados de la mayor startup financiera brasileña y en el análisis de datos, se aplicó el modelado de ecuaciones estructurales y fuzzy-set QCA. Los resultados muestran que la compartición vertical de información mitiga la inseguridad laboral y ejerce efectos sobre el compromiso laboral. La compartición vertical de información y la ausencia de inseguridad son, respectivamente, casi siempre y siempre necesarios, y suficientes para una alta participación en el trabajo. Además, la credibilidad de la información modera la relación entre inseguridad y compromiso en el trabajo. Estos resultados proporcionan contribuciones al revelar los efectos de fondo de la inseguridad y el compromiso laboral en un período único de pandemia.

PALABRAS CLAVE */ Inseguridad laboral, Compromiso laboral, Compartición vertical de información, Credibilidad de la información,tiempos de pandemia.*

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INTRODUCTION

The economic, social, and psychological turbulence resulting from the COVID-19 pandemic (Goodell, 2020; Kuckertz *et al*., 2020) results into individuals facing acute levels of job insecurity (Hamouche, 2020), which may result in less engagement with their work (Saks, 2006). In such a scenario, the vertical information sharing, whether financial or non-financial (Macinati, Bozzi, & Rizzo, 2016), can lead to greater interaction between managers and employees (Parker & Kyj, 2006), and help minimize insecurity and promote engagement at work (Baker, 2020; Bao, Sun, Meng, Shi, & Lu, 2020; Blake, Blendon, & Viswanath, 2010; Hamouche, 2020; Huang, Niu, Lee, & Ashford, 2012; Men & Yue, 2019; Mishra, Boynton, & Mishra, 2014; Vander Elst, Baillien, Cuyper, & Witte, 2010; Verčič, Verčič, & Sriramesh, 2012; Welch, 2012).

It is speculated that information (in)credibility with regard to the COVID-19 pandemic, which is based mainly on social media, may mitigate the effects of vertical information sharing and job insecurity as far as work engagement is concerned. This assumption stems from the fact that social media represents one of the main and latest means of communication about the COVID-19 pandemic (Bao *et al*., 2020). This same social media, however, also disseminates misleading information (Gao *et al*., 2020), which interferes with the communication and information sharing initiatives of organizations (Hamouche, 2020; Karasek, 1979; Welch, 2012), and may aggravate feelings of job insecurity (Blake *et al*., 2010; Hamouche, 2020), which are factors that reflect on engagement (Saks, 2006).

Unlike previous studies that analyzed the antecedents of job insecurity and work engagement, this single-entity-type research analyzes a managerial function that can assist management: vertical information sharing. It also considers the reflections of the credibility of social media information in the emerging context of the pandemic in a business startup. Startups generally have management difficulties (Carraro, Meneses, & Brito, 2019), which have worsened with the effects of the COVID-19 pandemic (Goodell, 2020; Kuckertz *et al*., 2020). In this sense, the purpose of this article is to investigate the effects of vertical information sharing on mitigating job insecurity and on work engagement, as moderated by information credibility (social media). The analyses were conducted using structural equation modeling techniques with partial least squares estimation (SEM-PLS) and fuzzy-set comparative qualitative analysis (fsQCA), both of which can supply complementary results (Crespo, Rodrigues, Samagaio, & Silva , 2019; Kaya, Abubakar, Behravesh, Yildiz, & Mert, 2020).

The relevance of the study lies in its alignment with the gap pointed out in previous research regarding the limitations of the evidence about mechanisms for mitigating job insecurity (Darvishmotevali & Ali, 2020; Karatepe, Rezapouraghdam, & Hassannia, 2020; Richter & Näswall, 2019). By including vertical information sharing, the intention is to understand how this managerial mechanism operates to mitigate job insecurity and to improve work engagement in this unique period of the COVID-19 pandemic (Hamouche, 2020), and to stem the spread of misleading information on social media, which can be harmful to employees' mental health (Bao *et al*., 2020; Gao *et al*., 2020). The research field is justified by the ability startups have to innovate and shape the economic future (Walsh & Cunningham, 2016), and by the fact that the COVID-19 pandemic is a threat to their continuity in the market and to their innovative potential (Kuckertz *et al*., 2020). The employees of the largest Brazilian financial services startup were surveyed. They were chosen because they are used to the challenge of promoting information congruence.

The study contributes by investigating vertical information sharing as a possible antecedent of mitigating job insecurity and promoting work engagement. It also verifies whether the credibility of the information (on social media) about the COVID-19 pandemic helps improve the impact of the vertical information sharing and reduce job insecurity regarding work engagement. The study also contributes to management science by providing information to help startup managers, as in the case of the investigated fintech, ensure business continuity by way of mechanisms that keep employees engaged at work and with no decrease in productivity.

THEORETICAL FRAMEWORK

Job insecurity and work engagement

In the literature on job insecurity, discussions are rooted in the employees' feelings of helplessness with regard to ensuring the continuity they want from their job in the face of a threatening situation (Greenhalgh & Rosenblatt, 1984). Due to the COVID-19 pandemic, various companies, especially innovative ones like startups, have had their survival threatened (Kuckertz *et al*., 2020), which is reflected in a worsening of employee mental health, increasing insecurity and decreasing work engagement (Baker, 2020; Blake *et al*., 2010; Hamouche, 2020). According to Saks (2006), this insecurity has the potential to reduce their drive, dedication, and positive state of mind; in other words, work engagement.

Previous literature on job insecurity points out that it tends to lead to a decrease in work engagement, which is a

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phenomenon that has been investigated in different contexts: Italian workers (Guarnaccia, Scrima, Civilleri, & Salerno, 2018); expatriate employees from different companies in Saudi Arabia (Ali, Ali, Albort-Morant, & Leal-Rodríguez, 2020; Ali, Ali, Grigore, Molesworth, & Jin, 2020); and employees of international hotels in China (Karatepe *et al*., 2020). It was also observed that employees who perceive that their job comprises high levels of insecurity have a lower level of engagement (Stander & Rothmann, 2010). Based on the above, it is assumed that:

> H1: Job insecurity has a direct negative effect on work engagement.

Although there is broad support in the literature for the proposed negative association between job insecurity and work engagement, particularly in the field of startups, and especially in the context of the COVID-19 pandemic, the findings are still limited.

Vertical information sharing, job insecurity and work engagement

An organization's internal communication is a managerial function that encompasses the communication process in such a way as to cover those elements that result in the engagement of employees with their work (Mishra *et al*., 2014; Verčič *et al*., 2012; Welch, 2012). From this perspective, the managerial practice of vertical information sharing has a fundamental role to play in organizations, particularly in the unique context of the COVID-19 pandemic (Hamouche, 2020).

Vertical sharing of both financial and non-financial information allows managers and employees to promote greater interaction (Lau & Roopnarain, 2014; Macinati et al., 2016; Parker & Kyj, 2006), which may reduce information asymmetry and job insecurity (Darvishmotevali & Ali, 2020; Lau & Roopnarain, 2014; Nouri & Parker, 1998; Penno, 1984). This also ensures that employees are "immersed" in the organization and promotes work engagement (Baiman & Evans, 1983; Karasek, 1979; Locke, Schweiger, & Latham, 1986).

Previous studies have presented evidence that vertical information sharing is important for organizational commitment (Parker & Kyj, 2006). Internal communication between managers and employees can ensure the latter are more involved with the organization, thus increasing their work engagement (Mishra *et al*., 2014). It is assumed, therefore, that:

> H2a: Vertical information sharing has a direct positive effect on work engagement.

Internal communication and organizational participation can mitigate the job insecurity of employees, as evidenced by research that was conducted with employees of Belgian organizations (Vander Elst *et al*., 2010). In similar manner, but using a sample of employees from Chinese companies it was found out that when managers share information and the decision-making processes with employees this can minimize job insecurity (Huang *et al*., 2012).

It is assumed, therefore, that this insecurity with regard to the continuity of the job when aggravated by a unique situation (Greenhalgh & Rosenblatt, 1984), can be minimized by internal communication (Verčič *et al*., 2012), specifically by the vertical sharing (Parker & Kyj, 2006) of both financial and non-financial information (Lau & Roopnarain, 2014; Macinati *et al*., 2016) within the context of the COVID-19 pandemic (Hamouche, 2020). Thus, it is expected that:

> H2b: Vertical information sharing has a direct negative effect on job insecurity.

The vertical information sharing (Parker & Kyj, 2006) that is both financial and non-financial (Lau & Roopnarain, 2014; Macinati *et al*., 2016) can reduce information asymmetry and job insecurity (Lau & Roopnarain, 2014; Nouri & Parker, 1998; Penno, 1984), and by reducing insecurity exert an indirect effect on work engagement (Parker & Kyj, 2006). Through communication (Mishra *et al*., 2014) and vertical information sharing (Parker & Kyj, 2006), employees become involved with the organization, which is a relevant managerial function for promoting work engagement (Verčič *et al*., 2012; Welch, 2012) in the period of the COVID-19 pandemic (Hamouche, 2020).

Just as it has been suggested that vertical information sharing has a positive effect on engagement at work (H_{2a}), and a negative effect on job insecurity (H_{2b}), and that job insecurity affects work engagement negatively (H_1), there is also speculation that vertical information sharing has a positive indirect effect on work engagement, even in terms of job insecurity. It is predicted that the relationship between vertical information sharing and work engagement is mediated by job insecurity. It is assumed that vertical information sharing (Parker & Kyj, 2006) has an indirect effect on work engagement (Saks, 2006), even when faced with the job insecurity (Greenhalgh & Rosenblatt, 1984) that has been revealed during the COVID-19 pandemic period (Kuckertz *et al*., 2020). Thus, it is proposed that:

> H2c: Vertical information sharing has an indirect positive effect on work engagement mediated by job insecurity.

The moderating role of the credibility of social media information

The social media results in interaction between people, and its use is boosted in times of social distancing, as in the case of the COVID-19 pandemic period (Wiederhold, 2020). There is, however, a concern with the fake news that is being constantly spread between users (Yanagi, Tahara, Orihara, Sei, & Ohsuga, 2020). A specific term has been created for the fake news that is spread about the COVID-19 pandemic; it is known as the infodemic (Zarocostas, 2020), and this can lead to a distorted perception on the outbreak and the epidemic process (Kim, Fast, & Markuzon, 2019).

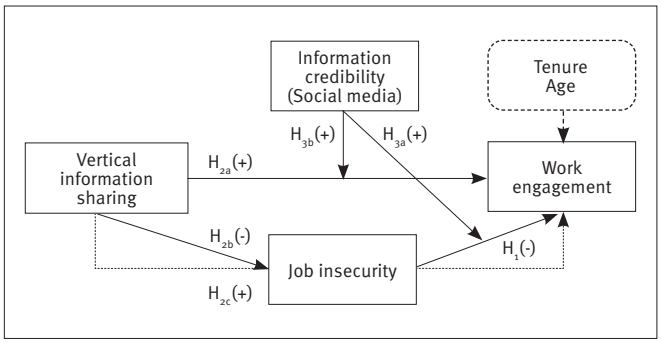
The social media represents one of the main sources of the latest news about the COVID-19 pandemic (Bao *et al.*, 2020), but shared information can sometimes be wrong or misleading (Gao *et al.*, 2020). Information overload on the social media, most of which is unfounded and unbelievable (Bontcheva, Gorrell, & Wessels, 2013), can intensify fear (Hamouche, 2020), stress (Brooks, Dunn, Amlôt, Rubin, & Greenberg, 2018), anxiety (Shigemura, Ursano, Morganstein, Kurosawa, & Benedek, 2018), mental health problems (Gao *et al.*, 2020), and job insecurity (Blake *et al.*, 2010; Hamouche, 2020), in addition to interfering with organizational communication and information sharing (Welch *et al.*, 2012; Hamouche *et al.*, 2020), which are factors that are reflected in work engagement (Saks, 2006).

In scenarios with high or low perceptions of the credibility of the information about the COVID-19 pandemic, the effects of vertical information sharing and job insecurity on work engagement can have different repercussions. It is assumed that there is positive moderation in the aforementioned relationships, since the greater the perception of information credibility, the greater the work engagement; on the other hand, the smaller it is, the greater the psychological problems of individuals (Blake *et al.*, 2010; Brooks *et al.*, 2018; Gao *et al.*, 2020; Hamouche, 2020; Shigemura, Ursano, Morganstein, Kurosawa, & Benedek, 2020); consequently there will be less work engagement. Thus, it is assumed that:

> H3a: Information credibility (social media) has a positive moderating effect on the relationship between job insecurity and work engagement.
>
> H3b: Information credibility (social media) has a positive moderating effect on the relationship between vertical information sharing and work engagement.

Figure 1 shows the theoretical model of the research.

Figure 1. **Theoretical model**



METHODOLOGY

Population and sample

A single-entity survey was conducted with employees of the largest Brazilian startup in the financial services industry and considered a purposive non-probability sample. A purposive sample, which is also known as judgmental or expert sampling, is a non-probabilistic sample, whose main objective is to consider a sample that may be representative of the population, and is suitable for defining a restricted population and/or one with certain limitations (Battaglia, 2008), in this case, a single entity (fintech).

The choice of a fintech for the case study is justified by the scarcity of startups in this segment and the consequent call for research into them (Muthukannan, Tan, Gozman, & Johnson, 2020), in addition to their importance to the local and global economy (Haddad & Hornuf, 2019). The case that was investigated appears in the top one percent of all Brazilian startups in various different rankings. However, more information is not provided for ethical reasons and to preserve anonymity.

The social network platform, LinkedIn, was used to contact the target audience, which listed 2,648 employees of this startup. An invitation was sent to each of them and a second message was sent to the 728 who agreed to participate in the survey informing them of the link to the instrument by way of the QuestionPro platform. Contacts were initiated on April 29, 2020, and the data, collected until May 28 in the same year, for a total of 181 complete responses, free of possible outliers or missing data.

Construct measurement

The constructs were measured on a seven-point Likert scale (1 = strongly disagree and 7 = strongly agree). Vertical information sharing has four indicators, which were adapted from Parker

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and Kyj (2006), highlighting the financial and non-financial information context. The job insecurity construct comprises four items, adapted from Witte (2000) and Darvishmotevali and Ali (2020), while work engagement comprises five assertions, adapted from Saks (2006) and Ali, Ali, Albort-Morant and Leal-Rodríguez (2020). The credibility of the information about the Covid-19 pandemic as far as concerns external communication (social media) consists of three items, adapted from Thompson, Wang and Daya (2019).

Two employee-related control variables were considered and converted into subgroups for their operationalization: tenure (<1 year and ≥1 year) and age (<30 years and ≥30 years). Previous research in this context was controlled by the age of the individual variable (Lübke, 2019). To divide up the groups, the research of Rai, Ghosh, Chauhan and Mehta (2017) was taken as a parameter, in which two age groups (<30 or ≥30) proved to be relevant. As for time in the current position (tenure), since the startup in question has been in the market for less than eight years and because its staff numbers have expanded over the last year, this variable was considered by observing this cutoff point.

Because all the data were collected using a single method and all respondents completed all the variables (independent, moderator, mediator and dependent), there is a problem with common method bias (CMB) (Podsakoff & Organ, 1986). To minimize CMB, a cover letter with detailed instructions was included and a clear and concise layout of the scale items was drawn up (Podsakoff, Mackenzie, & Podsakoff, 2012). Following data collection, the Harman single factor test was performed, resulting in 30.46% of the total explained variance, therefore below the 50% threshold (Podsakoff & Organ, 1986). The non-response bias test was also performed because of temporal bias, using the procedure proposed by Armstrong and Overton (1977). The Levene test was used for equality of variances and the t test used for equality of means between the 10 first and 10 last respondents, but no significant differences were found in the responses (p-values greater than 0.05). Thus, CMB and non-response bias do not pose a problem.

Analysis procedures

The data were analyzed by applying the SEM-PLS technique, using SmartPLS 3 software for analyzing the paths for the proposed relationships (Hair, Hult, Ringle, & Sarstedt, 2016). In addition to the direct effects, mediation analyses (indirect effect of an independent variable on a dependent variable by the mediating variable) and moderation analyses (strengthening or weakening a relationship through the interaction of a moderating variable) were observed (Hair *et al.*, 2016).

Two items of the work engagement construct and one item of the job insecurity construct were excluded from the measurement model to adjust it. Assumptions of discriminant validity, convergent validity, reliability and absence of multicollinearity among the predictors were observed (Hair *et al.*, 2016). Significance was calculated by bootstrapping 5,000 resamples and the two-stage criterion was used for moderation (Hair *et al.*, 2016).

Two approaches were observed in the minimum sample size for ensuring the accuracy and robustness of the SEM-PLS. The first, the 10 times rule, is that the minimum sample is more than 10 times the maximum number of paths analyzed in the structural model (Hair *et al.*, 2016). From this perspective, the minimum sample number would be 10*6, which is equivalent to 60 cases. The second aspect concerns the use of the G*Power 3.1 software, which considers: a test power (Power = 1 - type I error probability) minimum of 0.80 (Cohen, 1988), an average effect size (f^2) of 0.15, and the highest number of variables connected to a dependent (five variables linked to work engagement in this case) (Ringle, Silva, & Bido, 2014), which resulted in a minimum of necessary number of cases of 92. Thus, the sample of 181 respondents satisfies both parameters.

A complementary analysis using fsQCA was performed with fsQCA 3.0 software (Ragin, 2008). Previous studies suggest using SEM-PLS, and subsequently applying fsQCA (Rihoux & Ragin, 2009; Woodside, 2013), given the complementarity of the results of the two techniques (Crespo *et al.*, 2019; Kaya *et al.*, 2020). The fsQCA software enables causal conditions to be identified that promote the success of the dependent variable by way of solutions that contribute to the same desired result (equifinality) (Fiss, 2011; Ragin, 2008). This also enables identification of the configurations of the necessary or sufficient variables for promoting the success of the dependent variable, by way of causal combinations that are the antecedents of the variable of interest (Rihoux & Ragin, 2009; Woodside, 2013).

DATA ANALYSIS

PLS-SEM results

Measurement model

Internal consistency (reliability) and validity (convergent and discriminant) were evaluated in the measurement model shown in Table 1 (Hair, Risher, Sarstedt, & Ringle, 2019).

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Table 1. **Measurement model**

	Constructs	α	ρ_A	CR	AVE	1	2	3	4
1	VIS	0.893	0.919	0.925	0.754	**0.868**	0.210	0.134	0.280
2	JI	0.873	0.896	0.921	0.795	-0.205	**0.891**	0.045	0.273
3	IC	0.932	0.942	0.957	0.880	0.118	0.022	**0.938**	0.249
4	WE	0.836	0.877	0.901	0.752	0.248	-0.236	0.230	**0.867**

Note: The coefficients on the lower/left diagonal represent the Fornell-Larcker criterion, while the coefficients on the upper/right diagonal represent the HTMT criterion; values in bold correspond to the square root of AVE.
Legend: VIS=Vertical information sharing; IC=Information credibility (Social media); JI=Job insecurity; WE=Work engagement.

