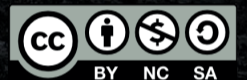


The Effects of COVID-19 Work Demands on Mental Health and Work-Family Conflict

The Moderating Role of Supervisor Support

Los efectos de las demandas laborales debido al COVID-19 en la salud mental y el conflicto trabajo-familia: El papel moderador del apoyo de los supervisores
Os efeitos das demandas de trabalho da COVID-19 na saúde mental e no conflito trabalho-família: o papel moderador do apoio do supervisor



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Resumen

This study examined the impact of the COVID-19 pandemic on a worker sample from the Dominican Republic, Puerto Rico, and the United States of America by exploring the perception of job demands (CWD) and resources and its impact on mental health (anxiety and depression) and work-family conflict (WFCDC). In addition, we examined the mediating role of work-family conflict and the moderating role of supervisor support in the relationship between work demands due to COVID-19 and mental health. A convenient sample of 352 workers participated in this study. A partial least squares structural equation modeling was conducted to test the hypotheses. The results provide evidence regarding the detrimental effects of work demands on employees' mental health and work-family conflict. The direct effects of supervisor support indicate that it has a negative and substantial relationship with psychological well-being and work-family conflict. These results imply that the supervisor's support functions as an employee resource. In terms of the effect of WFCDC on mental health, our results indicate that conflicts between work and family responsibilities significantly mediate the relationship between these variables and result in a decline in the workers' mental health. In terms of anxiety symptomatology, the WFCDC partially mediates the relationship between work demands and anxiety.

Abstract

Este estudio examinó el impacto de la pandemia del COVID-19 en una muestra de trabajadores de la República Dominicana, Puerto Rico y los Estados Unidos de América explorando la percepción de las demandas (CWD) y los recursos laborales, y su impacto en la salud mental (ansiedad y depresión) y en el conflicto trabajo-familia (WFCDC). Además, se examinó el papel mediador del conflicto trabajo-familia y el papel moderador del apoyo del supervisor en la relación entre las demandas laborales debido al COVID-19 y la salud mental. En este estudio participó una muestra por conveniencia de 352 trabajadores. Se utilizó PLS-SEM para probar las hipótesis. Los resultados proporcionan evidencia sobre los efectos perjudiciales de las demandas laborales sobre la salud mental de los empleados y el conflicto entre el trabajo y la familia. Los efectos directos del apoyo del supervisor indican que tiene una relación negativa y sustancial con el bienestar psicológico y el conflicto entre el trabajo y la familia. Estos resultados implican que el apoyo del supervisor funciona como un recurso para los empleados. En términos del efecto de WFCDC sobre la salud mental, nuestros resultados indican que los conflictos entre las responsabilidades laborales y familiares median significativamente la relación entre estas variables y resultan en una disminución de la salud mental de los trabajadores. En términos de sintomatología de ansiedad, el WFCDC media parcialmente la relación entre las demandas laborales y la ansiedad.

Resumo

Este estudo examinou o impacto da pandemia de COVID-19 em uma amostra de trabalhadores da República Dominicana, Porto Rico e Estados Unidos da América, explorando a percepção das demandas (CWD) e dos recursos de trabalho e seu impacto na saúde mental (ansiedade e depressão) e no conflito trabalho-familia (WFCDC). Além disso, examinou-se o papel mediador do conflito trabalho-familia e o papel moderador do apoio do supervisor na relação entre as demandas de trabalho devido ao COVID-19 e a saúde mental. Participou deste estudo uma amostra por conveniência de 352 trabalhadores. Utilizou-se PLS-SEM para testar as hipóteses. Os resultados fornecem evidências sobre os efeitos prejudiciais das demandas de trabalho na saúde mental dos funcionários e no conflito entre trabalho e família. Os efeitos diretos do apoio do supervisor indicam que ele tem uma relação negativa e substancial com o bem-estar psicológico e o conflito entre trabalho e família. Esses resultados implicam que o apoio do supervisor funciona como um recurso para os funcionários. Em termos do efeito de WFCDC sobre a saúde mental, nossos resultados indicam que os conflitos entre as responsabilidades de trabalho e familiares mediam significativamente a relação entre essas variáveis, resultando em uma diminuição na saúde mental dos trabalhadores. Em termos de sintomatologia de ansiedade, o WFCDC medeia parcialmente a relação entre as demandas de trabalho e a ansiedade.

