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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, Behraves, 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

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).

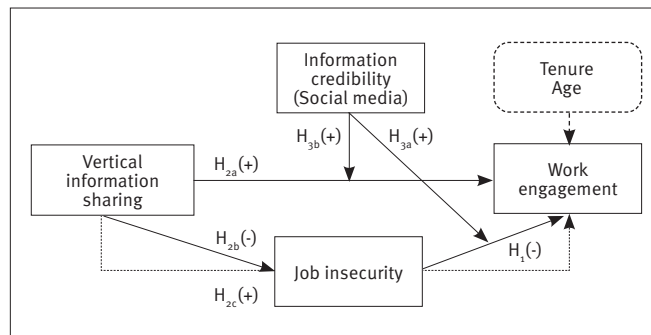
In scenarios with high or low perceptions of the credibility of the information about the COVID-19 pandemic, the effects of vertical information sharing and job insecurity on work engagement can have different repercussions. It is assumed that there is positive moderation in the aforementioned relationships, 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

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).

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	Jl	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); Jl=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 (ρ_A), 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**
Jl		-	-0.205***
IC		-	0.218***
Panel B - Specific indirect effects (mediation)			
Independent	Mediator		Work engagement
VIS	Jl		0.042*
Panel C - Interaction effects (moderation)			
Independent	Moderator		Work engagement
VIS	IC		0.092
Jl	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); Jl=Job insecurity; WE=Work engagement.

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 (Q²) of the dependent constructs, values above zero are acceptable (Hair *et al.*, 2019). As for the coefficient of determination (R²), 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***
Jl→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→Jl→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
Jl*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); Jl=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

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		
	S ₁	S ₂	S ₃
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 H₁. 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).

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 S_2 , 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 (Veričič *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. S_3 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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AUTHORS' CONTRIBUTIONS

The authors declare that they also contributed to the development of the article, including conceptualization and theoretical-methodological approach, theoretical review (literature survey), data collection and analysis, until writing and final review.