The constructs denote the relevance of internal consistency by the scope of the loadings of the items (≥0.708), Cronbach's alpha (α) (≥0.70), and Composite reliability (CR) (≥0.70), and the criterion of rho_A (ρA), with values above 0.70. Due to convergent validity bias, the Average Variance Extracted (AVE) is adequate (≥0.50). From the perspective of discriminant validity, the values of the Heterotrait-Monotrait Ratio of Correlations (HTMT) were satisfactory (<0.85) (Hair *et al.*, 2019). The Fornell-Larcker criterion was also used in the discriminant validity test, where the square roots of the AVE values (values in bold) proved to be superior to the correlations between the constructs (Hair *et al.*, 2016).

Structural model

Since the measurement model was satisfactorily adequate, the structural model was then analyzed (Table 2). Three panels with path analysis and one with predictive power of endogenous variables and model adjustment are presented.

Table 2. **Path analysis**

Panels		Dependent variables	
Panel A - Direct effects			
Independent		Job insecurity	Work engagement
VIS		-0.205**	0.184**
JI		-	-0.205***
IC		-	0.218***
Panel B - Specific indirect effects (mediation)			
Independent	Mediator		Work engagement
VIS	JI		0.042*
Panel C - Interaction effects (moderation)			
Independent	Moderator		Work engagement
VIS	IC		0.092
JI	IC		0.123*
Panel D - Predictive capacity and model adjustment			
Criterion		Job insecurity	Work engagement
R^2		0.037	0.137
Q^2		0.024	0.099
SRMR		0.069	

Note: *p<0.10; **p<0.05; ***p<0.01.
Legend: VIS=Vertical information sharing; IC=Information credibility (Social media); JI=Job insecurity; WE=Work engagement.

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There is an absence of multicollinearity, since the highest Variance Inflation Factor (VIF) of the independent constructs was 1.116, therefore below the threshold of 3 (Hair *et al.*, 2019). Regarding the general redundancy of the model (Q^2) of the dependent constructs, values above zero are acceptable (Hair *et al.*, 2019). As for the coefficient of determination (R^2), the explained variance of job insecurity is small (0.02) to medium (0.13), while for work engagement it is medium (0.13) to large (0.26) (Cohen, 1988). Furthermore, the model, in which the coefficient is below the limit of 0.08, is adjusted by means of the Standardized Root Mean Square Residual (SRMR) (Henseler, Hubona, & Ray, 2016). Thus, the assumptions of the structural model are satisfactory, and so the results provide statistical support for accepting Hypotheses H_{1a}, H_{2a}, H_{2b}, H_{2c} and H_{3a}.

Control variables

In order to ascertain possible differences between the subgroups of the sample, tenure and the age of employees were controlled (Table 3) by creating subgroups.

Table 3. **Sub-group analyses**

Panels	Tenure		Age	
	‹1 year (*n*=71)	≥1 year (*n*=110)	‹30 years (*n*=120)	≥30 years (*n*=61)
Panel A - Direct effects				
VIS→WE	0.315**	0.093	0.102	0.389***
JI→WE	-0.138	-0.290*	-0.261***	-0.075
IC→WE	0.213*	0.245*	0.273***	0.105
VIS→IT	-0.001	-0.341***	-0.235**	-0.192
Panel B - Specific indirect effects (mediation)				
VIS→JI→WE	0.001	0.099**	0.061*	0.014
Panel C - Interaction effects (moderation)				
VIS*IC→WE	0.203	0.044	0.185*	0.017
JI*IC→WE	0.080	0.108	0.194**	-0.021

Note: *p‹0.10; **p‹0.05; ***p‹0.01.
Legend: VIS=Vertical information sharing; IC=Information credibility (Social media); JI=Job insecurity; WE=Work engagement.

FsQCA results

Calibration

The first step for fsQCA analysis consists in calibrating the variables in order to convert them into fuzzy sets, with values from 0 to 1. Three anchors were defined for the calibration exercise: full membership (95%), crossover point (50%) and full non-membership (5%) (Ragin, 2008). For the variables measured on a 7-point Likert scale, these anchors were set at 6, 4 and 2, respectively (Ordanini, Parasuruman, & Rubera, 2014). The tenure and age variables were calibrated in a dichotomous way (crisp-set), according to the subgroups defined in the methodology.

Necessary and sufficient conditions

The second step consisted in analyzing the variables that are always necessary (consistency≥0.90) and almost always necessary (consistency≥0.80) (Ragin, 2008). Vertical information sharing is almost always necessary (0.824) for promoting high work engagement, and absence of job insecurity is always necessary (0.922). The third step was the creation of a truth table containing all possible combinations. For that, the solution consistency threshold was 0.80 (Ragin, 2008).

The fsQCA software generates three types of solution: complex, parsimonious and intermediate. This study opted to

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use intermediate solutions, since this is superior to the others as it does not allow for the removal of the necessary conditions (Ragin, 2017). After analyzing the necessary conditions, Table 4 shows the sufficiency analysis, that is, which combinations of conditions are sufficient for promoting high work engagement. The general consistency of the solution (≥0.80) and broad general coverage are adequate, which suggests an explanation for a large proportion of the result.

Table 4. **Intermediate solution**

Variables	Solutions for high work engagement		
	S1	*S2*	*S3*
Vertical information sharing		●	
Job insecurity	⊗	⊗	
Information credibility (Social media)	⊗		●
Tenure			
Age			⊗
Raw coverage	0.493	0.773	0.439
Unique coverage	0.048	0.167	0.060
Consistency	0.909	0.926	0.954
Overall solution coverage		0.935	
Overall solution consistency		0.896	

Note: (i) Black circle (●) represents the presence of the condition; (ii) white circle with x (⊗) represents the absence of the condition; (iii) the absence of circles represents that this condition is indifferent to the solution; this table excludes solutions with very low unique coverage (less than 0.00), similarly to Miquel-Romero, Frasquet and Molla-Descals (2020).

Although vertical information sharing and absence of job insecurity are almost always and always necessary conditions, respectively, they are not sufficient conditions in independent ways. In this context, three solutions *(S)* are sufficient for promoting high work engagement: *S1* = absence of job insecurity and information credibility; *S2* = presence of vertical information sharing and absence of job insecurity; and *S3* = presence of information credibility and absence of age (belonging to the subgroup under 30 years old). The other variables for each solution are indifferent.

Discussion of the results

The results of the research revealed a direct negative effect of job insecurity on work engagement, a fact that supports H_1. The absence of job insecurity is a necessary condition for promoting high engagement at work, in addition to being sufficient in two of the three solutions obtained (*S1* and *S2*). This finding corroborates previous studies (Ali, Ali, Grigore *et al.*, 2020; Guarnaccia *et al.*, 2018; Karatepe *et al.*, 2020).The Covid-19 pandemic is partly driving this situation (Baker, 2020; Blake *et al.*, 2010; Hamouche, 2020).

H_{2a} can be accepted, because vertical information sharing has a direct effect on work engagement. Furthermore, vertical information sharing denotes that it is almost always necessary and sufficient in one causal combination (*S2*) and indifferent in two causal combinations (*S1* and *S3*) for high work engagement. The inference is that, in the period of the Covid-19 pandemic, vertical information sharing is an important managerial mechanism for promoting interaction between managers and employees (Macinati *et al.*, 2016; Parker & Kyj, 2006), which is reflected in work engagement (Baiman & Evans, 1983; Karasek, 1979; Locke *et al.*, 1986; Penno, 1984).

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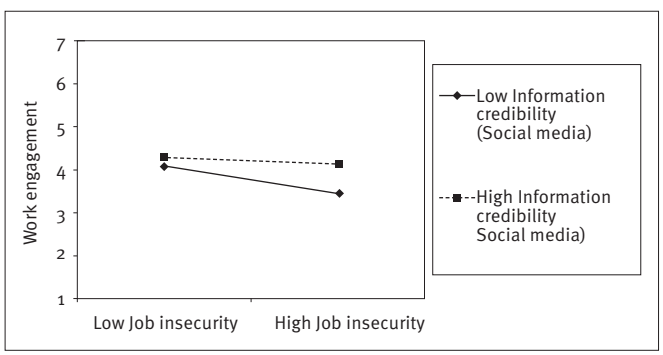
As for H_{2b}, there is evidence of a direct negative effect of vertical information sharing on job insecurity, which supports the hypothesis. Thus, communication between managers and employees within the scope of decision-making, or the manifest vertical sharing of financial and non-financial information, proved to be a relevant mechanism that mitigates the job insecurity of employees (Vander Elst *et al*., 2010; Huang *et al*., 2012). Vertical information sharing in the context of the Covid-19 pandemic plays a fundamental role (Hamouche, 2020) in reducing information asymmetry and job insecurity (Darvishmotevali & Ali, 2020; Lau & Roopnarain, 2014; Nouri & Parker, 1998).

H_{2c} is supported because vertical information sharing has a positive indirect effect on work engagement through job insecurity. There is partial mediation, since the direct relationship is also statistically significant (Bido & Silva, 2019). The inference is that vertical information sharing mitigates job insecurity and, through it, has a positive indirect effect on work engagement. This finding is corroborated by *S2*, in which the presence of vertical information sharing and the absence of job insecurity are part of the sufficient solution for high work engagement, which considers the highest proportion of cases (employees), both as an exclusive combination (unique coverage) and as a shared combination with the other conditions (raw coverage). It is possible to recognize, therefore, the pertinent role of vertical information sharing to mitigate insecurity (Darvishmotevali & Ali, 2020; Lau & Roopnarain, 2014; Nouri & Parker, 1998; Penno, 1984) and the benefit of engagement (Baiman & Evans, 1983; Karasek, 1979; Locke *et al*., 1986).

H_{3a} can be accepted, since information credibility (social media) has a positive moderating effect on the relationship between job insecurity and work engagement. Figure 2 illustrates this interaction.

Figure 2. **Moderating effect**



It can be seen that, in scenarios of low job insecurity, there is little variation in the perception of information credibility (social media) in relation to work engagement. However, in scenarios of high job insecurity, work engagement reduces as information credibility diminishes. Information credibility, therefore, can act to the detriment of this situation (Men & Yue, 2019; Mishra *et al*., 2014), because, as it increases it minimizes the impact of job insecurity on work engagement, especially in scenarios of high job insecurity.

It is argued that, in the context of information about the Covid-19 pandemic that has little credibility, employees may experience greater fear, stress and mental health problems (Brooks *et al*., 2018; Gao *et al*., 2020; Hamouche, 2020; Shigemura *et al*., 2020). A low perception of information credibility apparently aggravates the relationship between job insecurity and work engagement (Saks, 2006). On the other hand, in scenarios with highly credible information about the Covid-19 pandemic, employees may experience lower levels of apprehension (Hamouche, 2020) and, therefore, reflect to a minimal degree on the relationship between job insecurity and work engagement.

H_{3b}, which predicts a positive moderating effect of information credibility (social media) on the relationship between vertical information sharing and work engagement, was not supported statistically. This finding indicates that the credibility of the information about the Covid-19 pandemic, based on social media, does not interfere with the way in which vertical information sharing relates to work engagement. The inference is that the use of managerial mechanisms for internal communication is not being impacted by external communication (Verčič *et al*., 2012; Welch *et al*., 2012), but that this impact is being exclusively reflected in the relationship between job insecurity and work engagement (H_{3a}), that is, from the moment the startup's management is unable to fully control it.

The youngest group (‹30) of respondents proved to be more sensitive to the credibility of information (social media) about the Covid-19 pandemic, since it moderates both the vertical information sharing and job insecurity relationship with work engagement. *S3* also shows that the absence of age (in this case, this youngest group), together with the perception of information credibility, is a condition for high work engagement. This finding is supported by the literature, since a greater perception of information credibility implies fewer psychological problems and greater work engagement (Blake *et al*., 2010; Brooks *et al*., 2018; Gao *et al*., 2020; Hamouche, 2020; Shigemura *et al*., 2020).

For the groups that have had more time in the position (≥1 year) and the youngest group (‹30), vertical information sharing does not directly affect work engagement, but by mitigating job

insecurity it has an indirect effect, that is, there is total mediation (Bido & Silva, 2019). For the groups with less time in the position (<1 year) and those that are older (≥30), there is no mediation, but vertical information sharing has a direct influence on work engagement. These findings indicate that, depending on tenure or age, employees perceive these variables in different ways. For all subgroups, however, vertical information sharing has either a direct or indirect effect on work engagement, thus highlighting its relevance as a managerial mechanism (Karasek, 1979; Macinati *et al.*, 2016; Parker & Kyj, 2006; Penno, 1984).

FINAL CONSIDERATIONS

Conclusions

This study presents information for concluding that, regardless of age or tenure, vertical information sharing promotes work engagement either directly or indirectly (by mitigating job insecurity). In this regard, vertical information sharing, and the absence of job insecurity are respectively almost always and always necessary, as well as being a sufficient solution for promoting high work engagement, which covers most cases (employees). Singularly, in scenarios with high job insecurity, the credibility of the information (social media) with regard to the COVID-19 pandemic plays an important role in reducing the negative impact on the engagement of the employees in the investigated financial services startup.

Theoretical implications

Although previous studies have examined the antecedents of job insecurity and work engagement (Darvishmotevali & Ali, 2020; Guarnaccia *et al.*, 2018; Karatepe *et al.*, 2020; Richter & Näswall, 2019), aspects such as management mechanisms aimed at mitigating job insecurity and maximizing work engagement are still necessary for understanding this phenomenon. Based on it, this study demonstrates how vertical information sharing (financial and non-financial) can become a management mechanism in organizations, in the specific case of this single entity, in the largest Brazilian financial services startup, particularly in scenarios of uncertainty, such as that observed during the COVID-19 pandemic period.

According to the literature review carried out by Hamouche (2020), most research on the coronavirus focuses on aspects of the physical health of individuals, and pays little attention to mental health problems. Also, according to Hamouche (2020), job insecurity and mental health problems may be interconnected. In this context, as Gao *et al.* (2020) show, the lack of credibility of the information on social media aggravates the mental health of the population, including workers. Thus, the implications of this study show that the incredibility of the information about the COVID-19 pandemic on social media tends to aggravate the relationship between job insecurity and work engagement.

Managerial implications

Although several companies, especially innovative companies such as startups, have had their survival and business continuity threatened in this period of the COVID-19 pandemic (Kuckertz *et al.*, 2020), this study showed that vertical information sharing can be an important mechanism for mitigating job insecurity and increasing the work engagement of employees. Moreover, management must take into account the impact of the credibility of the information on social media, from the perspective of the employees. Internal communication policies can be helpful to this end (Mishra *et al.*, 2014; Verčič *et al.*, 2012; Welch, 2012). The information produced in this study has implications for the managers and employees of startups, which can be helpful in terms of business continuity. Once a setup has ensured that it will continue in the market, then it can explore any new opportunities that result from periods of crisis (Brem, Nylund, & Viardot, 2020).

Limitations and suggestions

This study has its limiting factors, which may represent opportunities for further research. First, any generalization of the findings must be done sparingly because of the research's own limits. Second, in instrumentalizing the information credibility construct, a generalized approach to social media was adopted, with no specific controls, since different social media (e.g. Facebook, Twitter, WhatsApp and YouTube) may have different levels of credibility and with regard to the spread fake news (Brennen, Simon, Howard, & Nielsen, 2020). Third, of managerial mechanisms, the study exclusively considered vertical information sharing. Other instruments of interaction between managers and employees can be investigated, such as management control systems. Fourth, the study used only one technique to verify the possible presence of CMB, and future studies may consider others, such as the use of a marker variable.

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BUSINESS ACTION ON SUSTAINABILITY AND RESILIENCE IN THE CONTEXT OF COVID-19

Atuação empresarial para sustentabilidade e resiliência no contexto da Covid-19

Acción empresarial para sostenibilidad y resiliencia en el contexto de la COVID-19

ABSTRACT

Facing up to the COVID-19 crisis has emphasized the importance of taking a critical and systemic look at business action for sustainability. The aims of this article are: to discuss sustainability, through the theoretical lenses of 'strong' and 'weak' sustainability and its relationship with economic paradigms; to present the theory of resilience as an alternative to the current challenges; and, based on the concepts presented, to analyze the indications of how organizations are reacting to the crisis. To this end, semi-structured interviews were conducted with companies operating in Brazil. As a result it was found that signs of the realignment of the companies' initial purpose of creating value for society coexist alongside signs of continued investment in market-based solutions and the search for infinite growth on a planet with limited resources.

KEYWORDS | Resilience, sustainability, ecological economics, COVID-19, business management.

RESUMO

O enfrentamento da crise da Covid-19 ressaltou a importância do olhar crítico e sistêmico para a atuação empresarial para sustentabilidade. Este artigo tem como objetivo discutir a sustentabilidade, através das lentes teóricas de sustentabilidade "forte" e "fraca" e suas relações com os paradigmas econômicos; apresentar a teoria da resiliência como alternativa frente aos atuais desafios; e analisar, com base nos conceitos apresentados, indícios de como as organizações estão reagindo inicialmente, em suas atuações com sustentabilidade, à crise da Covid-19. Para tanto, foram realizadas entrevistas semiestruturadas com empresas que atuam no Brasil. Como resultado, indícios de realinhamento ao propósito inicial da empresa de criar valor para a sociedade coexistem com indícios de continuidade da aposta em soluções via mercado e da busca por crescimento infinito em um planeta com recursos limitados.

***PALAVRAS-CHAVE** | Resiliência, sustentabilidade, economia ecológica, Covid-19, gestão empresarial.*

RESUMEN

El enfrentamiento de la crisis de COVID-19 enfatizó la importancia de una visión crítica y sistémica sobre la acción empresarial para la sostenibilidad. Este artículo tiene como objetivo discutir la sostenibilidad, a través de las lentes teóricas de la sostenibilidad 'fuerte' y 'débil' y sus relaciones con los paradigmas económicos, presentando la teoría de la resiliencia como una alternativa a los desafíos actuales y analizar, a partir de los conceptos presentados, los indicios de cómo las organizaciones están reaccionando a la crisis. Para ello, se realizaron entrevistas semiestructuradas con empresas que operan en Brasil. Como resultado, los signos de realineación con el propósito inicial de la empresa de crear valor para la sociedad coexisten con signos de inversión continua en soluciones basadas en el mercado y de búsqueda de un crecimiento infinito en un planeta con recursos limitados.

***PALABRAS CLAVE** | Resiliencia, sostenibilidad, economía ecológica, COVID-19, gestión empresarial.*

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INTRODUCTION

The history of corporate sustainability shows that the behaviors of organizations adapt to the pressures of the context and what worked in a situation is no longer useful (Belinky, 2017). Humanity lives today in a context of extreme uncertainty and instability, in which forces of maintenance, adaptation and transformation occur simultaneously and pressure companies to deal with them, whether they perceive them or not, whether in an integrated and simultaneous or fragmented and punctual manner. One of the few certainties in the current crisis is that reconstruction for the better (building back better) rules out returning to the state from which it started and, therefore, the maintenance force; not only because it is impossible to reconstruct it, but also because there reside the causes of the collapse (Monzoni & Carvalho, 2020).