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Introduction

The COVID-19 pandemic was sparked by the abrupt and widespread of the SARS-CoV-2 virus, which also posed an unprecedented threat to most human activities on a national and global scale (**Cursea et al., 2021; Todorova et al., 2021**). According to Ringlea et al. (**2021**) the COVID-19 pandemic has brought about significant changes in the workplace, impacting employees across various industries. While some individuals have transitioned to remote work, a considerable number of employees continue to physically report to work, often in essential services or industries where their presence is crucial. The work demands placed on these employees during the pandemic have had notable effects on their mental health (**e.g., Lai et al., 2020; Sim, 2020; Toh et al., 2021; Lan et al., 2020a; Mrklas, 2020**).

On the other hand, balancing work responsibilities with family obligations has become increasingly challenging, and the unique circumstances surrounding the pandemic have introduced additional stressors and concerns. The majority of research on COVID job demands and work-family conflict focuses on how taking work from the office to home puts some employees at risk since there are fewer physical and mental boundaries between the work and family domains (**e.g., Ringlea et al., 2021**) however, there are few studies related to those employees who physically reported to work that suggest that the work-family conflict of employee was exacerbated due to the fear of becoming infected and in turn infecting their loved ones (**e.g., Rosario-Hernández et al., 2021**).

There are studies in Puerto Rico that suggest the negative impact that work demands during the COVID-19 pandemic had on mental health and work-family conflict (Rosario-Hernández et al., 2021); however, there are no studies that have simultaneously examined the impact of work demands due to COVID-19 on mental health and work-family conflict in employees in the Dominican Republic, United States, and Puerto Rico. Work-family conflict has not been considered a possible mediating variable between work demands due to COVID-19 and mental health, nor the moderating role of supervisor support in these relationships during the pandemic.

The economic relationship between these three nations is recognized as one of the main drivers of economic growth in the Caribbean Region. According to the data from the Centre for Exports and Investments of the Dominican Republic (Dominguez, personal communication June 8, 2023), from 2016 to March of 2023, the total Foreign Direct Investment of the United States to the Dominican Republic was US\$8,245 million, accounting for 24.41% of the latter country's economy. During the same period, the total commercial inter-exchange between the Dominican Republic and Puerto Rico was US\$5,591.3 million. The year 2022 alone accounted for an exchange balance of \$488.7 million. Considering these factors, it is pertinent to understand how employees in the three nations experience their work demands, work-family conflict, and supervisor support and its impact on psychological well-being. These will allow us to understand better how to align work-family and work-life balance policies, which might be relevant to the work environment of multinational corporations operating in the Caribbean region.

Therefore, the purpose of this cross-sectional research design was to examine the effect of COVID work demands on the mental health and work-family conflict of employees in the Dominican Republic, the United States, and Puerto Rico. In addition, we examined the mediating role of work-family conflict and the moderating role of supervisor support in the relationship between work demands due to COVID-19 and mental health. The demands-resources model (Demerouti & Bakker, 2011) was used as a conceptual framework to examine the relationship between the variables of the present study. The proposed research model can be seen in Figure 1.