If the COVID-19 pandemic was able to suspend the automated *modus operandi*, the illusion about the immutability of the institutions and the social agreements, and even the neoliberal precept of fiscal austerity (Santos, 2020; Harvey, 2020), may also be driving a deep critical reflection on the premises, beliefs and values that govern businesses. This reflection is central for alternatives to the modes of production and consumption created by rentier financial capitalism (Bresser-Pereira, 2018) to return to the political arena before new sanitary crisis and calamities arise from the structural crises caused by the inversion of the relationship between nature, society and economy (Liu, Rohr & Li, 2013).

The effects of this inversion became acute with the Great Acceleration, starting in 1950, with the population explosion and economic growth anchored in the intensive exploration of the natural environment (Zalasiewicz, 2015). The pandemic reiterated that there is no balance and equality between the environmental, social and economic dimensions, as corporate sustainability narrated for years in its representations. And more: it demonstrated the clear restrictions imposed by the environmental dimension, which support life, economic production and social reproduction, and reveals the dehumanization of the economic system. The "geopolitical turmoil", envisioned by 750 experts and decision makers who participated in the World Economic Forum in Davos, adds to the environmental risks and the ever-announced economic downturn in the configuration of a world that is essentially unstable and ruled by uncertainties (World Economic Forum, 2020).

That said, the present article is dedicated to discuss corporate sustainability, based on the concepts of "strong" and "weak" sustainability and in light of the economic paradigms; to present the theory of the resiliency as a reference for business management in the face of uncertainty and instability; and to analyze, through these lenses and based on a qualitative research with 13 companies, evidence of how they have accommodated, adapted or transformed their sustainability agendas at the beginning of the COVID-19 crisis.

THEORETICAL APPROACH

From "weak" sustainability to "strong" sustainability

The theoretical discussion and the applications of the concept of sustainability present variety, multidimensionality and ambiguity in the literature (Redman, 2014). Therefore, the term can be considered in a continuous formulation process. According to Lélé (1991), the most widespread definition of sustainability refers to its ecological connotation, its meaning dealing with the necessary biophysical conditions and standards to support human life, assuming a specified level of well-being across future generations. Therefore, this definition considers not only the use of natural resources to achieve well-being, but also limitations determined by nature; in addition, the same author includes social conditions in the relationship between people and nature as determinant and complementary to the concept of ecological sustainability.

Applied to business management, sustainability is commonly understood as "a business model that aims to return (profit) to shareholders, involving economic development, social promotion and protection of the natural resources of the planet" (Elkington, 1999, p. 397).

Neoclassical economics submits society and environment, in that order, to the economic system. Such a paradigm believes in technology for efficient use, or even replacement of natural resources in the medium or long term. As an evolution of this model, the environmental economy emerges, represented by the equilibrium of the social, environmental and economic dimensions. Known for the triple bottom line of sustainability (Elkington, 1994), this paradigm does not challenge dogmas on which the global economic order and business management rest. Among them, are highlighted the dogmas of unlimited economic growth in a planet of finite resources; the rationality of the system and economic agents; and the direct relationship between productivity and increased wealth and social well-being (Veiga, 2005; Bursztyn & Bursztyn, 2012; Martinez-Alier, 2015).

Thus, the environmental economy still leaves, in practice, society and nature at the mercy of the economic system and

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gives voice to the so-called "weak sustainability", which is anchored in the arguments that biodiversity, social well-being and knowledge may be converted and measured in terms of "capital", forming the natural, social and human capital (Victor, Susan, & Kuburski, 1998).

The ecological economy proposes the reorganization of the three dimensions based on the understanding that the economy is a subsystem of society, which, in turn, is a subsystem of the environment. The precepts presented by this paradigm for the functioning and regulation of the economy and organizations are based on subservience to social well-being and the limit imposed by the natural system (Romeiro, 2012). The "strong" sustainability transitions to the ecological economy when it assumes that the economy is an open subsystem of the finite global ecosystem, governed by the laws of thermodynamics and with irreversible properties (Costanza, Daly, & Bartholomey, 1991; Cechin, 2010), and recognizing that capital is not fully interchangeable or replaceable (Jackson, 2013). Once manufactured and human capital are growing and natural capital is decreasing, this perspective identifies a problem for the panacea of sustainable development, since the first two depend on the last (Victor et al., 1998; Veiga, 2007).

The "very strong" sustainability implies, at the limit, steady state and/or degrowth, considering that the natural system has inflection points that, when exceeded, lead to the loss of essential biophysical characteristics of ecosystems (Turner, Doktor, & Adger, 1994; Latouche, 2009; Georgescu-Roegen, 2013), thus reinforcing the notion of irreversibility and limits for the economic system, based on the capacity of the planet (Bismarchi, 2011). Conceiving inflection points means recognizing a complex dynamic beyond the trade-off between types of capital and the entry into the scene of systemic thinking that, from this perspective, should gain space in business management.

The different paradigms have repercussions on the assignment of different objectives and scopes to sustainability (Hediger, 1999), in divergent apprehensions about the purpose and role of organizations and dissonant business ethics governing their performance and relationships with multiple stakeholders (Sólon, 2019).

Purpose recovery and strengthening resilience

There has been much debate about the imminent future in the sense of recovery (Miguel & Paiva, 2020), reconstruction (Monzoni & Carvalho, 2020; Gallagher, 2020), "new normal" (Insper, 2020), or simply post-pandemic (Morin, 2020). In the spectrum between a new stability with the maintenance of the *status quo* and systemic transformations, it is certain that companies have a determining role in the design of this emerging future.

In 2014, the editors of the Academy of Management Journal (AMJ) called on academics to investigate the goals for which companies are created and, later, the trajectories by which they are lost, warning about the urgency to reformulate the collective understanding of the purpose of business based on the revision of what we want as citizens, political actors and consumers (Hollensbe, Wookey, Hickey, George, & Nichols, 2014). Companies are social organizations, authorized by society to operate with the primary purpose of responding to the needs of society itself (Belinky, 2017).

The cry of the AMJ editors gains tragic contours as the sanitary collapse of COVID-19 shows the clash between the economic system, governed by the belief in unlimited growth, and human life, which depends on nature and lacks social organizations of support. In the current situation, this clash unfolds in everyday decisions between "life, death and the economy" (The Economist, 2020), not only by managers and public leaders, but also by private sector executives, reaching the citizens as a survival paradox to be solved.

In recent years, the imperative of the resilience has spread on the public and private agendas, disseminating speeches of business leaders and international organizations such as the World Economic Forum (Howell, 2020) and the World Bank (World Bank, 2013) and gaining strength in the face of the escalation of uncertainties. Resilience, however, can either be anchored in engineering – with the sense of being able to return to the original state or maintaining stability in the face of stress – or in an ecological perspective – where resilient is the system that regains equilibrium after a disturbance - or systemic - related to the system's ability to maintain its development, finding new points of equilibrium (Davoudi et al., 2013; Abdulkareem & Elkadi, 2018). The latter gains an evolutionary sense when it is understood that systems can transform themselves from stresses and threats, or even in a continuous process of transformation, maintaining their essential functions and capacity for perpetuation through adaptive cycles (Davoudi et al., 2013; Loorbach & Wijsman, 2013).

The discussion about resilience, its meaning, implications and relationship with the sustainability agenda has advanced since the 1970s, even before the dissemination of the concept of sustainable development with the 1988 Brundtland Report. Lélé (1998) brings a critical reflection on the concept of resilience from publications from the 1970s to the end of the 1990s and presents resilience (based on Holling, 1973) as the size of the stability domain around a point of equilibrium in the face of constant

oscillations, replacing the search for stability. By emphasizing the importance of non-linearity, intrinsic to the notions of complexity (Morin, 2008) and transition (Loorbach, 2007; 2010), and arguing that situations of stress caused by human action itself require changes in behavior (and regulatory bases), the author proposes the concept of adaptability, in which the equilibrium domain is disrupted and the system must reorganize itself to continue performing its essential functions and fulfilling its purpose.

Resumed by Sucháček (2013) and Matarrita-Cascante et al. (2016), the discussion on adaptability and resilience is important to differentiate the search for the return to a state of equilibrium within the same domain, therefore on the same bases and maintaining the main characteristics of the system (be it related to the global climatic balance, or with regards to the economic matrix of a region or country, its competitive or negotiation dynamics), the idea of change of domain, which implies the transformation of the operating bases of the system, from which it is not possible to return to the previous point of equilibrium as the structural context is no longer the same. The current systemic crisis denotes the complexity in which organizations operate, and their relationships in the face of uncertainties of an ontological character, which, therefore, cannot be 'holistically' managed or reduced (Grau-Solés et al., 2011).

The definition of evolutionary resilience, proposed later by Davoudi et al. (2012) and Davoudi, Brooks, & Mehmood, (2013) incorporates adaptability as a necessary characteristic of systems so that they are able to advance in continuous cycles of innovation, transformation and reorganization in the face of frequent disturbances of structural magnitude. However, it still does not solve the direction of this transformation.

Targeting companies, the inversion of purpose currently in force - in which creating value for shareholders has become an end and not a means to meet social needs - combined with a lack of awareness and responsibility for environmental limits and degradation of "commons" from business operation (Ostrom, 1999), it is necessary to combine the strengthening of resilience, in the evolutionary sense, with the paradigm of ecological economics, erecting not only instruments for management focused on resilience, but also a new ethics for the operation and relations of these social organizations called companies.

In the light of the current systemic crisis, sustainability and resilience must be thought of without losing sight of the broader context of paradigm transition, reflecting on the potential of each approach to awaken and feed questions about the premises and values on which modern managerial logic is anchored. While sustainability establishes objectives, designs paths and indicators, the resilience approach strengthens the adaptive capacity and robustness of systems so that they can withstand inevitable and unpredictable shocks (Redman, 2014). Sustainability takes risks and traces adaptation routes involving incremental changes to maintain well-being, economic gains and a natural support system (Linkov et al., 2014). In turn, resilience assumes that decisions are made based on incomplete knowledge and experimentation, enabling structural changes in the system (Kates, Travis, & Wilbanksand, 2012).

Given the confirmation of global threats - from infectious diseases to extreme climatic events - and the undeniable inconsistencies in the socioeconomic system, non-cyclical transformations are necessary, within the same domain, but structural in the gears of the system, making the evolutionary resilience approach more promising than the search for sustainability (Nelson, Adger, & Brown, 2007). Accepting the complexity and ontological uncertainty as given and irreducible, investing energy in the analysis of the present and in the reflection on what has been learned so far is more productive than conjecturing about the post-pandemic future. More than predicting the future, it is necessary to reflect on what makes some systems resilient.

Furthermore, considering that transitions consist not only of changes in the components and organization of the system, but also in the formation of a system fundamentally different from the previous one and operating in a new trajectory (Boyd & Juhola, 2014), the evolutionary resilience approach appears to be more promising than the search for sustainability by challenging the notion of stability, conceiving the systems as intrinsically complex and permeable to changes in context and adaptable. In this sense, such an approach carries the potential to provoke reflections that go beyond risk analysis and linear models based on cause and consequence. When proposing interconnected systems, from the organizational to the socio-environmental level, in inevitable continuous transformation, the notion of evolutionary resilience provokes the reflection on the direction in which the systems are transformed, not in isolation, but as parts of a complex whole. Therefore, it is time to strengthen the resilience of organizations that are able to recover their contributions to general well-being, in the face of the most pressing demands of society. Thus, it is necessary to rethink corporate management for sustainability.

Business management for resilience

In the vision of business management, resilient organizations comply with the following principles (Reeves, Lang, & Carlsson-Szlezak, 2020; Folke, 2016; Wahl, 2019):

Redundancy: guaranteeing additional production capacity, reversing, to a certain extent, the movement of zero stock and management by flows, sharpened in the current phase of capitalism;

Diversity: multiple approaches and perspectives on the same problem or decision may be less efficient, but they provide flexibility and responsiveness in crises, with more creative solutions that do not replicate the logic in operation (fundamental in the building back better proposal);

Modularity: modular systems - in which factories, organizational units or sources of supply reorganize and connect in different ways - are more resilient;

Adaptive capacity: the ability of a system to transform and evolve in the face of opportunities, problems or external signals, valuing knowledge, with processes of registration and dissemination of learning, comprehensive flows of internal and external communication and availability of opportunities and resources necessary for the agency of areas and employees;

Prudence: in situations of great uncertainty, although they must dedicate themselves to the necessary transformations for a better future, it is prudent for companies to consider the worst scenarios in contingency strategies;

Recognize themselves as a part: recognizing themselves as a part of broader economic and social systems, also under pressure, and supporting customers, partners, suppliers, governments, towards strengthening health and social systems, offer the basis for relationships of cooperation and trust, fundamental for resilient organizations.

Such principles demand that business management create opportunities and conditions for:

- Participation of several actors in consultative and deliberative spaces;
- Multi-stakeholder collaboration; and
- Organizational learning.

Participation is an active social process with mutual engagement of actors in a shared situation and depends on formal and informal instances of interaction and conditions, tangible and intangible, so that these instances can be effectively occupied (Pelling & High, 2005; Wenger, McDermott, & Snyder, 2002). The process of organizational learning requires an opportunity for experimentation without the pressure for short-term results, in addition to recording the learning outcomes in accessible databases, feeding organizational memory and building common understandings about concepts and guidelines (Salter & Kothari, 2016).

METHODOLOGY

The search for evidence on movements and adaptations of the sustainability agendas in 13 large companies was conducted through qualitative research (Corbin & Strauss, 2015; Reinecke, Arnold, & Palazzo, 2016) in order to access elements of a complex social process (Hamilton & Finley, 2019), based on the analysis of narratives applied as an instrument to understand the interrelationships between people, events and perspectives from the organizational context of the narrator (interviewee) (Maingueneau, 2015). This exercise combines the replication of the strategic communication of the organizations, their shared values and meanings (Boje, 2001) with their own interpretation, with the addition and highlight of elements and excerpts to create the narrative (Alves & Blikstein, 2010), making the organization and motivations for telling the story as substantive for the research as what is being narrated (Marvasti, 2019).

Considering that narratives reflect values, shared meanings, interests and relationships, while building or maintaining symbolic social systems (Bryman, 2012), their analysis is appropriate to understand how business practices for sustainability are being thought and implemented in the context of the systemic crisis accentuated by the pandemic. Under construction, especially in the first months of social isolation in Brazil, the narratives are not linear, nor are they totally coherent. They are still emerging, gaining meaning and being transformed. The intentions of this research are limited to the identification of evidence of the movements that conform the sustainability agendas of the organizations, without the intention of confronting them with the objective reality or predicting their consequences.

Research context

The research was conducted within the scope of the Business Initiatives of the Center for Sustainability Studies (FGVces) of Fundação Getulio Vargas, a network that brings together large companies for access and production of knowledge and for the exchange of experiences around business management for sustainability. The network organizes its activities in annual cycles and the group of participating companies varies each year. The 13 companies involved in the research are part of the network in 2020.

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During the first semester of the year, face-to-face meetings were replaced by biweekly virtual meetings, organized between presentation and content discussion, based on research and experience exchange among participants related to business practices and the challenges faced regarding socio-environmental issues. The themes in focus in the 2020 cycle were crossed by the COVID-19 pandemic, which became the lens through which resilience, governance and complexity were worked on in the meetings between the months of March and May.

Data collection

Two procedures were combined for data collection: participant observation in the six online meetings of the Business Initiatives held between March and May of 2020; and semi-structured interviews with representatives of the 13 companies in the chain. The interviews started with specific questions and ended with an open conversation about understandings, experiences and perspectives, allowing respondents to express their subjective understandings about practices and challenges (Thomas, 2020). Thus, the restricted number of interviews, appropriate to shed light on a particular research niche (Reinecke et al., 2016), resulted in a rich material in order to understand how sustainability performance was or was not rethought and reformulated in an escalation of the crisis, and resilience began to emerge or not as a guide for business activities.

The interviewees expressed their interest in participating through an open invitation to the 19 companies participating in the network. The interviewed representatives occupy positions that vary between specialist, analyst, manager and director, mainly in areas related to sustainability, environment and corporate social responsibility, as systematized in Exhibit 1. The interviews were conducted by telephone, lasting between 40 and 60 minutes and were recorded on a spreadsheet.

The script followed to start the interviews covered three questions:

- What are the main actions underway that are a priority in the socio-environmental agendas for the company?
- What challenges stand out for the advancement of corporate actions in these agendas?
- What continues and what changes, regarding strategies and practices, in the context of the COVID-19 pandemic?

The answers to these questions were followed by an open conversation about issues that emerged or about the experience, on a personal and organizational level, of the adjustments imposed by social isolation in work routines and relationships.

Exhibit 1. **Participants of the semi-structured interviews**

	MAIN OPERATING SECTOR	INSTITUTIONAL POSITION
1	Finance	Advisor to Supply, Infrastructure and Patrimony Executive Board
2	Finance	Sustainability Analyst
3	Chemical	Sustainability Corporate Manager
4	Services	Sustainability and Diversity Specialist
5	Energy	Sustainability Specialist
6	Energy	Environmental Engineer
7	Wood panels, crockery and metals	Sustainability Coordinator
8	Cosmetics	Sustainability Senior Analyst
9	Retail	Sustainability Senior Analyst
10	Retail	Sustainability Specialist
11	Telecommunications	Corporate Social Responsibility Specialist
12	Technology	Director of Government Relations and Sustainability

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Participant observation in six virtual meetings, represented in Exhibit 2, contributed to better understand some of the challenges faced, ongoing actions, changes or accommodations in the performance of the companies in socio-environmental issues, providing the triangulation of the collected information (Roller, 2019). The meetings were organized with an exposition of research content by the FGVces team, followed by a group discussion and exchange of experiences in smaller groups. Each meeting lasted two and a half hours.

Exhibit 2. **Virtual meetings and covered topics**

Meeting	1	2	3	4	5	6
Date (2020)	19/03	02/04	23/04	30/04	14/05	28/05
Themes in focus	Sustainability in the context of Anthropocene	Corporate action against the pandemic	Resilience and vulnerability	Governance for resilient systems	Transformative business cases	Business cases of the corporative initiatives

The discussions and experiences reported in the meetings were recorded by the FGVces team and contributed to the analysis of the content of the interviews. At least two researchers participated in the data collection stages and a third researcher was involved in the analysis, guaranteeing an "outside perspective" (Gioia et al., 2013).

Data analysis

The information collected in the interviews was systematized by company considering the three survey questions, the views on the systemic crisis revealed by COVID-19 and the relations with other actors and perspectives for the post-pandemic. The elements gathered from the observation at the meetings were added in each of these initial groupings, when a relationship was observed, be it of reinforcement, complementation or dissonance, or even contributing elements of the organizational, sectorial or social context that support or justify the actions narrated. From there, codes were created (Malterud, 2012) based on units of evidence on the strategies and actions of the 13 companies in the context of the pandemic, actors involved and developments in the medium and long terms.

The codes then became the titles of the lines and the companies became the titles of the columns, forming a matrix in which the collected evidence was reorganized. From this systematization, new codes were identified and adopted, generating a second version of the matrix. From a transversal view of the evidence introduced by the informants of the 13 companies, the codes were grouped into categories (Roller, 2019), or lines of action in an interactive process of repositioning some evidence as the categories emerged in the analysis considering similarity of the contents. The resulting six categories are represented in Figure 1.

It is important to highlight that the categorization is not intended to classify participating companies as operating in a specific form of sustainability, but rather to understand movements, adaptations and accommodations of some of their actions.

DISCUSSION

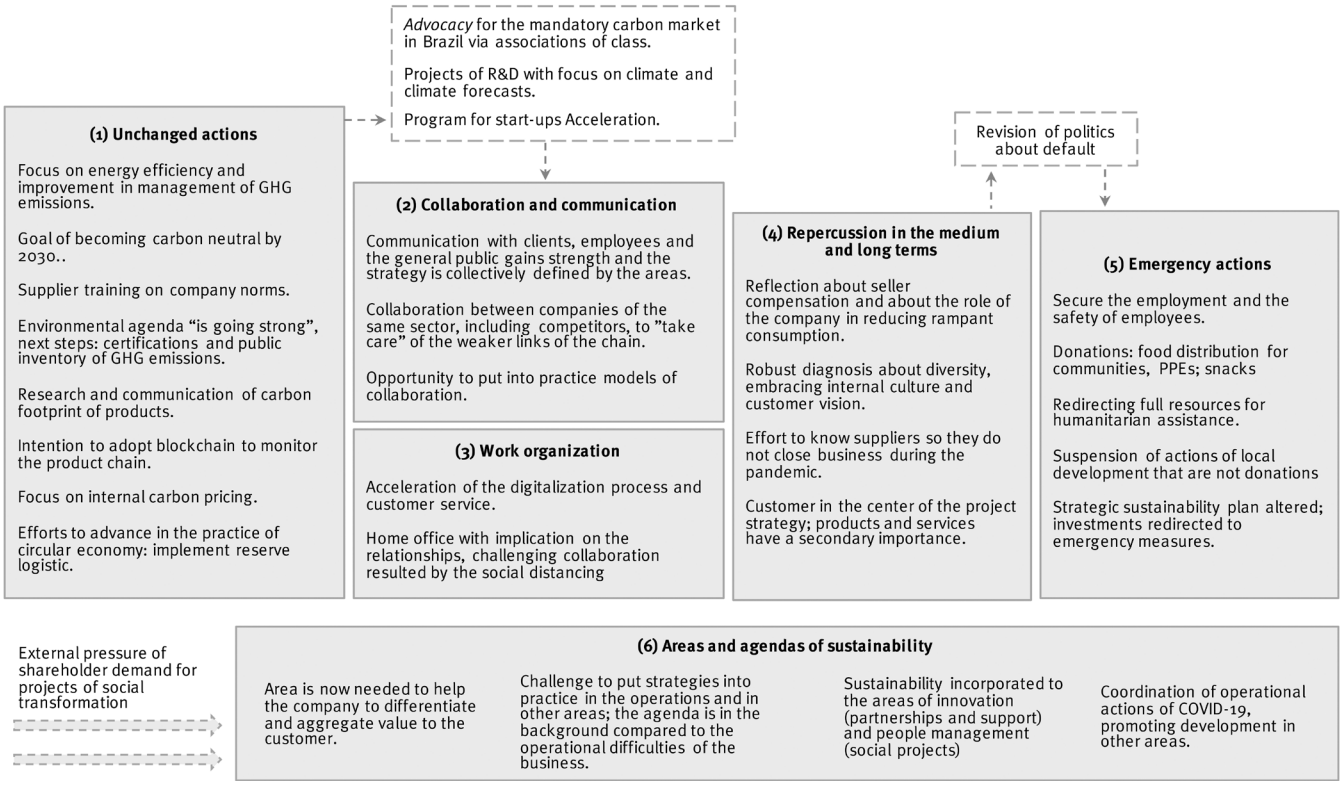
Figure 1 systematizes, in six categories, the lines of action. They are: (1) unchanged actions; (2) collaboration and communication; (3) work organization; (4) repercussions in the medium and long terms; (5) emergency actions and (6) areas and agendas of sustainability.

The six represented categories summarize the information collected in the interviews and through the observation of the participants in which the narratives about the ongoing business actions or planned in the first months of the COVID-19 pandemic were accessed. Figure 1 is the result of the process of information systematization, coding and analyzing, in the light of the consulted theoretical framework.

The narratives of these organizations demonstrate, on the one hand, mature agendas, such as climate change, that bring together the forces of resistance and feed the narratives "business as usual" - of market belief and flexibility in the face of risks - and financial models and instruments as solutions (Wissman-Weber & Levy, 2018), related to the principles of weak sustainability. On the other hand, movements that can be the seeds of structural,

medium and long-term changes, tuned in community imagery, collaboration and in the appreciation of what is essential, related to the concepts of strong sustainability and resilience.

Figure 1. **Lines of action**



In the "unchanged actions", the focus on energy efficiency, the efforts placed on "training suppliers in company rules" 'and the belief in certifications and carbon pricing as salvation routes exemplify the system's strength of maintenance. At the same time, the intention to advance in "circular economy practices", to the detriment of linear logic, although with a single focus on reverse logistics, brings a subtle indication of strong sustainability and resilience when considering environmental limits and seeking raw materials in the post-consumption, that can reshape the power relations between the links in the chain.

Movements and actions related to communication and "collaboration" and "work organization" encompass efforts to strengthen communication with several stakeholders, internal and external; interactions between employees and partners, distanced by virtualization; and even collaboration between competing companies, which previously seemed impossible. These categories point towards strong sustainability and resilience by contributing to the constitution of knowledge and internal (and external) spaces for participation, collaboration, experimentation and learning, that are fundamental for increasing adaptive capacity in the face of socio-environmental issues that are not always amenable to planning, nor of unique answers.

The category "repercussion in the medium and long term", indicates the interest in recognizing who are the stakeholders beyond the contracts and market relations, through a "robust diagnosis" about diversity in the organization and listening to suppliers. A movement towards the actors of the system, without a predetermined purpose, represents an impulse for closer relations and consequent increase in the parties' trust and autonomy, in order to improve the response capacity in any crisis; it may also denote assumptions of control, closer to the weak sustainability, anchored in power and domination. Repositioning "the customer" at the center of the business strategy and reflecting on the company's role related to unrestrained consumption sound like indications of possible and powerful transformations, either by reviewing the company's purpose or by the willingness to rethink, question and change the current consumer culture.

"Emergency actions" represent, in some cases, the suspension of sustainability projects and plans with the total allocation of resources and teams for social and health assistance.

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Thus, they point to the re-prioritization of life to capital, but they leave in the air what will come next, if the resumption of lines of action tuned to the weak sustainability, or actions that contemplate the lessons of "emergency". The experience of focusing efforts on emergency actions related to human needs can promote reflections on the purposes and values of the company, in addition to generating collective learning that may or may not be institutionalized and favor organizational resilience.

Finally, reflections and changes on the "areas and agendas of sustainability" emerge. In some companies, the pandemic went through a process, previously underway, to review the area and the strategies; in others, it encouraged the cross-cutting of sustainability, incorporated in areas such as innovation and people management. These movements indicate an ongoing crisis regarding the function of sustainability in view of the company's purpose, both because of the understanding that the issues covered must be present in the other business areas, and because of the re-prioritization of investments in projects that generate financial returns in the short term. The spectrum is also wide between the roles attributed to the areas of sustainability: from the contribution to the differentiation of the company, in a sign of weak sustainability, to the mobilization of the organization for a coordinated collective action.

The findings in the six categories indicate points of friction between assumptions and practices that prevailed in the sustainability agendas of the companies, depending on the paradigm of classical economy or environmental economy, and an expanded view on doing business, which includes links in the value chains, from raw material to post-consumption, communities in the territories where companies are present and partners from different sectors. This expansion of sustainability walks in the direction of multi-stakeholder collaboration, one of the pillars for resilience in the evolutionary sense. Still, the review of the roles and actions of the sustainability and related areas in the movement to mainstream socio-environmental issues provoke a rethinking of governance, reflecting the emergence of a new moment on the agenda, less instrumental and closer to the management of key business activities, which indicates an ongoing organizational learning process in some of companies and enhanced by the crisis context.

While the emergency actions reflect a concern with pressing needs of groups in situations of vulnerability, they configure specific actions and a mechanical response to social pressures that coexist with the narrative to also better listen to the needs and visions of the actors with whom the companies have indirect relations. This last movement provokes reflection on instances and channels of participation, which also carries the potential to strengthen the company's resilience, as well as the broader system in which it operates.

Such frictions identified in the narratives about the experiences and actions underway in the companies denote a moment of bifurcation of the sustainability agenda: on the one hand, the search for any remnant of security anchored in sustainability as a source of information for the management of risks that threaten the business as usual - in the sense of weak sustainability. On the other hand, sustainability as a channel for society and the environment to permeate business, translated into objectives and limits for economic activities - in the sense of strong sustainability. Based on this understanding, the following considerations can be made about the progress in strengthening resilience in the business environment:

Implies closer and constant relations with external actors, directly and indirectly related to the company's business;

Resilience cannot be guided only by the application of standard management instruments for sustainability and demand, in addition to perennial instances of participation and collaboration by internal and external actors, the cross-cutting of socio-environmental themes in the business areas;

Aligns itself with strong sustainability in terms of internalizing the notion of intrinsic relationship between the organization's longevity and the ability to perceive and transform from the environmental and social context. However, strengthening resilience, even in the evolutionary sense, does not necessarily mean to consider social and environmental limits for economic activities; and

Due to the lack of systematic tools and experience, although strongly present in the public debate, resilience is a more abstract than practical concept within companies, and even in the context of the pandemic, it was not adopted, in the companies interviewed, as a north to rethink or complement actions of sustainability or even the role of the areas of sustainability; a reflection on what makes organizations resilient systems is not established in these companies.

It is important to emphasize that the narratives accessed did not reveal evidence for all the principles of resilience or of weak or strong sustainability; neither was the objective of the research. However, they point out that learnings from the pandemic can be an important legacy to deal with complex challenges that will not disappear with the control of this disease.

In this scenario, sustainability teams and related areas are called upon to leverage internal transformations; for example, provoking a deeper analysis about the critical situation of the moment, safeguarding and nourishing the existing forums of participation, working for the diversity of effective participation

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in the crisis committees and, mainly, so that the sustainability projects and actions themselves may emerge from meaningful interactions in multi-stakeholder forums, or at least from active listening to the several involved and interested parties. By placing themselves as agents of change, sustainability professionals may provoke executives, colleagues, partners to see beyond short-term impositions, and to inaugurate a broad process of reformulating the organization's purpose. Not based on conjectures of uncertain futures, but on the present urgency, historical of: direct connection between the organization and the people affected by the business, the translation of strategies and the criteria for deciding production limits imposed by the environmental outline; mechanisms for fairer distribution of economic and financial results derived from the interaction between work, technology and natural resources; and in the exercise of the evolutionary perspective resilience to think about the organization's responsiveness to the pressures and opportunities of the context to transform itself while perpetuating its primary purpose.

CONCLUSION

The research here presented reveals that the agenda and the areas of sustainability are called upon to take over a larger scope of action, inside and outside of companies, in the context of instability and uncertainties accentuated by the pandemic of COVID-19. From the literature review and the collection and analysis of information on how these 13 companies are dealing with the crisis in its initial moment, the research contributes to a critical reflection on the role of sustainability for the construction of a management and business performance based on a paradigm of ecological economics, capable of strengthening the resilience of the organizations and the systems which they are a part of. It is revealed that forces of transformation and maintenance coexist, they compete for narratives and space in organizations, and that it is crucial that they turn to their primary purposes, for which they exist.

Among the indications of the ongoing movements in the companies interviewed, the potential for realignment to the fundamental purpose of meeting the needs of society and promoting general well-being is identified, but there is also a latent risk of continuing to bet on the market - by faith in technology, innovation or financial instruments - as a source of solutions. Efforts to communicate and collaborate and to reconfigure relationships are promising both from the perspective of strong sustainability and resilience. Although the two perspectives are not completely aligned, there are synergies between the transition to strong sustainability and the strengthening of resilience and the two narrate what may be a new, emerging phase of the corporate sustainability agenda. The categories of ongoing actions and movements identified represent axes by which the transition may take place, while making it clear that in all of them, there are elements of resistance and, therefore, forces of maintenance or return.

Although the evidence identified in this research derives from the initial moments of the COVID-19 pandemic and other actions and accommodations also take place, the organizational experience of that period, regardless of what it was, constitutes a fundamental knowledge for companies to deal with other manifestations of structural crisis, and, in particular, with the crisis itself through the transformation of the organizations and systems in which they operate in favor of the transition to a new domain. In this sense, incorporating adaptability in management and increasing the companies' capacities to perceive disturbances, in all their complexity, and transform themselves and their relationships through organizational learning processes, emerge as measures so that they can achieve their primary objective in a permanent way.

As relevant issues, emerges an opportunity for future studies to investigate how strong sustainability and resilience can qualify mutually when they complement and deal with similar issues with different intentions and biases; the influence of the economic sector in the actions taken by companies in the face of the crisis, as well as the influence of the headquarters of these corporations, since global guidelines sometimes determine the socio-environmental agendas in Brazil. In addition, the mapping and systematization of business cases related to strengthening resilience, especially in the evolutionary sense, is important for the concept to be translated into business management. As limitations of the research are listed the restricted number of companies covered by the interviews and the number professionals interviewed in each company, creating a photograph that results in the collection of evidence and not in generalizations. Apart from that, the interviews were carried out in the initial period of social isolation measures, and it is necessary to investigate how the movements and actions advanced in the following months, and after the measures were completed.

From the redefinition of relations between companies, citizens and governments, involving new dynamics of work and coexistence guided by cooperation and compassion, another ethic may emerge. For this to be the near future, it is necessary to nurture thoughts not of resumption or reconstruction, but of transformation. For business management, it means a redirection

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to learning, through investment, in the present, in diversity, participation and effective dialogues. This process for which corporate sustainability is fundamental, while it has never been so outdated.

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AUTHORS' CONTRIBUTIONS

Mariana Nicolletti, Gabriela Alem, Marta Blazek e Paola Fillippi worked on the conceptualization and theoretical-methodological approach. The theoretical review was conducted by Luis Felipe Bismarchi. Data collection was coordinated by Mariana Nicolletti with the contribution of Gabriela Alem and Marta Blazek. Data analysis was conducted by Mariana Nicolletti e Gabriela Alem. All authors worked together in the writing and final revision of the manuscript.

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THE BURNOUT EPIDEMIC DURING THE COVID-19 PANDEMIC: THE ROLE OF LMX IN ALLEVIATING PHYSICIANS' BURNOUT

Epidemia de Burnout durante a pandemia de Covid-19: O papel da LMX na redução do burnout dos médicos

La Epidemia de Burnout durante la Pandemia de COVID-19: El papel del LMX en la reducción del estrés crónico de los médicos

ABSTRACT

During COVID-19 pandemic, physicians are being exposed to unprecedented adverse working conditions that lead to increased occurrence of burnout. While supportive leadership is considered effective in preventing burnout, little is known about the role of leadership in extreme situations. Drawing on leader-member exchange (LMX) theory, we hypothesize that high-LMX relationships lead to lower levels of burnout, as they shape physicians' perceptions of psychosocial job demands and resources. We also contend that this effect will be stronger for frontline physicians, as they are more exposed to job stressors. In a field study with 2,708 Brazilian physicians, we found support to the alleviating role of LMX, but contrary to what we predicted, we found that this effect is weaker for frontline physicians. Overall, our findings reinforce the importance of establishing high-quality relationships between supervisors and medical staff to mitigate the experience of burnout, however, they also highlight that extreme conditions, such as the COVID-19 pandemic, might constrain the beneficial effects of leadership behaviors.

KEYWORDS | Leadership, LMX, Burnout, COVID-19, healthcare workers.

RESUMO

Durante a pandemia de Covid-19, os médicos estão expostos a condições adversas de trabalho que têm levado ao aumento da ocorrência de burnout entre esses profissionais. Embora o suporte da liderança seja considerado eficaz na prevenção do burnout, pouco se sabe sobre o papel da liderança em situações extremas. Com base na teoria da troca de líder e membro (LMX), propomos que um relacionamento de alta qualidade entre supervisores e médicos pode reduzir os níveis de burnout dos médicos, uma vez que moldam as percepções destes sobre as demandas e recursos psicossociais do trabalho. Acreditamos que esse efeito será mais forte para os médicos que atuam na linha de frente, pois eles estão mais expostos a estressores no trabalho. Em um estudo de campo com 2.708 médicos brasileiros, encontramos apoio ao papel da LMX na mitigação do burnout. De modo geral, nossas descobertas reforçam a importância de estabelecer relacionamentos de alta qualidade entre supervisores e equipe médica para mitigar a experiência do esgotamento; no entanto, também destacam que condições extremas, como a pandemia de Covid-19, podem restringir os efeitos benéficos dos comportamentos de liderança.

PALAVRAS-CHAVE */ Liderança, LMX, Burnout, Covid-19, profissionais de saúde.*

RESUMEN

Durante la pandemia de COVID-19, los médicos están expuestos a condiciones laborales adversas que han llevado a un aumento del surgimiento del síndrome de burnout entre estos profesionales. Aunque el apoyo del liderazgo se considere efectivo para prevenir el agotamiento laboral, se sabe poco sobre el papel del liderazgo en situaciones extremas. Con base en la teoría del cambio de líder y miembro (LMX), proponemos que una relación de alta calidad entre los supervisores y los médicos puede reducir los niveles de burnout de los médicos, ya que moldean sus percepciones sobre las demandas y recursos psicosociales del trabajo. Creemos que este efecto será más fuerte para los médicos que trabajan en primera línea, ya que están más expuestos a los estresores laborales. En un estudio de campo con 2.708 médicos brasileños, encontramos apoyo al papel del LMX en la mitigación del síndrome de burnout. En general, nuestros hallazgos refuerzan la importancia de establecer relaciones de alta calidad entre los supervisores y el personal médico para mitigar la experiencia del agotamiento, sin embargo, también destacan que las condiciones extremas, como la pandemia de COVID-19, pueden restringir los efectos beneficiosos de los comportamientos de liderazgo.

PALABRAS CLAVE */ Liderazgo, LMX, Burnout, COVID-19, trabajadores sanitarios*

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INTRODUCTION

The coronavirus outbreak has created unique challenges for workers worldwide. While the majority of the workforce was asked to work from home to help "flatten the curve", healthcare workers were requested to remain in the frontline, working long hours to fight this deadly threat, even if they do not have enough appropriate conditions in terms of structure, personal protection equipment and training (Fernandes & Pereira, 2020; Peci, 2020; Silva, Saraiva, Ferreira, Peixoto Junior & Ferreira, 2020). By doing so, these professionals are not only risking exposure to the virus but also facing the risk of burnout syndrome, a job stress-related disorder in which employees feel emotionally "spent" and disengaged towards their work (Halbesleben & Buckley, 2004). Indeed, studies have shown that, by exacerbating stressors from an underprepared healthcare system as well as adding unique new ones associated with the uncertain scenario, the coronavirus pandemic has prompted a spike of burnout among primary healthcare workers, particularly physicians (Bansal et al., 2020; Restauri & Sheridan, 2020). Thus, it has become even more crucial during these extraordinary times to identify effective ways of reducing stressors in order to prevent burnout among health care workers.