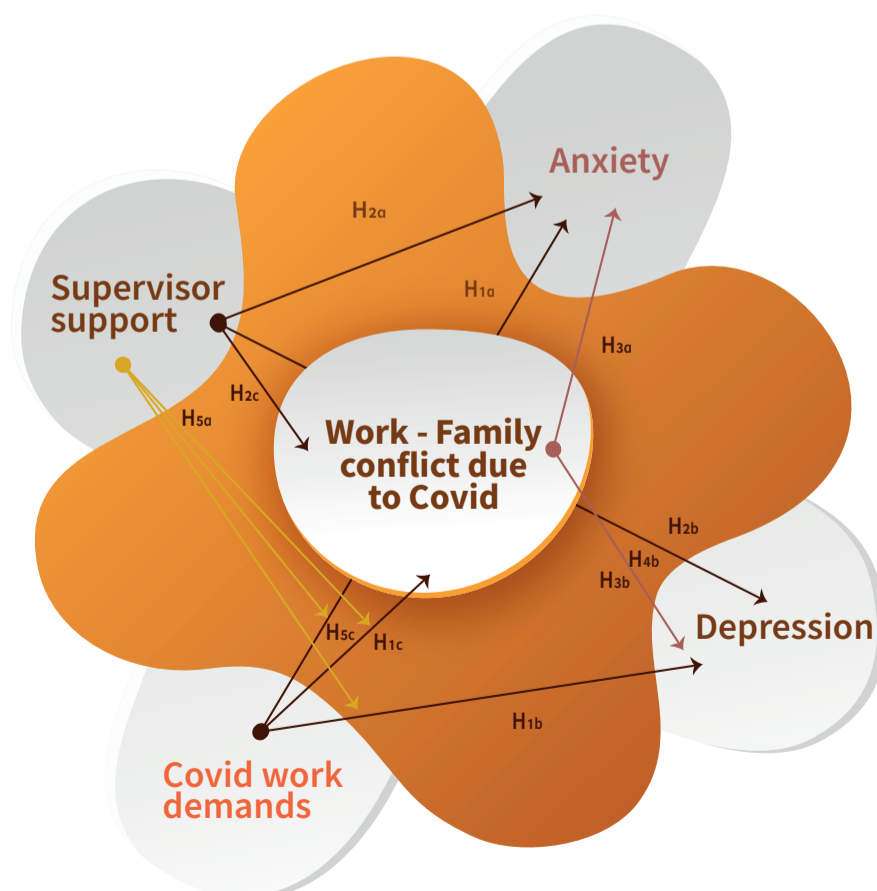


Figure 1. Research Model Proposed without control variables.

The Job Demands-Resources Model as Theoretical Framework

The job demands-resources (JD-R) theoretical framework is a unifying job design theory that integrates diverse perspectives on job stress and motivation (Bakker & Demerouti, 2007). The model is more complex and in-depth than earlier models like the demand-control model (Karasek, 1979) and the effort-reward balance model (Siegrist, 1996) since it incorporates aspects from several theories. Assumptions from the job characteristics model (Hackman & Oldman, 1975) and the conservation of resources theory (Hobfoll, 1989) are included. According to Bakker & Demerouti (2007), job resources are not only necessary to meet high job demands but are also essential. First, the high workload requirements drain the employee's mental and physical resources and may eventually cause illness. Work demands refer to features of a profession that are physically demanding, mentally taxing, socially demanding, or organizationally demanding (Bakker & Demerouti, 2007). Therefore, in some studies conducted in Puerto Rico, physiological (e.g., physical symptoms, sleep impairments) and psychological costs (e.g., anxiety, depression) have been directly linked to work demands (e.g., Rosario-Hernández et al., 2013; Rosario-Hernández et al., 2014; Rosario-Hernández et al., 2018).

The JD-R model's second stage is motivating in character. Job resources are crucial for internal and external motivation because they make it possible to meet basic needs and attain work goals (Baeriswyl et al., 2016). Job resources are those organizational, psychological, social, and physical aspects of the job that help to achieve workplace objectives, reduce workload and associated expenses, and foster personal development, learning, and growth (Bakker & Demerouti, 2007). According to Schaufeli et al. (2009), job resources (e.g., social support) are crucial factors in determining good motivational states, including high organizational commitment, and work engagement.

COVID Work Demands (CWD), Mental Health, and Work-Family Conflict Due to COVID (WFCDC)

According to the JD-R model, two forms of job characteristics, job demands, and job resources, may explain worker health and psychological well-being (Demerouti & Bakker, 2011). Job demands during the COVID-19 pandemic are considered in the current study as psychological and emotional efforts on the part of the employee to work as safely as possible while handling objects (e.g., boxes, products, garbage, etc.) or working with clients face-to-face and at the same time trying not to get infected with the COVID-19 virus. Essential Non Health Care employees' mental distress during the COVID-19 pandemic was exacerbated by the psychological stress associated with working during an emerging disease pandemic due to infection anxiety and family concerns (Gold, 2020; Kisely et al., 2020; Lan, Wei, et al. 2020b). For example, Cai et al. (2020) found that fear of contagion and workload were the top work demands relevant to COVID-19.

Employee health and psychological well-being will typically suffer due to work demands (Van Den Tooren & de Jong, 2014). According to Bowling et al. (2015), it is projected that high work demands will deplete employees' personal resources and make it more difficult for them to acquire new ones. The losses of resources brought about by high work demands will have a detrimental impact on mental health.