Research has shown that supportive leadership can be effective in mitigating burnout through its effects on workplace stressors (Halbesleben & Buckley, 2004). In this respect, leader-member exchange (LMX) theory seems to be particularly appropriate (Thomas & Lankau, 2009). From the perspective of job demands-resources (JD-R) model (Bakker & Demerouti, 2007), high-quality LMX relationships are considered sources of greater social support and resources, which help employees to better cope with their job demands, workplace stressors and the associated physiological and psychological costs (Thomas & Lankau, 2009). As such, employees who have high-quality LMX relationships are likely to successfully respond to the demands that could otherwise foster emotional exhaustion and disengagement at work.

Indeed, previous studies have yielded evidence indicating the importance of LMX-related resources for subordinates' health and well-being when facing adverse situations (Dicke, Stebner, Linninger, Kunter, & Leutner, 2018; Tummers & Knies, 2013). For example, Montani, Courcy, and Vandenberghe (2017) study found that when LMX was high, the positive effects of challenge stressors on effective work attitudes and behaviors were enhanced, while the negative effects of hindrance stressors were attenuated. Similarly, in a study with healthcare professionals working in different hospitals, Hesselgreaves and Scholarios (2014) found that LMX reduced job demands and strain for junior subordinates.

Our study examines the role of leadership in attenuating physicians' burnout in the extreme context of the COVID-19 pandemic. Specifically, using data from 2,708 physicians working in the Brazilian healthcare system during the pandemic, we investigate *if* and *how* LMX relationships can reduce the experience of burnout among medical doctors, particularly the ones working in the frontline. Because extreme contexts create unique contingencies and constraints that can be a lever for counterfactual reasoning (Hällgren, Rouleau, & Rond, 2018), we believe that examining the relationship between LMX and burnout in such contexts can yield valuable insights to leadership literature, since previously established findings in 'normal' settings may not be generalized to extreme contexts (Hannah, Uhl-Bien, Avolio, & Cavarretta, 2009).

THEORETICAL BACKGROUND

Media reports and empirical research have been highlighting that primary healthcare workers are being exposed to unprecedented levels of burnout during the struggle against COVID-19 (Bansal et al., 2020; Restauri & Sheridan, 2020). They have to deal not only with the risks of exposure to the virus, but also with adverse working conditions such as increased responsibilities, lack of resources, work overload, and high rates of death and trauma in the workplace. Because healthcare professionals are immersed in such an extreme context, they do not have opportunities to replenish cognitive and emotional resources depleted by those stressful conditions. As such, they are particularly susceptible to develop psychological syndromes such as burnout (Sonnentag, Kuttler, & Fritz, 2010).

Defined as a prolonged response to chronic emotional and interpersonal stressors on the job, burnout syndrome is considered an occupational hazard (Maslach, Schaufeli, & Leiter, 2001). While scholars somewhat differ in its conceptualization, they agree that burned-out employees are mainly characterized by feelings of energy depletion or exhaustion and negative attitudes toward their work (Demerouti, Mostert, & Bakker, 2010). Empirical research has shown that burnout is a potential consequence of excessive job demands, role ambiguity and conflicts, and poor social support (Maslach et al., 2001). In this respect, scholars have argued that leadership may play a key role in preventing burnout (Halbesleben & Buckley, 2004; Harms, Credé, Tynan, Leon, & Jeung, 2017) since all these work-related factors can be influenced by supportive leadership behaviors. Nevertheless,

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relatively little attention has been paid to the link between LMX and burnout (Schermuly & Meyer, 2015; Thomas & Lankau, 2009).

Interestingly, LMX researchers have advanced the notion that LMX may affect the two core components of burnout: *emotional exhaustion*, which "refers to feelings of being overextended and depleted of one's emotional and physical resources" (Maslach & Leiter, 2008, p. 498) and *disengagement*, defined as "distancing oneself from one's work, and experiencing negative attitudes toward the work object, work content, or one's work in general" (Demerouti, Bakker, Nachreiner, & Schaufeli, p. 501). The theoretical explanations for such impact are related to the fact that LMX relationships are important sources of job-related social support and resources (Gerstner & Day, 1997). As contended by the extant LMX literature, in a high-quality LMX relationship, leaders provide many tangible and intangible resources to subordinates, including attention, support, time, empowerment, information sharing, autonomy (Gottfredson, Wright, & Heaphy, 2020). Low-LMX subordinates, in contrast, receive fewer resources as "low-quality relationships have been said to be mainly transactional and based on the hierarchical authority of the supervisor" (Epitropaki et al., 2016, p. 1079).

In this regard, LMX should play a key role in influencing subordinates' emotional exhaustion. In general, the physical and mental effort expended by day-to-day reactions to workplace stressors drains employees' resources and leads to negative outcomes as fatigue and emotional exhaustion (Hobfoll, 2002). Those better endowed with resources are less negatively affected by the resource drain or loss that accompanies stressful conditions. Therefore, as leaders grant more resources to high-LMX members than they grant to low-LMX ones, we can expect that the increased level of resources makes resources depletion and emotional exhaustion less likely among high-LMX members. Conversely, a poor provision of resources can result in a faster depletion and feelings of exhaustion (Hobfoll, 2002). Further, the social-emotional resources and support provided by leaders in high-LMX relationships have been identified as a critical factor in attenuating perceptions of an extreme event, such as the current COVID-19 pandemic, by increasing one's ability to cope with it, and thus helping to mitigate emotional consequences, such as exhaustion (Hannah et al., 2009).

In addition, several studies have demonstrated that LMX-related resources, such as autonomy and social support, may function as drivers of a process that leads to work engagement while a low level of job resources results in disengagement at work (Bakker & Demerouti, 2007; Demerouti et al., 2001). Therefore, LMX also plays a pivotal role in preventing work disengagement. A strong, high-quality relationship with the leader provides greater access to resources, thus energizing individuals and facilitating the accomplishment of work goals. Accordingly, it is likely that employees feel more engaged. Moreover, it has been shown that leaders in high-quality LMX relationships give their followers more intrinsic and extrinsic rewards, which result in more positive attitudes toward work (Epitropaki & Martin, 2005). Employees will also have more opportunities for personal growth, learning, and development (Bakker & Demerouti, 2007). Such resources emanating from the leader impact employee work engagement positively by playing an instrumental role in both intrinsic and extrinsic motivation (Bakker & Demerouti, 2008). Thus, we posit that physicians with high LMX quality with their direct supervisor will experience lower levels of burnout (emotional exhaustion and disengagement) during the COVID-19 pandemic.

H1: LMX quality is negatively related to burnout.

The JD-R model of burnout (Demerouti et al., 2001) predicts that the development of burnout follows two processes. The first process involves extreme job demands that lead to constant overtaxing and, in the end, to emotional exhaustion. The second process is related to a lack of resources that thwarts the meeting of job demands, thereby leading to withdrawal behaviors, such as disengagement. Thus, we argue that the effect of LMX on alleviating burnout occurs through its influence on employees' perceptions of the psychosocial job demands and resources, which encompass perceptions regarding social support, psychological demands and job control.

High-quality leader-member exchanges (LMX) are considered sources of greater social support (Graen & Uhl-Bien, 1995), defined as "an interpersonal transaction that involves emotional concern, instrumental aid, information, or appraisal" (Carlson & Perrewé, 1999, p. 514). Social support helps employees to better address their job demands and the associated psychological and psychosocial costs by providing attention, interaction, and the exchange of information and resources (Thomas & Lankau, 2009). Moreover, social support increases feelings of protection, self-efficacy, and belongingness, which contributes to face job requirements and role demands positively. For example, as showed by Siu, Lu, and Spector (2007), self-efficacy serves as a resource factor that should buffer against stressor perceptions such that employees are likely to perceive a demanding work environment as more challenging than threatening.

Moreover, a high-LMX relationship may lead employees to interpret work demands differently. With the help and support of the leader, high-LMX employees may experience less role conflict and enjoy their jobs more (Gerstner & Day, 1997). Similarly, because

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these employees enjoy a more supportive work environment, they internalize less work pressure and tension, making work seem less demanding (Bakker, Demerouti, & Euwema, 2005).

In addition, high-quality relationships with the leader have been identified as one of the most central sources of job control (Gottfredson et al., 2020), such as greater decision-making latitude and autonomy (Gerstner & Day, 1997; Harms et al., 2017; Hetland, Sandal, & Johnsen, 2007). In fact, these relationships have been shown to give broader negotiating latitude to workers over their work, thus allowing them to experience greater control and reduce the number or the difficulty of their assignments. For example, Tordera, González-Romá, and Peiró (2008) showed that employees who reported high-quality LMX tended to report lower levels of role overload. Relatedly, Trépanier, Fernet, and Austin (2013) found that employees with high autonomy experience less psychological distress in the presence of job demands than their less autonomously motivated counterparts.

In sum, we contend that LMX directly influences how job demands and resources are perceived and interpreted; specifically, we argue that when a high-quality LMX is maintained, employees perceive job demands more favorably as well as they feel more in control over their tasks and their conduct during the working day. Hence, we hypothesize the following:

> H2: Psychosocial job demands and resources mediate the relationships between LMX and burnout.

Finally, it should be noted that, although the COVID-19 pandemic has undoubtedly created a harsh environment for medical doctors in general, those who are caring directly for patients with COVID-19 (i.e., frontline physicians) are likely to experience even higher risks, anxiety, demands and stress than those in less exposed roles. In addition to a higher risk of infection, frontline physicians are being demanded to make every possible effort to save lives in an inescapable context of pressures, uncertainty, pain, suffering, and deaths. Some studies looking at frontline physicians during COVID-19 have shown that these professionals experience unique stressors (e.g., the stigma of working with coronavirus patients, the concern about personal protective equipment) which put them at risk of profound resource depletion and mental exhaustion (Lu, Wang, Lin, & Li, 2020). For example, the lack of personal protective equipment (PPE) and training on how to use new equipment causes many frontline professionals to question whether they have been exposed, and some hesitate to go home in fear of exposing family members to infection (Sasangohar, Jones, Masud, Vahidy, & Kash, 2020).

In such a case, the beneficial effects of high LMX relationships in providing resources and reducing demands may be even stronger. Consequently, we hypothesize that LMX relationships involving frontline physicians will have a stronger impact on their psychosocial demands and resources, and thus, on their experience of burnout than those working in less exposed positions. We thus propose:

> H3: The indirect effect of LMX on burnout through Psychosocial job demands and resources is moderated by frontline vs. non-frontline employees, such that the relationship is stronger for frontline physicians than for non-frontline ones.

METHODS

Sample and procedures

Participants were recruited in collaboration with PEBMED, a Brazilian company specialized in developing clinical solutions to support and facilitate physicians' decision-making. Invitations were sent through email to a sample of Brazilian physicians of diverse specialties. A total of 2,708 physicians fully answered the survey. Participants were, on average, 38 years old (range 21–78), 66% were female, and 70% declared themselves as religious people. The majority (2,417; 89%) reported having a fear of transmitting COVID-19 to their family, and 12% (346) stated having already been diagnosed with the virus. Approximately 70% (1,875) declared themselves as being in the frontline of care to patients with confirmed or suspected infection of coronavirus, and 88.5% reported working in a healthcare facility that receives patients with COVID-19. Regarding the type of facility, 1,936 declared working in public, 706 in private, and 66 in beneficent facilities.

The study was carried out in accordance with the recommendations of the institutional ethical compliance committee on research involving human beings of the institution at which most of the authors were located at the time of data collection. Further, participants were provided a term of informed consent to participate and publish the data in accordance with the Declaration of Helsinki.

Measures

Burnout syndrome. Burnout, our dependent variable, was measured by the Oldenburg Burnout Inventory (OLBI), developed by Halbesleben and Demerouti (2005), translated and validated to Portuguese by Schuster and Dias (2018). The OLBI has two dimensions: exhaustion (8 items) and disengagement (8 items)

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and was measured on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Exhaustion is defined as a consequence of intensive physical, affective and cognitive strain, that is, as a long-term consequence of prolonged exposure to certain job demands. A sample item is: "There are days when I feel tired before I arrive at work." Disengagement refers to distancing oneself from one's work in general, work object, and work content. Moreover, the disengagement-items concern the relationship between employees and their jobs, particularly with respect to identification with work and willingness to continue in the same occupation. A sample item is: "Lately, I tend to think less at work and do my job almost mechanically." We computed the OLBI index as a simple average of these two dimensions (some items were reverse-coded when appropriate), keeping its interpretation that the higher the OLBI index, the higher the probability of burnout. The reliability of this scale was .91.

Job Demands and Resources. The psychosocial job demands and resources were measured by a shorter version of the Job Content Questionnaire (JCQ), originally developed by Karasek and Theorell (1990), validated to Portuguese by Alves, Chor, Faerstein, Lopes, and Werneck (2004). The scale contains three dimensions: psychological demands (5 items), job control (6 items), and social support (6 items). Psychological Demands refers to pressures of psychological nature in the work environment (e.g., "Do you have to work very intensively?"). Job Control refers to decision latitude and the degree of authority (e.g., "Do you have a choice in deciding HOW you do your work?"). Social Support captures the level of social interaction between worker and his/her colleagues and superiors (e.g., "I enjoy working with my co-workers"). The first two dimensions use a 4-point frequency scale, and the social support uses a 4-point Likert scale. Each dimension was separately calculated, as recommended by authors, as an average of the responses (job control and social support dimensions were reversely rated). To get a single measure, we took a simple average of the three dimensions, such that the higher the index, the higher the psychosocial job demand. The reliability of this scale was .81.

Leader-Member Exchange. LMX, our independent variable, was measured by the nine-item LMX-MDM scale (Liden & Maslyn, 1998), translated and validated to Portuguese by Côrtes, Souza, and Puente-Palacios (2019). The scale has three dimensions: Affection, Loyalty, and Professional Respect. Affection evaluates the subordinate's friendship and liking toward the leader (e.g., "I really like my leader as a person"), Loyalty evaluates the amount of loyalty that the subordinate feels the leader has toward him or her (e.g., "My leader comes to my defense"), and Professional Respect assesses the respect and admiration the subordinate feels regarding his or her leader's job knowledge or competence (e.g., "I am impressed with my leader's knowledge"). Responses were gathered on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The overall quality of LMX was calculated as a simple average of the items. The reliability of this scale was .94.

Participants were asked to inform if they work in the frontline of treatment of COVID-19 patients, with a single question: "Do you work in the frontline of treatment of COVID-19 suspected or confirmed patients?".

Controls. As controls, we included several individual characteristics, such as gender, age, fear of transmitting coronavirus to family, religiosity, previous diagnosis of COVID-19, and working hours per week; and characteristics of the healthcare facility: private, public, or beneficent, and status of COVID-19 patients. Finally, we also included a single measure of positive and negative activation using the Lebender Emoticon PANAVA scale (Schreibera & Jenny, 2020), as positive and negative affection have been shown to influence subordinates' perceptions of leadership and job demands, thus mitigating some common-method concerns.

RESULTS

Before testing our hypotheses, we conducted a confirmatory factor analysis (CFA) to establish the discriminant validity of our measurement model. Results of the three-factor model (LMX, job demands, and burnout) suggest a good fit (CFI = 0.94; TLI = 0.91; RMSEA = 0.09), significantly better than alternative models of two and one factor, thus supporting our proposed model. Table 1 presents means, standard deviations and correlations between the study's constructs.

We tested our hypotheses using OLS linear regressions. We first tested the models with burnout as our dependent variable. Table 2 presents the results, which show that LMX is negatively related to burnout (b = -.063, SE = .004, p ‹ .001; Model 2), thus corroborating H1. Also, results show that by including job demands in the model (b = .563, SE = .024, p ‹ .001; Model 4), the strength of the effect of LMX on burnout is reduced, which suggests a partial mediation. To examine this possibility, we conducted a mediation analysis using bootstrapped standard errors (5000 replications). Corroborating H2, we found that the average indirect effect of LMX on burnout is negative and significant (b = -.040, SE = .004, p ‹ .01; see Table 2). Further supporting this mediation, we found that LMX is significantly and negatively related to job demands (b = -.070, SE = 0.03, p ‹

.001). These results suggest that LMX can reduce burnout by alleviating physicians' perceptions of their psychosocial job demands and providing them social support.

Table 1. **Means, standard deviations and correlations**

Variables		Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13
1	OLBI	2.74	0,50													
2	JCQ	2.40	0,32	0.64*												
3	LMX	4.33	1.63	-0.36*	-0.45*											
4	Gender	0.66	0.47	0.16*	0.12*	0.02										
5	Age	38.05	11.78	-0.29*	-0.23*	-0.07*	-0.15*									
6	Fear	0.89	0.31	0.09*	0.07*	-0.03	0.09*	-0.07*								
7	Religiosity	0.70	0.46	-0.07*	-0.01	-0.03	0.09*	0.10*	0.04*							
8	Frontline	0.69	0.46	0.14*	0.15*	-0.04*	0.04*	-0.30*	0.07*	0.02						
9	COVID-19 diagnosis	0.13	0.33	-0.01	0.00	0.03	0.01	-0.03	-0.04*	0.04*	0.11*					
10	Work demand	2.85	0.89	0.09*	0.12*	0.03	-0.11*	-0.17*	-0.01	0.02	0.14*	0.12*				
11	Private	0.26	0.44	-0.10*	-0.14*	0.08*	-0.02	0.15*	-0.08*	-0.01	-0.13*	0.05*	-0.02			
12	COVID-19 care	0.88	0.32	0.10*	0.11*	-0.02	0.02	-0.18*	0.07*	0.02	0.45*	0.06*	0.09*	-0.15*		
13	Positive affection	3.49	1.51	-0.65*	-0.42*	0.24*	-0.16*	0.27*	-0.07*	0.08*	-0.11*	-0.01	-0.04*	0.09*	-0.07*	
14	Negative affection	3.71	1.42	0.56*	0.44*	-0.25*	0.16*	-0.21*	0.08*	-0.04*	0.14*	0.01	0.09*	-0.08*	0.08*	-0.55*

Notes. N = 2,708. Frontline/Fear/Covid-19 previous diagnosis/Covid-19 attendance: 0-No / 1-Yes; Gender: 0-Male / 1=Female

Table 2. **Regression models predicting burnout**

	Dependent variable: Burnout (OLBI)			
Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Controls#	Included	Included	Included	Included
Positive affection	-.152***	-.140***	-.122***	-.120***
	(.006)	(.005)	(.005)	(.005)
Negative affection	.099***	.085***	.061***	.060***
	(.006)	(.006)	(.005)	(.005)
Frontline care	.016	.006	.002	-.001
	(.017)	(.017)	(.015)	(.015)
Independent variables				
Psychosocial job demands			0.616***	0.563***
			(0.022)	(0.024)
LMX		-0.063***		-0.023***
		(0.004)		(0.004)
R-squared	0.495	0.532	0.605	0.609

# We included all controls in the analyses.
n = 2,708; *p < .05 **p < .01 ***p < .001; Standard errors in parentheses.

Finally, H3 predicted that these effects of LMX on burnout would be stronger for physicians in the frontline against COVID-19. Contrary to our hypothesis, our results showed a positive moderating effect of frontline care on the relationship between LMX and psychosocial job demands and resources (b = .017, SE = .006, p < .01). Surprisingly, being in frontline seems to attenuate the effect of LMX on decreasing the perception of job demands. This result might be explained by the extreme conditions of pandemics as an adverse environment for leaders to exert influence. To test the indirect effect of LMX on burnout for both physicians acting in the frontline or less exposed roles, we conducted conditional path analysis (moderated mediation) with bootstrapped standard errors (5,000 replications). Our results revealed that the indirect effect of LMX on burnout was significant for both physicians working in the frontline (b = -.037, SE = 0.002) as well for the ones in less exposed positions (b = -.046, SE = .004); however, the effect was stronger for the ones not working directly with COVID-19 patients. Table 3 presents the results for the indirect effects of LMX on burnout.

Table 3. **Mediation and moderated mediation estimates on burnout**

Estimates for indirect effects of LMX	Bootstrapped Coefficient	Bootstrapped SE	CI (Lower Bound)	CI (Upper Bound)
Average indirect effect	-.040	.004	-.040	-.039
Conditional indirect effect				
Frontline physicians	-.037	.002	-.042	-.031
Non-frontline physicians	-.046	.004	-.055	-.038

n = 2,708; *p < .05 **p < .01 ***p < .001; Bootstrapping: 5,000 replications.

DISCUSSION

The ongoing COVID-19 crisis has highlighted the critical role that leaders play in dealing with unexpected and threatening events (Bundy, Pfarrer, Short, & Coombs, 2017; Lagowska, Sobral, & Furtado, 2020). Research has already shown that leaders are particularly effective in shaping the meaning of the events and the understanding of evolving crises (Sobral, Carvalho, Lagowska, Furtado, & Grobman, 2020). The present study adds to this literature by examining the role of LMX on alleviating physicians' burnout through its influence on perceived psychosocial job demands and resources, in the extreme context of COVID-19 pandemic.

Our results confirm that the coronavirus pandemic has had an overwhelming impact on hospital systems and personnel. Particularly, our study shows that the COVID-19 disease has put considerable physical and emotional strain on healthcare workers. Burnout thresholds of exhaustion and disengagement were met by 85.9% and 83.5% of our respondents, respectively. These findings are similar to others reported in other countries during the pandemic, revealing the widespread impact of the coronavirus disease among healthcare professionals (e.g., Lai, Ma, & Wang et al., 2020; Tan et al., 2020).

Further, our findings seem to confirm that physicians experience less burnout when they have a high-quality relationship with their leaders. By providing support, attention, information and feedback, leaders can help physicians restore resources needed to cope with stressful circumstances inherent to pandemic situations as well as reduce role stressors that comprise their psychological demands (Thomas & Lankau, 2009). On the other hand, surprisingly, our results also show that this beneficial effect of LMX is weaker for physicians directly involved with the care provided to COVID-19 patients than for those in less exposed roles.

As we discussed before, frontline physicians are likely to face additional psychological demands arising from having to deal with a more risky, threatening, and constrained work environment. They also suffer a more intense resource depletion at work due to the emotional labor and surface acting needed to cope with such demanding contexts (Xanthopoulou, Oerlemans, & Koszucka, 2018). Thus, we reasoned that because frontline physicians are in such a precarious and stressful work context, they would find in high-LMX relationships an extraordinary way to recover resources and adjust work demands, which would make the LMX effects stronger. However, our findings reveal that in a context of significant extremeness, high-quality exchanges with the leader seem to have less capability to influence psychosocial stressors at work.

Perhaps this happens because frontline physicians experience a workplace environment where collaborative and interdependent behaviors among members are not only valued, but necessary, which fosters a strong team-oriented culture (Erdogan, Liden, & Kraimer, 2006). Team-oriented cultures stress getting along with others (i.e., co-workers), and developing trust-based bond with them, which may play a crucial role in helping employees to deal more effectively with work demands and stressors on the job. In such contexts, social support and influence may be supplied by team members, not necessarily by their leaders, which would explain a weaker effect of LMX on job demands and resources for frontline employees. This reasoning is aligned with the notion of "substitutes for leadership" (Kerr & Jermier, 1978) – factors reducing leaders' ability to influence outcomes by replacing the influence of leader behaviors.

We speculate that another possible explanation can be that the demands and role expectations inherent to high-LMX relationships, which are usually well accepted (Gerstner & Day, 1997), can become additional role stressors for the COVID-19

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frontline physicians, who are already overwhelmed due to the pandemic, thereby diminishing the beneficial effects of LMX. This is consistent with Scandura and Pellegrini (2008) depiction that "subordinate's high-quality exchanges with the supervisor may no longer counteract the demands of increased workload and stress" (p. 103). Notwithstanding, our finding corroborates Hällgren et al. (2018) claim that extreme contexts may create particularly unique contingencies and constraints that can be a lever for counterfactual reasoning.

Overall, our results show that LMX matters even in extreme contexts. Although the critical role of supportive leadership and leadership behaviors in extreme settings has been recognized (Bundy et al., 2017), this remains one of the least researched areas in the leadership field (Hannah et al., 2009). Accordingly, research that explores the effectiveness of certain styles and behaviors for work outcomes is almost absent. Therefore, the present study contributes to the role of LMX in the wake of an extreme context, such as the COVID-19 pandemic. Further, regardless of the contextualized outlook, by acknowledging how LMX is linked to burnout among medical staff, our study addresses recent calls for research on the role of specific leadership perspectives on psychological syndromes, such as burnout and post-traumatic stress disorder (Kelly & Hearld, 2020).

The problem of burnout among physicians is particularly troubling because the decreased quality of care given to patients can result in permanent damages, and even the loss of lives. In this regard, from a practitioner standpoint, our results suggest that healthcare organizations should foster high-quality relationships among their medical staff as this is an excellent antidote for diminishing the experience of burnout. For this purpose, leadership training programs could, therefore, highlight ways to improve the relationship quality between medical supervisors and their staff. In this respect, physicians in leadership positions should learn how to treat their colleagues with respect, give sufficient feedback, as well as to identify the needs and development potential of the healthcare workers under their supervision.

As with all correlational research, a limitation of this study is that the causality of relationships could not be determined. We assumed that LMX relationships affect individuals' burnout. However, we cannot exclude the possibility that individuals suffering from burnout reduce their appraisal of their LMX relationships. Also, as we collected data via self-report surveys, we cannot exclude the existence of common-method variance (CMV). To minimize such effect, we included positive and negative affection as control variables in our models, as they are measures of presumed causes of CMV. Nevertheless, future longitudinal research could resolve these issues.

CONCLUSION

Burnout has become an epidemic in healthcare organizations. According to a survey conducted with more than 15,000 physicians, the prevalence of burnout was found to be around 42% (Kane, 2020). The COVID-19 pandemic, however, has raised even more concerns about burnout among medical doctors, particularly because societies depend on these professionals to overcome this threat. In this sense, our findings shed light on the role of leadership, particularly LMX, in alleviating burnout in this time of the coronavirus. Specifically, our findings highlight the importance of creating an environment conducive to the construction of positive work relationships based on mutual trust and respect for diminishing harmful psychological syndromes among physicians.

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AUTHORS' CONTRIBUTIONS

Eduardo Moura, Liliane Furtado e Filipe Sobral worked on the conceptualization and theoretical-methodological approach. The theoretical review was conducted by Liliane Furtado. Data collection and analysis was conducted by Eduardo Moura. Filipe Sobral coordinated the writing and final revision of the manuscript.

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AN ENGAGED UNIVERSITY: RESCUING SMES DURING THE COVID-19 CRISIS

Universidade engajada: Resgatando PMEs na crise da Covid-19

Universidad comprometida: Rescatando PYMES durante la crisis de COVID-19

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ABSTRACT

The economic effects of isolation policies resulting from the COVID-19 pandemic have led small and medium-sized enterprises (SMEs) to look for alternatives to survive. Within this crisis scenario, an engaged university has an important role to play in a regional context in addressing not only health issues, but also any resultant social and economic problems. An engaged university needs to take actions that go beyond its traditional missions of education and research - it has to deliver knowledge to society. This paper analyzes a university-community project in Brazil to identify the necessary elements that help promote a regionally-engaged university: the SOS-PME Advisory Network project, which was originally designed to assist SMEs during the crisis. As a result, we identified elements necessary for promoting the university's third mission - social engagement by way of a university-community project: an engaged team, multidisciplinarity, project management, agility, alliances, a communication strategy, institutional support, and reputation.

KEYWORDS | Engaged university, engagement, COVID-19, SMEs, project management.

RESUMO

Efeitos econômicos das políticas de isolamento da pandemia da Covid-19 levaram pequenas e médias empresas (PMEs) a buscar alternativas para sobreviver. Em cenários de crise, uma universidade engajada tem um papel importante ao abordar não apenas questões de saúde, mas também problemas sociais e econômicos em contextos regionais. Neste artigo, um projeto de universidade-comunidade é analisado com o intuito de apontar os elementos necessários para promover uma universidade regional engajada: a Rede de Assessoria SOS-PME, originalmente projetada para apoiar PMEs durante a crise. Uma universidade engajada entrega conhecimento para a sociedade, além de educação e pesquisa. Como resultado, identificam-se elementos para promover a terceira missão da universidade engajada – engajamento social: equipe engajada, multidisciplinaridade, gerenciamento de projetos, agilidade, alianças, estratégia de comunicação, e suporte e reputação da instituição.

PALAVRAS-CHAVE */ Universidade engajada, engajamento, Covid-19, PMEs, gestão de projetos.*

RESUMEN

Los efectos económicos de las políticas de aislamiento de la pandemia de COVID-19 han llevado a las pequeñas y medianas empresas (PYMEs) a buscar alternativas para sobrevivir. En un escenario de crisis, una universidad comprometida desempeña un papel importante para abordar, no solo los problemas de salud, sino también los problemas sociales y económicos en un contexto regional. En este artículo, se analiza un proyecto universidad-comunidad con la intención de señalar los elementos necesarios para promover una universidad regional comprometida: la Red de Asesoramiento SOS-PME, originalmente diseñado para apoyar a las PYMEs durante la crisis. Una universidad comprometida necesita llevar adelante acciones más allá de sus misiones tradicionales de educación e investigación; debe transferir conocimiento a la sociedad. Como resultado, identificamos cuáles son los elementos necesarios para promover la tercera misión de una universidad con compromiso social: equipo comprometido, gestión de proyectos, agilidad, alianzas, multidisciplinariedad, estrategia de comunicación y apoyo, y reputación de la institución.

PALABRAS CLAVE */ Universidad comprometida, compromiso, COVID-19, PYMEs, gestión de proyectos.*

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INTRODUCTION

Countries are implementing different degrees of lockdown and social distancing rules (World Health Organization [WHO], 2020). The effects of the COVID-19 pandemic have moved outside the border of health issues and created an economic crisis without precedent. Since any suspension of economic activities reflects on the gross domestic product (GDP) and employment rates, it is concerning that at least 600,000 micro and small enterprises have closed down their business due to this pandemic, while revenues have decreased in almost 88% of all businesses in Brazil (Serviço Brasileiro de Apoio às Micro e Pequenas Empresas [Sebrae], 2020). In 2018, these companies accounted for 54% of all formal jobs and 27% of the country's GDP (Sebrae, 2018), which increases the potential negative impact on the Brazilian economy by even more.

According to the Instituto Brasileiro de Geografia e Estatística (IBGE, 2020), by June 2020 70% of the companies operating in Brazil had reported negative impacts on their activities due to the pandemic – reductions in sales, production and services, and problems with keeping supply chains stocked and access to them open, although 13.6% of these companies reported positive effects. In August-2020, 40% of all construction companies and 39.7% of all retail businesses were suffering severe negative effects (IBGE, 2020).

In this scenario, universities that have a recognized trajectory of civic engagement, such as the Universidade Federal do Rio Grande do Sul (UFRGS), have had a major role to play in developing projects for addressing not only health issues, but also social and economic problems. The SOS-PME Business Advisory Network was developed within this context, to provide small and medium-sized enterprises (SMEs) that have been economically damaged by the COVID-19 crisis with viable solutions for facing up to it. But what is the role of universities in the face of this crisis? How can universities contribute to society in order to overcome the negative economic impacts triggered by this pandemic crisis? How can universities mobilize to help businesses that are threatened by the crisis?

Entrepreneurial universities comprise a variety of academic traditions, decision-making levels, research values, and sub-organization cultures that form a complex system that tries to become an important agent in society for economic growth and social change (Klofsten et al., 2019). The regionally-engaged university model relates to the task universities have of transferring knowledge to small and medium-sized local enterprises (Uyarra, 2010). In this theoretical approach, however, a gap remains with regard to the role of regionally-engaged universities (Perkmann et al., 2013) in a crisis setting. The literature dealing with the civic engagement of higher education does not have the visibility and recognition that its results deserve, and it has been dominated by experiences from North America and Europe (Watson, Hollister, Stroud, & Babcock, 2011). Thus, this paper aims to analyze those elements that are mobilized within a project for supporting SMEs during the COVID-19 crisis and that help promote a regionally-engaged university within the Brazilian context.

In order to do so we conducted a case study of the UFRGS SOS-PME Advisory Network. This project, which was initially developed in the Management School, has quickly gained supporters from different departments in UFRGS and from other community participants. The main objective of the project is to help small and medium-sized local businesses co-create solutions for overcoming the economic crisis. To do so the Network offers a consultation process involving researchers and students from the university and community volunteers, thus promoting an exchange of knowledge between UFRGS and the community.

Universities have been entrusted with multiple missions (Sánchez-Barrioluengo & Benneworth, 2019). Besides their two main missions of education and research, they must translate this research into technological development, inspire change in social and government practices (Wadhwani, Galvez-Behar, Mercelis, & Guagnini, 2017), and engage in knowledge exchange activities, all of which will ultimately drive regional development (Perkmann et al., 2013; Sánchez-Barrioluengo & Benneworth, 2019). It is important to point out that knowledge exchange may be both direct and unidirectional by way of technology licensing, or less direct and bi-directional, involving partnerships with local businesses by way of consultancy and conversation (Breznitz & Feldman, 2012). As the theoretical and management contributions of the research we identified those elements of a regionally-engaged university that were strengthened by way of a university-community project. These elements can help develop university projects that involve the third mission of UFRGS and other regionally-engaged universities.

To understand SOS-PME as being a project, in this paper we assume the definition of a project to be "a temporary organization to which resources are assigned to do work to bring about beneficial change" (Turner, 2006, p. 1). Thus, we used elements such as project organization, project management, outputs (direct results), and outcomes (benefits) to organize the presentation of the project. For the discussion, we used the theoretical elements of regionally-engaged universities as our analysis guidelines.

In the next section we present a literature review of entrepreneurial universities, more specifically of regionally-engaged universities and their theoretical elements. The third

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section describes the methodological procedures we adopted in the research. We then explore the study results and present our discussion. Final considerations consider the main contributions and the research limitations.

A REGIONALLY-ENGAGED UNIVERSITY

Universities are evolving towards a more entrepreneurial model and no longer focus exclusively on education and research (Etzkowitz, 2004; Lazzeroni & Piccaluga, 2003). They can serve as a driving force for economic growth and prosperity (Guerrero, Urbano, Fayolle, Klofsten, & Mian, 2016), and during a crisis scenario, for the survival of the local economy. The role of an entrepreneurial university goes beyond merely generating knowledge products. Universities have a leading role to play in creating entrepreneurial thinking and actions, and developing entrepreneurship capital (Audretsch, 2014). Despite the discourse claiming that universities are 'ivory towers' and have no regard for the public good, many academics are motivated by their deep desire to make a difference by helping society (Renwick, Selkrig, Manathunga, & Keamy, 2020).

Taking a broader view, an entrepreneurial university empowers the whole of its community to commit to developing a mindset for generating knowledge, and of creativity, and innovation in times of uncertainty. Such universities assume the mission of solving complex problems and creating opportunities as a means of adding value to society and contributing to sustainable development, both locally and internationally (Listo, 2019).

To place the entrepreneurial transactions of the university in the context of organizational structure and the wider innovation system, we present three university models based on a set of typical third mission outputs, following Perkmann et al. (2013), Cohen, Nelson, and Walsh (2002), and Sánchez-Barrioluengo & Benneworth (2019): (i) the entrepreneurial university, which focuses on commercialization activities, such as patents, licenses, and spin-offs, is considered one of the best ways of measuring the market's acceptance of academic products; (ii) considering its knowledge transfer potential, the engaged university that is involved with 'soft activities', like collaborative research, contract research or consulting, is more valued than if it registers university patents for many enterprises; and (iii) the regionally-engaged university that emphasizes engagement via soft activities for improving local absorption capacity and increasing the knowledge of its regional environment.

The regional contributions of a university are "knowledge spillovers" (Benneworth & Charles, 2005; Drucker & Goldstein, 2007) generated by regular interaction with stakeholders, like knowledge producers, users, intermediaries, and policy makers, for creating local networks (Cooke, Heidenreich, & Braczyk, 2004). Encouraging the formal/informal transmission of knowledge that does not involve financial compensation (Olmos-Peñuela, Molas-Gallart, & Castro-Martínez, 2013; Trippl, Sinozic, & Lawton-Smith, 2015; Wang, Hu, Li, & Pan, 2016) allows external actors easier access to knowledge-based resources (Ponds, Oort, & Frenken, 2010).

According to Cherrington, Scheckle, and Khau (2019), the key concepts for supporting the engagement of the university community itself and the community the university serves are: dialogical engagement, community, and active citizenship. To create such engagement requires a sense of community and cohesion, which is supported by collaboration, trust, and open communication. It involves constant dialogue and reflection, besides intentionality and the commitment of all stakeholders to collaborate.

Among the elements that mobilize and shape the engagement of the universities' civic and social responsibility, as identified by Watson et al. (2011), are the extent of the community's unmet needs; the commitment of institutional leaders to raising university engagement; government policies that promote or require student service and engagement programs; the university's reputation; challenging financial constraints; greater incentives for research and teaching in the traditional academic system as an obstacle; and dependence on student expectations and leadership (this might be important experience, and relevant to their employment prospects, or it might be an activity that competes with their academic studies).

Putting the engagement role into practice might orient universities towards knowledge transfer outcomes, or more general contributions to regional economic development activities (Sánchez-Barrioluengo & Benneworth, 2019). When universities interact regionally they promote local innovation and economic development (Klofsten et al., 2019). This is true under normal circumstances, and crucial when there is a crisis. When economic prosperity is not possible, the regionally-engaged university may, at least, help mitigate the economic problems of companies. Universities can develop different, but equally valuable approaches for creating a contribution to society and improving these engagement models. Although there is no 'one-size-fits-all' model, a framework for the mobilized elements should guide university actions (Sánchez-Barrioluengo & Benneworth, 2019). Exhibit 1 summarizes the theoretical elements of a regionally-engaged university, arranged by category.