The health impairment process implies that work demands deplete employees' physical and psychological capital, resulting in fatigue. This energy depletion can eventually lead to health issues and diminished psychological well-being (Hakanen et al., 2008; Hu et al., 2011). For example, Rosario-Hernández et al. (2013) found that job demands significantly predicted anxiety and depression symptoms ($b=.090$ & $b=.147$, respectively) in a sample of 794 workers in Puerto Rico. Also, Rosario-Hernández et al. (2014) found, in a sample of 660 workers, that a variety of job demands, such as organizational constraints, workload, incivility, and workplace bullying, predicted anxiety, depression, and physical health. Meanwhile, Van Den Tooren and de Jong (2014) found a significant association between job demands and general health ($b = -.110$) in a sample of 3,845 workers from Spain, Germany, Belgium, The Netherlands, the United Kingdom, Sweden, and Israel. In the context of the pandemic in Puerto Rico, Rosario-Hernández et al. (2021) found that COVID work demands have an effect on Puerto Rican NHC workers' manifestations of symptoms of anxiety and depression ($b = .370$ & $b = .385$), respectively. The working conditions during the COVID-19 pandemic required essential employees to do their jobs while being more concentrated and aware of safety precautions to avoid getting infected. Therefore, we propose the following hypotheses:

H_{1a}: CWD is positively and significantly related to anxiety.

H_{1b}: CWD is positively and significantly related to depression.

One possible negative outcome of work demands includes family spillover, which takes into account work-to-family conflict or mutually incompatible role pressures from the work and family domains (Greenhaus & Beutell, 1985). Empirical data suggests that those with heavier work demands also report higher levels of work-family conflict because they must devote more energy resources to meeting the demands of their workloads (e.g., Butler et al., 2005; Ilies et al., 2007; Major et al., 2002; O'Driscoll et al., 1992). Moreover, Ilies et al. (2015) found that work demands were positive and significantly related to work-family conflict ($b = .25$, $p < .05$). Accordingly, we propose the following hypothesis:

H_{1c}: CWD is positively and significantly related to WFCDC.

Supervisor Support (SS), Mental Health, and Work-Family Conflict Due to COVID (WFCDC)

According to the JD-R model, an imbalance between job demands and resources leads to a reduction in health and well-being (Bakker & Demerouti, 2007). The buffer hypothesis states that a balance between job demands and resources is necessary for employee well-being (Bakker & Demerouti, 2007; Tadic et al., 2015). The JD-R model proposes that supervisor support can mitigate the negative impacts of work demands on employees' well-being. Studies document that social support relates to promoting greater mental health (French et al., 2018; Cohen & Wills, 1985; Bavik et al., 2020; Heller et al., 1986). For example, Yunus et al. (2023) found that managerial support has a negative relationship with anxiety and depression ($b = -.342$, $p < .05$ & $b = -.481$, $p < .05$, respectively) in a sample of 1,923 workers in the United Kingdom. Therefore, we propose the following hypotheses:

H_{2a}: Supervisor support (SS) is negatively and significantly related to anxiety.

H_{2b}: Supervisor support (SS) is negatively and significantly related to depression.

Meanwhile, the existing literature reveals that supervisors who provide support (e.g., acknowledging employees' family-related needs, empathizing with employees' work-family interference) offer resources that allow employees to maintain a balance between their work and their families and reduce the stress that results from juggling these two domains (Bagger & Li, 2014). Per the JD-R model (Demerouti et al., 2001), supervisor support can be a resource that enriches the work experience and reciprocates with positive attitudes and behaviors, leading to higher life satisfaction. A supportive supervisor could make it easier for employees to restructure work to handle family demands and have adequate resources (Hammer et al., 2011) and help employees accomplish greater work-life balance (Ferguson et al., 2012). Studies revealed that supervisor support decreased work-family conflict (Anderson et al., 2002; Frye & Breaugh, 2004; Gordon et al., 2007). Supervisors may alleviate employees' high-stress levels by supporting their pursuit of a balance between their work and family responsibilities (Wang et al., 2012). Work and family responsibilities can support managing challenges like the COVID-19 epidemic. Human survival and well-being depend on social support, which is associated with less work-family conflict (Bavik et al., 2020; Hammer et al., 2011). Hence, all these studies sustain the critical role of managerial support in balancing the work and life interface. Consistent with the JD-R model, higher levels of supervisor support have been related to elevated levels of work-family balance (Sieger & Wiese, 2009). As such, we propose the following hypothesis:

H_{2c}: Supervisor support is negatively and significantly related to WFCDC.