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Exhibit 1. **Theoretical elements of a regionally-engaged university**

Engagement	• academics really want to make a difference; • require student service and engagement programs; • dialogic engagement; • active citizenship; • sense of community and cohesion.	Cooke et al. (2004); Watson et al. (2011); Cherrington et al. (2019).
Collaboration	• developing a mindset for knowledge generation, creativity, and innovation under uncertainty; • commitment of all stakeholders to collaboration; • regular interactions between stakeholders, like knowledge producers, users, intermediaries, and policy makers creating local networks; • collaboration, trust and open communication.	Listo (2019); Cherrington et al. (2019); Cooke et al. (2004).
Value-added results	• solving complex problems and creating opportunities; • adding value to society and contributing to sustainable development; • helping mitigate the economic problems of businesses.	Listo (2019); Sánchez-Barrioluengo & Benneworth (2019).
Institutional reputation and support	• commitment of institutional leaders; • university's reputation.	Watson et al. (2011).
Knowledge as a process	• soft activities to improve the local absorption capacity; • formal/informal knowledge transmission; • allows external actors easier access to knowledge-based resources.	Sánchez-Barrioluengo & Benneworth (2019); Olmos-Peñuela et al. (2013); Trippl et al. (2015); Wang et al. (2016); Ponds et al. (2010).
Knowledge as a result	• increasing the knowledge of its environment; • contributions are "knowledge spillovers"; • knowledge transfer outcomes or more general contributions to regional economic development activities.	Sánchez-Barrioluengo & Benneworth (2019); Benneworth & Charles (2005); Drucker & Goldstein (2007); Sánchez-Barrioluengo & Benneworth (2019).

METHODOLOGICAL PROCEDURES

We carried out a case study of the UFRGS SOS-PME Advisory Network project to obtain a deeper understanding of this particular phenomenon (Yin, 2003) and the dynamics present in this particular setting (Eisenhardt & Martin, 2000). UFRGS is a nationally and internationally recognized education institution, which is ranked among the best universities in Brazil (UFRGS, 2020b), and qualified as an entrepreneurial university. The SOS-PME project, which initiated right after the beginning of the COVID-19 pandemic in Brazil, aims to help small and medium-sized enterprises (SMEs) that have been negatively impacted by the effects of this pandemic, and is important for showing how agile and responsive to the emerging needs of society an engaged university can be.

Data collection involved: a) 155 forms completed by business owners and providing information about their businesses, such as the number of employees, the sector, and the main products, as well as information regarding the reported impact of the pandemic on their business; b) 340 forms completed by multi-disciplined volunteers with information that includes their relationship with the university, their experience and areas of expertise for assisting companies; c) 83 reports developed by business advisory teams, containing team formations, a diagnosis of the companies' main problems and guidance on how to address them; d) 34 assessment forms filled out by business owners regarding their satisfaction with the advisory process, the platforms used and the service provided by the advisory team; and e) 42 assessment forms completed by volunteers regarding their satisfaction with the advisory process and their perception of the positive and negative aspects of the project. The data from these documents were consulted to describe the agents involved in the project and to identify, among other aspects, elements of their process of engagement, the aim being to identify via content analysis those representative elements of the project that promote an engaged university (Bardin, 1977).

Finally, by way of participant observation (DeWalt & DeWalt, 2002), and using the theoretical elements of a regionally-engaged university we were able to analyze the project's relevant aspects for achieving the research objectives, such as the project's organization and management process, including the communication strategies that were used throughout the advisory process and with different actors. Each of the project coordinators shared their observations in a weekly online meeting. These

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project coordinators observed the dynamics of the teams and the results achieved during the weekly online meetings and project management boards, and the elements that were observed were registered in the meeting minutes. These documents were used as the basis for much of the project's qualitative analysis. Exhibit 2 summarizes the sources and data analysis strategy, arranged by research objective.

Exhibit 2. **Sources and data analysis**

Research Objective	Sources	Data Analysis Strategy
Understanding the demands triggered by the impact of the crisis on the observed community (small and medium-sized businesses)	155 forms filled out by business owners	Descriptive statistics
Understanding the community's involvement and team compositions.	340 forms filled out by volunteers 83 reports developed by business advisory teams 13 links in the Advisory Network Partners Map	Descriptive statistics Content analysis
Analyzing the team involvement with the advisory process, its dynamics, and results.	Trello board activity Observing alignment meetings Observing the advisory process	Content analysis
Identifying the effects of the activities carried out by the project, which may bring beneficial changes or deliver positive results.	25 Lives +2500 views Co-creation step observation (advisory process) 15 local and regional media interviews 34 business owner's satisfaction assessment 42 volunteer's satisfaction assessment 2 Projects derived and 1 new service	Descriptive statistics and Content analysis

To conduct this analysis, we used descriptive statistics for analyzing the data collected via forms in order to describe the business profiles, the impacts the companies faced as a result of the pandemic, and to map out their needs. We also used content analysis (Bardin, 1977) of the final reports that were prepared for each business and present the results that emerged from the analysis of all these organized data. As we said before, the SOS-PME is a project, and the Results Section describes its organization, management, outcomes and outputs, while discussion of the results is based on the theoretical elements of a regionally-engaged university.

RESULTS

Brazil was facing different degrees of social isolation when, on March 16, 2020, UFRGS suspended all non-essential on-campus activities, including teaching. In this scenario, and believing that universities have a major role to play in addressing social and economic problems, at the end of March the SOS-PME UFRGS project was launched. One of the key drivers for engaging a university's civic and social responsibility is the severity of the community's needs (Watson et al., 2011). The critical situation of SMEs sensitized a group of academics who mobilized to create this project. Originally designed by a group of scholars from the Management School, it quickly brought on board the UFRGS Scientific and Technological Park, scholars from other units, and even other universities. Business owners and volunteers were invited to register to take part in the project. The company problems initially addressed were: finance and accounting, strategic and operations management, marketing, human resources, and information technology.

SOS-PME project organization

The project was organized into service teams, each led by a coordinator, usually a member of the university (a professor or one of the administrative staff), or an alumnus who is recognized

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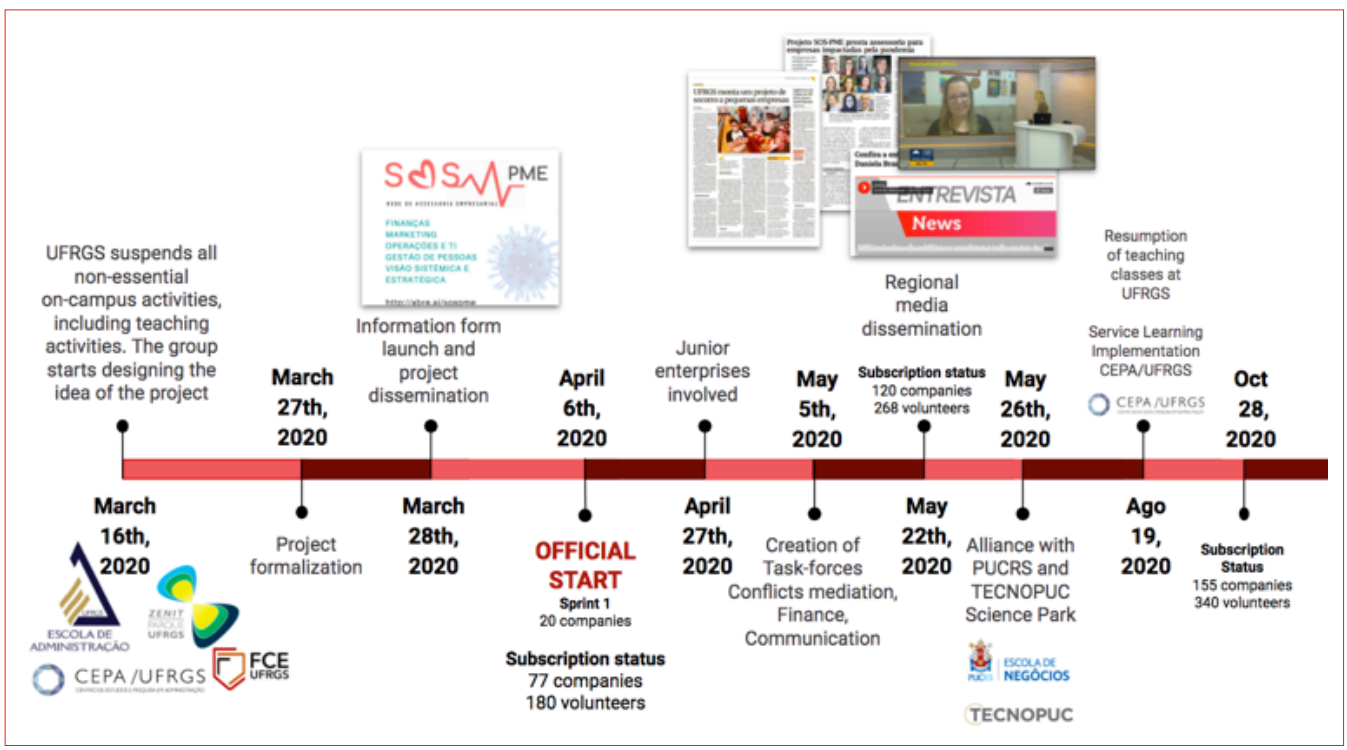
as a researcher or an acting senior entrepreneur, and at least three further volunteers. The team members were chosen by the coordinator to guarantee multidisciplinary and complementary coverage of the expertise needed for the business chosen for help. Most of the team members were graduate students who considered it to be a valuable learning experience, besides making a relevant social and economic contribution to society. It corroborates the importance of students' positive expectations when they engage in university-community projects (Watson et al., 2011), but also highlights the leadership role of scholars when they head them up.

The teams were involved in the process of assisting entrepreneurs and could count on specific help from special task forces. It is important to highlight that the internal organization of the team meetings did not consider hierarchies when helping the businesses. During the meetings, members interacted in a 'flat' manner, with university members, entrepreneurs, and volunteers engaged because of the importance of the personal knowledge they have and to ensure that contributions would be multidisciplinary. This symmetrical exchange and co-creation of knowledge favored the commitment, dialogue, and reflection of all stakeholders, and supported university-community engagement (Cherrington et al., 2019).

Special task forces were also created with volunteers from different units. They acted on specific subject-matters that were identified as being critical, including communication, financial analysis, and conflict mediation to support specific teamwork demands with regard to crucial points of service. The partnerships also worked with Junior Enterprises and other projects helping businesses that were suffering from the impact of the pandemic, such as COVIDesign. An alliance with another university has also been set up to expand the network and, hence, the number of businesses being assisted. Participants in the project are filled with a sense of cohesion, which is strengthened by the open communication and collaboration that are decisive elements in university-community engagement (Cherington et al., 2019). This has boosted the positive impacts, resulting in a large number of both satisfied companies and volunteers.

Figure1 shows how the project timeline evolved, including when the partners have joined the project. Figure 2 shows the 13 inter- and intra-institutional links that were created in the advisory network partners map, indicating the different university centers and partners that are supporting the project. In four months, the project involved 155 SMEs and 340 volunteers, including academics, administrative staff, students, alumni, and professionals from the community.

Figure 1. **Project timeline**



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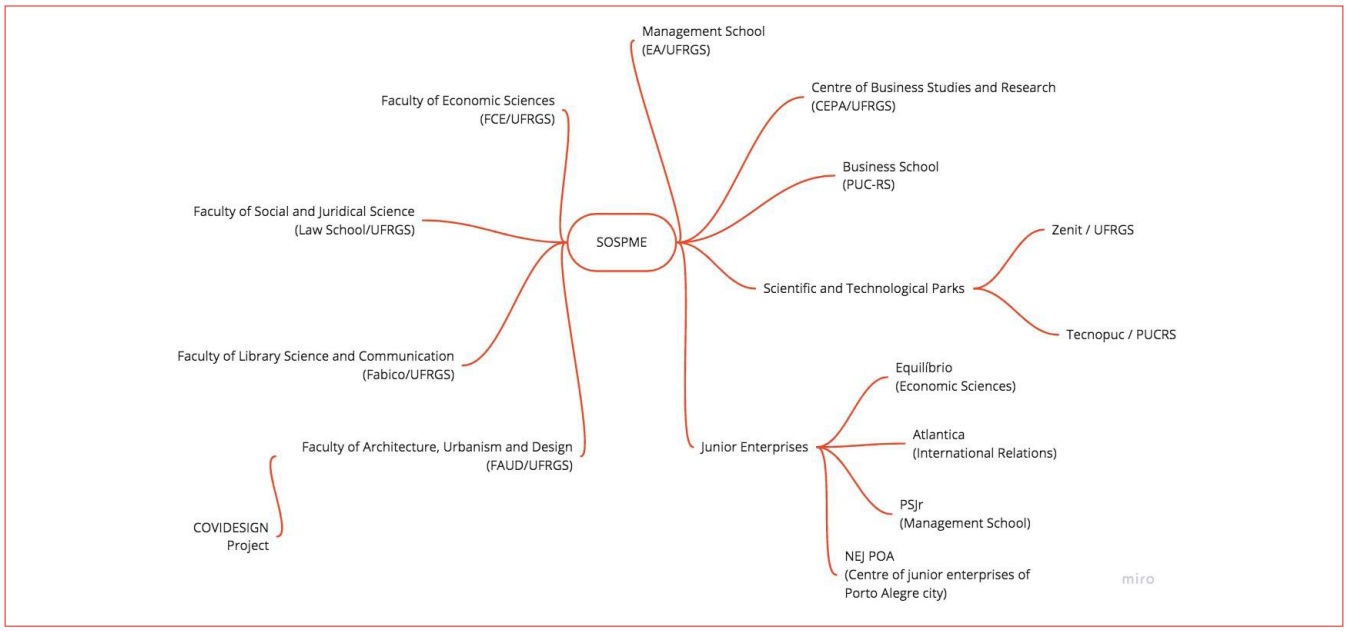
Daniela Francisco Brauner | Fernanda Maciel Reichert | Raquel Janissek-Muniz | Aurora Carneiro Zen | Daniela Callegaro de Menezes | Lisiane Quadrado Closs
Wendy Beatriz Witt Haddad Carraro | Carla Simone Ruppenthal | Fernanda Maria Müller | Marcelo Soares Lubaszewski | Marisa Ignez S. Rhoden

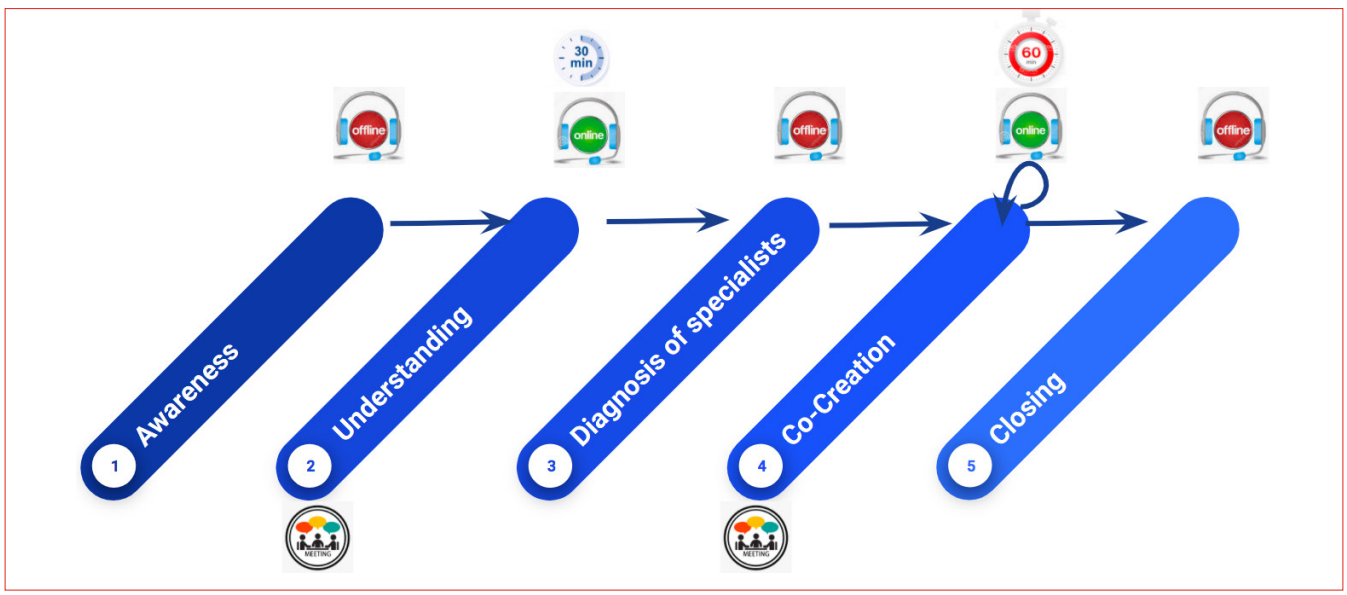
Figure 2. **Advisory network partners map**



SOS-SME project management

Because of social distancing, all projects were managed and executed entirely online, with coordinators, volunteers and business owners using interaction mechanisms. The projects are managed in sprint cycles, based on the Scrum Agile Framework (Schwaber & Beedle, 2002). Each sprint backlog comprises a set of prioritized businesses taken from the project backlog of all registered businesses. The team coordinators have weekly meetings to discuss sprint progress, and to share advisory tips and any other emerging issues. At the end of each sprint, there is a collaborative review of the process during the meeting to reconfigure the advisory process or to prioritize criteria. Once the sprint backlog is established, each team coordinator chooses a business to assist and the volunteers for his/her team, according to the knowledge that needs to be addressed relative to the requirements of the business. The advisory process takes place in five main stages: awareness, understanding, diagnosis, co-creation, and closing (Figure 3).

Figure 3. **Advisory process**



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The coordinator of each advisory team is responsible for communicating with the business owners and volunteers. Each advisory process takes approximately 10 days to finalize. The business assistance provides mainly customized guidelines and alternatives, considering the context, the business situation, and the business owner's involvement in the co-creation of alternative pathways for their particular problems. By the end of the assistance, a report with recommendations is delivered to the business owner, along with a link to the satisfaction assessment form. Businesses with special requirements may receive further advice from project partners.

In managing these activities, SOS-PME coordinators use a combination of collaborative and free, online support tools, such as: Google Drive and Forms for collecting data and storing and sharing project files, Elos.vc platform for online meetings; WhatsApp for communication; *Padlet* for sharing knowledge internally and externally, and developed as a tips board for disseminating general information and providing support materials for the advisory teams, business owners, and volunteers; while Trello, the platform used to run the entire project, centralizes knowledge, and works as a tool enabling advisory teams to communicate among themselves. The business assistance provided is managed on this platform, on which business information, team members, and volunteers are included, task forces are tagged and the history of responsibilities is registered.

SOS-PME outcomes

A common weakness of several of the business owners was their inability to react at the beginning of the pandemic. The sudden need to close physical stores, the global need for digital transformation, and the prospect of reduced revenue have emotionally destabilized many business owners. They were unable to consider possible alternatives and act on the changes required. Listening to community problems and mobilizing volunteers with different expertise, the SOS-PME teams were important for indicating alternatives and bringing positive perspectives to business owners as knowledge was exchanged in co-creation activities involving university staff (researchers, students, and administrative staff) and society (volunteers and businesses owners).

Figure 4 shows the characteristics of the businesses and the situation they were in when they applied to the project. The main problems they reported were systemic vision and strategy, finance, and marketing (70%). These problems, however, were not necessarily confirmed during the meetings. A shortage of cash as a result of the pandemic, for example, pointed to finance as a requirement, when the real need was actually related to other areas, such as marketing, sales, strategy, or operations. Most business owners said that the state their companies were in was either an emergency (32.9%), or urgent (47.1%). The impact of reduced revenue was reported by 76.1% of the businesses, with 52.9% of them indicating a reduction in revenue of more than 50%, while more than half intended to close or greatly reduce their operations. Poor management controls and a lack of tools were also identified. Some businesses were already facing financial difficulties that had been aggravated by the sharp drop in revenue caused by the pandemic, and few enterprises had savings to face up to unexpected events, like the current crisis.

The main business sectors helped were services, food processing, retail and trade, and distribution. With regard to the age of the companies and the number of employees, they have been operating, on average, for 11 years, and have 5 employees, excluding outliers. The situation reported by the entrepreneurs, sensitized the project staff, thereby ensuring a sense of urgency, greater involvement, and speed of delivery.

After the advisory process, the main problems found were: a reduction in revenue; adaptation of the business operation; keeping a financial balance; retaining employees; and obtaining loans. As a result of the advisory process, the teams provided the business with possible solutions and alternatives, with recommendations as to the short and medium-term efforts needed to increase revenue and reduce expenses (Exhibit 3). The scientific knowledge and previous reputation of the university, combined with the knowledge acquired from analyzing the data and helping the businesses, provided the researchers and volunteers involved in the project with practical knowledge of the real impact of the pandemic on local businesses. This led to the project and the university being recognized in the community, as a reflection of which team members were invited to participate in interviews for 15 local and regional newspaper articles, and take part in TV and radio interviews over a period of 6 months.

The volunteers expressed their satisfaction with the project, as the following report testifies: "Participating in the SOS-PME project has been very gratifying. I learned a lot from the situations and experiences of the business owners and I had the opportunity to apply my knowledge to solve the real problems of these people and their businesses".

Business owners also expressed their satisfaction with the project. Common quotes from them were similar to the following: "Listening to the opinions, understanding the problems and getting ideas from the advisory group was all

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very valuable and contributed to solutions emerging for overcoming the crisis and surviving it". Overall, the feedback from all the participants has been extremely positive and of great gratitude.

Figure 4. **Businesses situation**

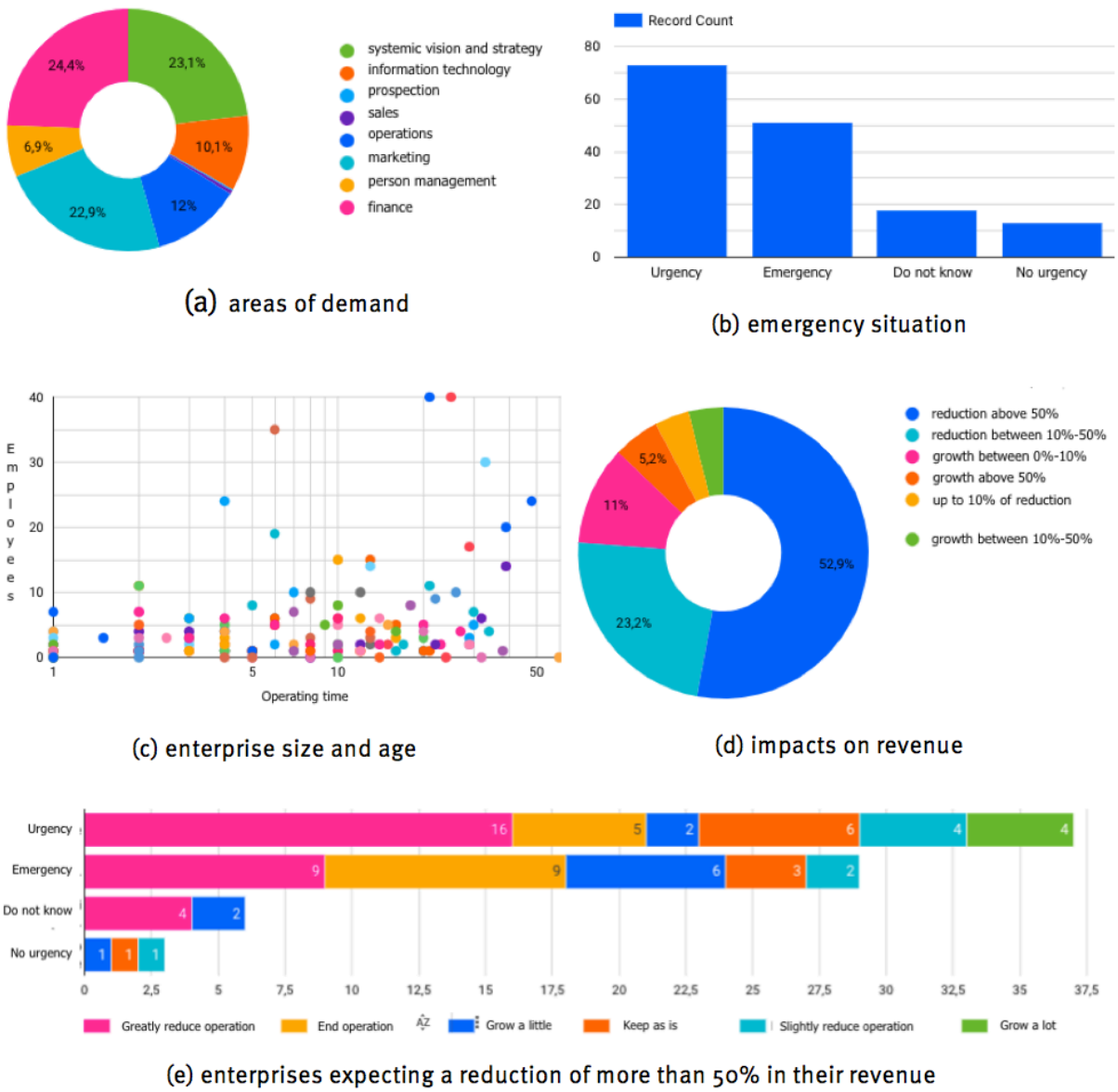

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Exhibit 3. **Main recommendations**

Efforts to increase revenue	Efforts to reduce expenses

• Adapt sales/services/communication to digital media;
• Product delivery;
• Sales promotions/customized sales;
• Offers of new products/services;
• Market expansion through digital platforms (courses, e-commerce, social networks);
• Expansion of business partnerships;
• Communication efforts:
  * Strengthening communication in digital media/social networks;
  * Generating content to strengthen relationships with customers;
  * Positioning/repositioning of the business/brand.
	• Cash flow management;
	• Tax management;
	• Inventory management;
	• Operational/business process improvements;
	• Negotiation with suppliers/customers;
	• Implementation of control tools;
	• Use and implementation of management tools;
	• Managing and retaining employees;
	• Control/reduce cash withdrawals from members;
	• Reduced product offer (focus);
	• Strategic pricing of products/services.

SOS-PME outputs

In this section we describe the direct outputs of the project. Over and above the companies that have been helped, two new project propositions have emerged and a new service has been started. In addition to the assistance that was provided, in order to guarantee that there was an exchange of knowledge between researchers, volunteers, and business owners, Instagram lives were held on topics that were relevant to the main needs that had been identified. These videos, which were viewed more than 2500 times, were open to the community, with invitations being specifically sent to all entrepreneurs and volunteers registered with the project.

Because of doubts about layoffs involving the businesses that were helped, as well as numerous questions about whether the careers of these entrepreneurs would continue, a new project was developed for helping the unemployed, or those seeking a new direction in their careers. The project entitled *SOS Carreiras* brings together researchers and volunteers from the people management research area, and since June 2020 has been providing 63 people with career guidance and introducing them to entrepreneurship as a possible new career.

With the resumption of teaching activities at the university, we saw the opportunity to combine the advisory services for business owners with the learning activities on undergraduate courses. In this sense, service learning, active teaching, and learning methodology have emerged as an opportunity for community development using the project experience as an instructional strategy to meet learning goals (Jacoby, 1996). A pilot service was created within the scope of the UFRGS Center for Studies and Research in Business, with nine undergraduate courses from the two main state universities becoming affiliated; together they will assist more than 40 entrepreneurs.

Another important project derived from SOS-PME is the Mentoring Network, which aims to construct a network to bring together volunteers who want to connect with the university in order to be mentors for entrepreneurs who are involved with activities of the School of Administration in business development and entrepreneurship. They would help by working with research projects, undergraduate learning disciplines, and other initiatives. The project includes the development of a recommendation system in partnership with a federal institute in Southeast Brazil to guide the process of matching volunteer expertise with the needs of entrepreneurs.

DISCUSSION

By analyzing the SOS-PME project, it was possible to identify features that were considered essential for its performance. These features were arranged in categories as shown in Figure 5, which is explained below.

Initially, we can understand how important knowledge exchange is. We see it as a mainstream action that is the basis of the SOS-PME project initiative. It is found in planning actions for making the project operational and in the results.

The first element that was mobilized during the project was engaging leaders and volunteers from the university community, including faculty members, undergraduates, graduates and former students, thereby promoting interactions between stakeholders, like knowledge producers and users (Cooke et al., 2004). The second element is multidisciplinary knowledge. As the volunteers have different backgrounds, task forces in specific topics were created, which enabled different knowledge to be exchanged (Olmos-Peñuela et al., 2013; Trippl et al., 2015; Wang et al., 2016) with local SMEs (Uyarra, 2010). This was important for mobilizing the different areas of knowledge. The multidisciplinary nature of the project favored the establishment of internal and external alliances that offered a variety of services in accordance with the necessities of the businesses, and created local networks among stakeholders (Cooke et al., 2004).

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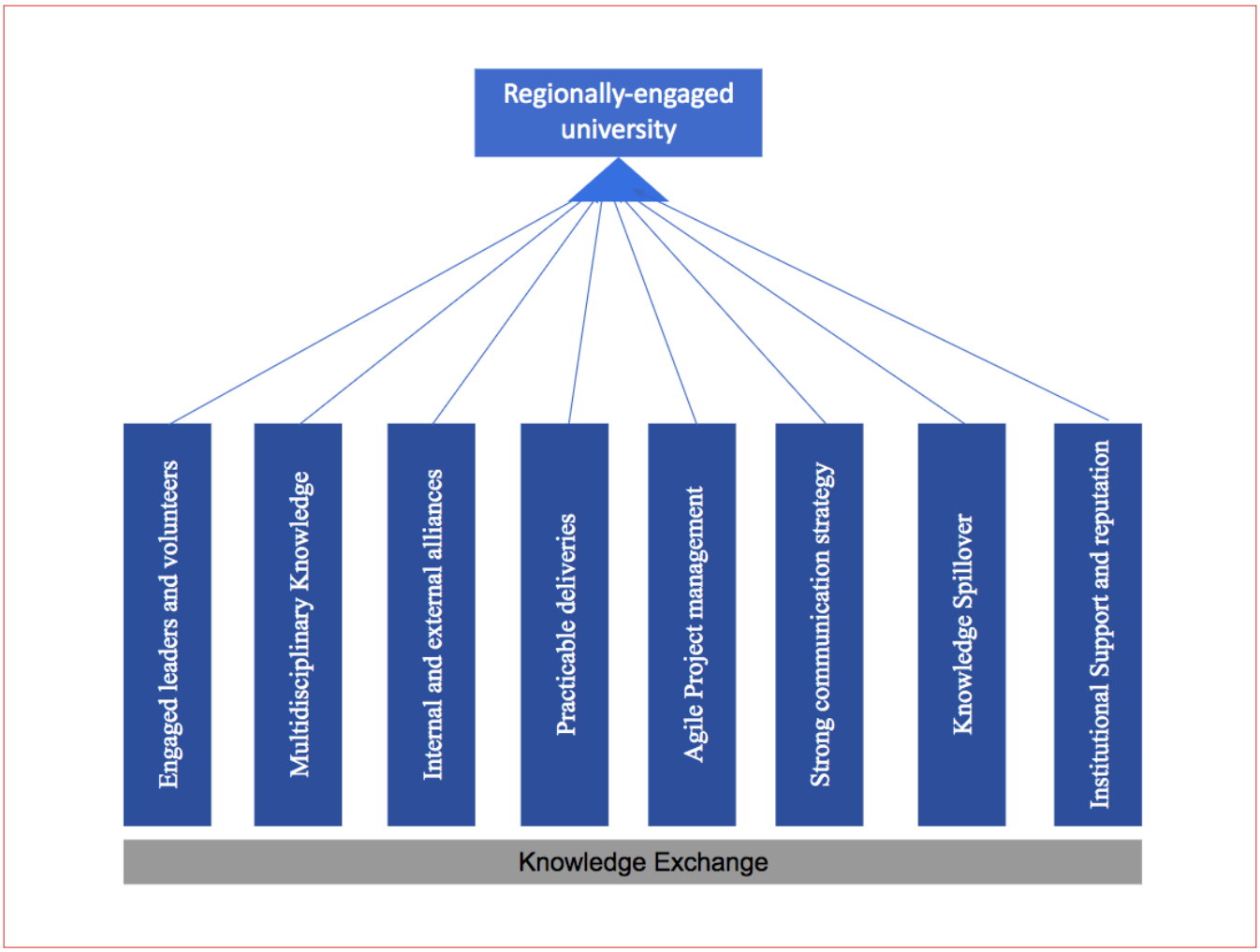
Figure 5. **Elements mobilized for the SOS-PME project that promotes a regionally-engaged university**



Klofsten et al. (2019) state that regionally-engaged universities must be capable of promoting local innovation and this can be noticed when we consider two of the identified elements. One is the importance of agile project management. Because of the context of the pandemic, the project coordinators used free online tools for managing it virtually and for interactions between companies and volunteers. The other element, which was inspired by agile methodologies, used short interactions to achieve practical outcomes by way of a standard and fast advisory process to ensure quick responses, as a strategy for increasing volunteer engagement and for delivering results to business owners in urgent and emergency situations.

A strong communication strategy is very important for guaranteeing regional engagement and social recognition. SOS-PME's communication, which used social networks and the general media, added value to the project and the local community, attracted participants, and facilitated access to knowledge-based resources (Ponds et al., 2010). A sense of urgency was also essential for guaranteeing engagement.

Knowledge spillover occurred during the interaction with the general community, as pointed out by Benneworth & Charles (2005) and Drucker & Goldstein (2007). Instagram lives, the SOS Carreiras project, and the Mentoring Network project were means of spreading the knowledge that was exchanged when helping the entrepreneurs.

Finally, institutional support and reputation were essential for including society and guaranteeing the seriousness of the project to all participants, whether business owners, volunteers, or other partners.

Using the theoretical elements determined by the literature review, we were able to relate them to the elements we found when categorizing the features of the project. The final result was that we proposed the formation of a close relationship between the theoretical element of a regionally-engaged university and the elements of initiative of the SOS-PME project. Exhibit 4 shows this.

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Exhibit 4. **Relationship between the theoretical elements of a regionally-engaged university and SOS-PME initiative elements**

Theoretical Elements of a Regional Engaged University	Elements of the SOS-PME Project	Identified Features
Engagement	Engaged leaders and volunteers	Team work; Volunteers involvement; Co-creation activity between the university and society
	Strong communication strategy	Listening to community problems; knowledge sharing among teams; use of knowledge sharing plataform (Padlet, Trello, social midia); Community and media recognition
Collaboration	Internal and external alliances	Multiple departments and other organizations involved; Co-creation activity between the university and society
Value-added results	Practicable deliveries	Short interactions; Easy and known tools; Standardized advisory process
Institutional reputation and support	Institutional reputation	Community and media recognition;
	Institutional support	Multiple departments and other organizations involved; Task forces for post attendance; Pilot service learning implemented
Knowledge as a process	Multidisciplinary knowledge	Teams multidisciplinarity; Knowledge sharing among teams; Easy and known tools; Volunteers involvement; Co-creation activity between the university and society
	Agile Project Management;	Short interactions; Easy and known tools; Standardized advisory process
Knowledge as a result	Knowledge spillover	Instagram lives; SOS Carreiras project; Mentoring Network project

FINAL CONSIDERATIONS

The conclusion we draw is that an engaged university needs to take actions over and above its traditional missions of education and research; it needs to take the knowledge it has developed within its boundaries to society. In times of crisis, such as the COVID-19 pandemic, this positioning is even more critical. Starting from these assumptions and using the SOS-PME Advisory Network/UFRGS case, we identified key elements for promoting regionally-engaged universities.

From the theory we used it was possible to determine six theoretical elements of a regionally-engaged university: engagement, collaboration, value-added results, institutional reputation and support, knowledge as a process, and knowledge as a result. We found eight elements of the SOS-PME Project for promoting a regionally-engaged university that relate to these categories: engaged leaders and volunteers, a strong communication strategy, internal and external alliances, practical deliverables, institutional reputation and support, multidisciplinary knowledge, agile project management and knowledge spillover.

The university's interactions with society strengthen its mission. The relationships established by way of the SOS-PME Project enabled knowledge to be collectively constructed. This result represents a very important signal for the advancement of UFRGS's engagement in the region. It also reinforces the role of universities, particularly knowledge-based activities, in the regional economic progress, improving their local absorption capacity and the knowledge of its regional environment, creating knowledge spillovers (Benneworth & Charles, 2005; Drucker & Goldstein, 2007) through formal and informal exchange of knowledge that does not involve financial compensation (Olmos-Peñuela, Molas-Gallart, & Castro-Martínez, 2013; Trippl, Sinozic, & Lawton-Smith, 2015; Wang, Hu, Li, & Pan, 2016).

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AUTHORS' CONTRIBUTIONS

Daniela Francisco Brauner, Fernanda Maciel Reichert, Raquel Janissek-Muniz, Aurora Carneiro Zen and Lisiane Closs worked on the conceptualization and theoretical-methodological approach. The theoretical review was conducted by Aurora Carneiro Zen, Fernanda Maciel Reichert, Daniela Callegaro de Menezes and Lisiane Closs. Data collection was performed by Wendy Beatriz Witt Haddad Carraro, Carla Simone Ruppenthal, Fernanda Maria Müller, Marcelo Soares Lubaszewski and Marisa Ignez S. Rhoden. Data analysis included Daniela Francisco Brauner, Fernanda Maciel Reichert, Raquel Janissek-Muniz, Wendy Beatriz Witt Haddad Carraro, Aurora Carneiro Zen and Daniela Callegaro de Menezes. All authors worked together in the writing and final revision of the manuscript.