Work-Family Conflict Due to COVID (WFCDC) and Mental Health

The COVID-19 epidemic brought attention to long-standing problems, including work-family conflict (Bilodeau et al., 2023). In fact, this stressor has been known for a long time to be a key factor in mental health and is currently acknowledged as a serious public health concern (Amstad et al., 2011; Chandler, 2021). The inability to balance work and family demands creates a depletion of resources, leading to negative emotions and psychological distress, reducing employees' capacity to accomplish their roles in work and family domains (e.g., Greenhaus & Beutell, 1985; Steiber, 2009; Kirby, 2017). A significant body of evidence indicates that tensions between family and work roles can lead to decreases in workers' psychological and physical well-being (e.g., Bedeian et al., 1988; Burden & Googins, 1987; Cho & Allen, 2013; Greenhaus & Parasuraman, 1987; Shinn et al., 1989). Previous studies have shown that employees who experience work-family conflict or are considered the primary caregivers, especially women, are more likely to develop depressive symptoms (Hwang & Yu, 2021; Gaeta González, et al., 2021) and report more mental health problems (Vargas-Jiménez et al., 2020; Gaeta González, et al., 2021). Moreover, Bilodeau et al. (2023) found that work-family conflict predicted depressive symptoms in a sample of employees in Canada ($b = .251$, $p < .05$). Thus, we propose the following hypotheses:

H_{3a}: WFCDC is positively and significantly related to anxiety.

H_{3b}: WFCDC is positively and significantly related to depression.

Mediating Role of Work-Family Conflict Due to COVID

H_{5c}: Supervisor support moderates the relationship between CWD and WFCDC, such that the relationship is weaker when supervisor support is high.

Conflicting demands on different topics can arise from having several roles in work and family life. Due to conflicting time demands, a lack of energy, or incompatible behaviors between tasks, the individual will find it more difficult to adequately complete each function because they juggle multiple responsibilities simultaneously (Greenhaus & Beutell, 1985; Kahn et al., 1964). As a result, there is competition between various responsibilities for an employee's limited resources, which leads to tension, strain, and stress (Greenhaus & Beutell, 1985). Meanwhile, work-family conflict among employees is known to be related with many health problems, including poor physical health (e.g., Frone et al., 1996; Frone et al., 1992; Thomas et al., 1995; Johansson, 2002), psychological distress (e.g., Frone et al., 1996; Parasuraman et al., 1992), poor mental health (e.g., Hamming & Bauer, 2009; Jang & Zippay, 2011; Wang et al., 2012), and life dissatisfaction (e.g., Yucel, & Minnotte 2017; Yucel, 2017). Therefore, we propose the following hypotheses:

H_{4a}: WFCDC mediates the relationship between CWD and anxiety.

H_{4b}: WFCDC mediates the relationship between CWD and depression.

Moderating Role of Supervisor Support

One potential moderator specific to the work domain is supervisor support (Carlson & Perrewé, 1999). Workers would be more able to defend themselves against the stresses of further resource loss if they have job resources, such as perceived supervisor support (Gillet et al., 2022). Previous studies (e.g., Caesens et al., 2014) have repeatedly shown supervisor support to be a favorable driver of work-related outcomes. For example, Lakey and Cohen (2000) argue that social support predicts coping, which moderates the relationship between stress and health. There are studies (e.g., Li et al., 2015) in which the perception of higher supervisor support buffers the effect of workers who have high caregiving demands on depression. Yunus et al. (2023) found that the relationship between job demands and mental health (anxiety and depression) is moderated by managerial support. When managerial support is high, it tends to buffer the effects of work demands on mental health. Therefore, we propose the following hypotheses:

H_{5a}: Supervisor support moderates the relationship between CWD and anxiety, such that the relationship is weaker when supervisor support is high.

H_{5b}: Supervisor support moderates the relationship between CWD and depression, such that the relationship is weaker when supervisor support is high.

Studies indicate that supervisor support facilitates employees' ability to balance work and family (Bagger & Li, 2014; Greenhaus et al., 2012; Kossek et al., 2011). Furthermore, Li et al. (2015) predict that when supervisor support is high, employees may be able to deal with work-family conflict more effectively, which is consistent with the proposed hypothesis. Li and collaborators' (2015) forecast is predicated on the idea that supervisor support constitutes a resource gain from which employees can draw in their efforts to meet work demands by providing flexible schedules or permitting work from home. Thus, we propose the following hypothesis:

Method

Participants and Design

A total of 522 participants completed the online surveys. We conducted Little's MCAR test for each sample individually. It indicated that the data were missing completely at random, $[X^2(19) = 16.171, p = .646]$, $[X^2(61) = 46.094, p = .922]$, and $[X^2(95) = 67.086, p = .987]$ for the Puerto Rico, Dominican Republic, and USA samples, respectively. A total of 165 cases were eliminated because they had more than 10% missing responses (Hair et al., 2019) and 5 cases because they were outliers. After removing those with missing data and outliers, the final convenience sample included 352 workers in this cross-sectional study. We imputed the missing data using expectation maximization as suggested by some of the literature (e.g., Allison, 2002; Cuesta et al., 2013; Enders, 2004) since it outperformed other techniques. Participants were enrolled online from different organizations in the Dominican Republic, Puerto Rico, and the United States from June to December of 2022. The inclusion criteria were that (1) the participants should live in one of the nations considered for the study, (2) they were 21 years of age or older, and (3) they worked at least 20 hours a week. Regarding the exclusion criteria, the participants did not live in any other country outside of the selected ones, were under 21 years of age, were not working at the time of the study, and did not have an internet connection.

As presented in Table 1, the study sample comprised 70.7% (249) females and 29.3% (103) males. In terms of country, 41.8% (147) were working in the United States, 39.8% (140) in Puerto Rico, and 18.5% (65) in the Dominican Republic. In generation gaps, 47.7% (168) were born from 1965-1980. In marital status, 49.4% (174) were married. A total of 59.4% (311) have graduate studies. In employment, 83% (292) were employed full-time, and 84.9% (299) had no previous mental health condition.

Table
Sociodemographic characteristics of the sample

Variable	f	%	Variable	f	%
Gender		Education			
Female	249	70.7	HS/General Education	18	5.1
Male	103	29.3	Technical degree	23	6.5
Born Between		Undergraduate studies		102	29.0
1946 -1964	38	10.8	Graduate Studies	209	59.4
1965 -1980	168	47.7	Employment		
1981 - 1996	115	32.7	Employed full-time	292	83.0
1997-2001	31	8.8	Employed part-time	27	7.7
		Self-employed		33	9.4
Marital Status			Current Place of Residence		

GAD-7 Spanish version on Puerto Rican samples (e.g., Pagán-Torres et al., 2020a; Merino-Soto et al., 2023), which support its unidimensional internal structure and in terms of reliability, using Cronbach's alpha, its internal consistency coefficient was .92. An item example is: "Feeling nervous, anxious, or on edge."

Depression. To measure depression, we used the eight-item Patient Health Questionnaire (PHQ-8) (Phqscreeners.com, 2024; Kroenke & Spitzer, 2001). This measurement instrument is an eight-item self-report questionnaire used to assess depression severity. It is rated in a four-point frequency scale format (0 = not at all to 3 = nearly every day). Total scores may range from 0 to 24. Some studies have examined the psychometric properties of the PHQ-8 Spanish version on Puerto Rican samples (Pagán-Torres et al., 2020b), which support its unidimensional internal structure and its internal consistency via Cronbach's alpha and omega techniques that fluctuated between .91 to .92. An item example is: "Little interest or pleasure in doing things."

Covariate variables. We used as control variables gender and previous mental health conditions before the COVID-19 pandemic. Studies have shown that women tend to experience higher levels of work-family conflict, which can impact their mental health (Allen et al., 2000; Golden et al., 2006; Major et al., 2002; Kessler & Üstün, 2008; Wang et al., 2008). Also, females experience major depression at roughly twice the rate of males (e.g., Altemus et al., 2014; Ge et al., 2006; Hankin et al., 2007; Gaeta González, et al., 2021) as well as a higher prevalence of generalized anxiety disorder when compared to males (e.g., Kessler et al., 1994; Gaeta González, et al., 2021). On the other hand, considering participants' previous mental health conditions as a control variable helps account for pre-existing mental health issues that individuals may have had before the study. It allows researchers to isolate the effects of work demands on mental health by controlling for the influences of previous mental health conditions. For instance, individuals with a history of anxiety or depression may be more vulnerable to the negative impact of work demands on mental health compared to those without such conditions (e.g., Bakker & Demerouti, 2007; Frone et al., 1992; Johnson & Hall, 1988; LaMontagne et al., 2014; Wang et al., 2008). Therefore, including gender and previous mental health conditions as control variables allows us to understand how work demands affect mental health across different gender and mental health groups.

Procedures

The research proposal was submitted to the Institutional Review Board (IRB) of the University of Saint Joseph, and it was approved on April 5, 2022, with the protocol number 22-017 and 22-018. The final convenience sample included 352 workers who participated in this cross-sectional study. Participants were contacted from different organizations and were invited to participate in the study through an online survey created with Survey Monkey software. All those who agreed to participate in the study were explained the purpose of the research. They were given the consent form, background data sheet, and the study questionnaires.

Data analysis

For data analysis, partial least squares structural equation modeling (PLS-SEM) was used following the two-step procedure suggested by Hair, et al. (2017). First, we assessed the measurement model, and second, we evaluated the structural model. It is important to mention the three reasons for its use in the present study, as Chin (2003) points out, first, that PLS-SEM has a soft distributional assumption and given

Single	111	31.5	Dominican Republic	65	18.5
Married	174	49.4	Puerto Rico	140	39.8
Divorced	37	10.5	United States of America	147	41.8
Widowed	2	0.6	Previous Mental Health Condition		
Domestic Partner	28	8.0	Yes	47	13.4
			No	299	84.9
			Prefer not to tell	6	1.7

Note. n = 352.

Data collection instruments

Background sociodemographic questionnaire. We created a background questionnaire to gather information about the participants. In this background questionnaire, we asked the participants to provide information about their gender, age, and marital status, among other self-identifying questions, to enable us to describe the subjects of the study (see Table 1).

COVID Work Demands (CWD). We used the COVID Work Demands Scale developed by Rosario-Hernández et al. (2021), which is a four-item questionnaire to measure work demands due to the COVID-19 pandemic on a six-point Likert Scale, in which 1 is "Totally Disagree" and 6 is "Totally Agree." The authors reported reliability coefficients using Cronbach's alpha and composite reliability of .76 and .85, respectively. In terms of convergent validity, the authors reported indicators' factor loadings that fluctuated between .67 to .81 and obtained an average variance (AVE) of .58. An item example is "My job requires more concentration than ever before to avoid getting COVID-19."

Supervisor Support (SS). We used the four items of the Supervision Support subscale of the Demands-Control-Support Model Inventory developed by Rosario-Hernández & Rovira-Millán (2014). This is a six-point Likert scale, in which 1 is "Totally Disagree" and 6 is "Totally Agree." The authors reported reliability coefficients using Cronbach's alpha of .95. According to the authors of the subscale, its four items were loaded in one factor, supporting its unidimensional structure. An item example is "My supervisor keeps an eye over the well-being of the people under his charge."

Work-Family Conflict Due to COVID-19 (WFCDC). We used the five-item questionnaire developed by Rosario-Hernández et al. (2021) to measure work-family conflict due to the COVID-19 pandemic on a six-point Likert Scale, in which 1 is "Totally Disagree" and 6 is "Totally Agree." The authors reported reliability coefficients using Cronbach's alpha and composite reliability of .80 and .86, respectively. In terms of convergent validity, the authors reported indicators' factor loadings that fluctuated between .56 to .85 and obtained an average variance (AVE) of .55. An item example is "My family members have expressed their discomfort at me going out to work for fear of contagion with COVID-19, creating conflicts between us."

Anxiety. We used the Generalized Anxiety Disorder-7 (GAD-7) (Phqscreeners.com, 2024; Spitzer et al., 2006) questionnaire, which is a one-dimensional self-administered measure designed to assess the presence of symptoms of the generalized anxiety disorder, as established in the DSM-IV. The simple addition of the answers to each item calculates the total GAD-7 score. Each item is rated in a frequency of four (0 = not at all to 3 = nearly every day) format and total scores may range from 0 to 21. Studies have examined the psychometric properties of the

that the Kolmogorok-Smirnov and Shapiro-Wilks tests were significant, suggesting that scores were not distributed normally. Second, the exploratory nature of the current study (Hair, et al., 2017; Henseler et al., 2015; Henseler & Sarstedt, 2013), which pretends to build on the COVID-19 pandemic impact affecting workers using as theoretical framework the Job Demands-Resources Model. Third, the study's high model complexity justifies using PLS-SEM because the model tested has multiple mediator variables (Hair et al., 2017; Henseler et al., 2015; Henseler & Sarstedt, 2013).

Results

The research model of Figure 1 was analyzed using Smart-PLS version 4, a PLS structural equation-modeling tool (Ringle et al., 2015). It assesses the psychometric properties of the measurement model and estimates the parameters of the structural model. This tool enables the simultaneous analysis of up to 200 indicator variables, examining multiple mediator variables simultaneously among latent predictor variables indicators.

The measurement model

The data indicates that the measures are robust in terms of their internal consistency reliability as indexed by Cronbach's alpha and composite reliability. All the Cronbach's alphas and the composite reliabilities of the different measures range from .833 to .957, which exceeds the recommended threshold value of .70 (Hair et al., 2017). In terms of validity, as seen in Table 2, most outer loadings reached the threshold of .70, as indicated by Hair et al. (2017).

Table 2
Reliability and convergent validity

Scale	Item	Outer Loading	AVE	Cronbach's Alpha	Composite Reliability
COVID Work Demands (CWD)	CWD1	.727	.665	.833	.888
	CWD2	.822			
	CWD3	.842			
	CWD4	.866			
Supervisor Support (SS)	SS1	.921	.846	.939	.957
	SS2	.937			
	SS3	.902			
	SS4	.920			
Work Family Conflict (WFC)	WFC1	.862	.653	.867	.903
	WFC2	.840			
	WFC3	.879			
	WFC4	.777			
	WFC5	.664			

Anxiety (Anx)	anx1	.861	.676	.919	.936
	anx2	.859			
	anx3	.868			
	anx4	.864			
	anx5	.763			
	anx6	.730			
	anx7	.800			
Depression (Dep)	dep1	.778	.588	.883	.909
	dep2	.781			
	dep3	.713			
	dep4	.795			
	dep5	.723			
	dep6	.809			
	dep7	.763			

Note. n = 352; AVE = Average Variance Extracted.

In addition, consistent with the guidelines of Fornell and Larcker (1981), the average variance extracted (AVE) for each measure exceeds .50, indicating the convergent validity of the measures. The elements in the matrix diagonals, representing the square roots of the AVE, are greater in all cases than the off-diagonal elements in their corresponding row and column, supporting the discriminant validity of the scales. Henseler et al. (2015) propose assessing the heterotrait-monotrait ratio (HTMT) of the latent construct's correlations to establish the discriminant validity of the measures in the model. The HTMT approach is an estimate of what the true correlation between two constructs would be if they were perfectly measured. A correlation between constructs close to one indicates a lack of discriminant validity. Therefore, Henseler et al. (2015) suggest that an HTMT above .90 suggests a lack of discriminant validity. Correlations between constructs were below the threshold of .90, suggesting the discriminant validity of the measures.

Table 3
Correlation matrix of latent constructs using the Fornell-Larcker criterion (above the diagonals) and heterotrait-monotrait (HTMT) correlation ratio (below the diagonals) to establish discriminant validity

Latent Construct	CWD	SS	WFC	Anx	Dep
COVID Work Demands	(.816)	-.127	.601	.291	.244
Supervisor Support	.140	(.920)	-.159	-.275	-.287
Work Family Conflict	.681	.168	(.808)	.322	.312
Anxiety	.324	.293	.350	(.822)	.765
Depression	.277	.312	.350	.850	(.767)

Note. n = 352; elements in the correlation matrix diagonals within parenthesis represent the square root of the AVE.

The structural model

After the measurements were tested for validity, the structural model provided in Figure 1, which represents the relations among the variables and constructs assumed in the theoretical model, was tested (see Table

4). To examine the structural model as recommended by Hair et al. (2017), first, we checked the structural model for collinearity issues by examining the variance inflation factor (VIF) value of all sets of predictor constructs in the structural model. They fluctuated between 1.002 and 1.588; all VIF values are clearly within the threshold range of 0.20 and 5.00; therefore, collinearity among predictor constructs is not a critical issue in the structural model. Also, Table 4 shows the R2 values of WFC (.376), anxiety (.223), and depression (.205), explaining 37.6%, 22.3%, and 20.5% of the variance, respectively. Falk and Miller (1992) suggest a value of .10 for an R-squared as a minimum satisfactory level. All endogenous latent variables possess the threshold level of R-squared values. Also, all Q2 values of WFC, anxiety, and depression are above zero (.233, .110, .090, respectively), supporting the model's predictive relevance regarding the endogenous latent variables. The effect sizes for the control variables can be appreciated in Table 4, in which gender did not reach the threshold of .02 on the endogenous variables; however, previous mental health conditions obtained the largest effect sizes on anxiety and depression (.044 and .042, respectively). CWD achieved f2 values of .540, .015, and .004 on WFC, anxiety, and depression, respectively, which only exceeds the minimum threshold of .02 (Chin et al., 2003; Yunus et al. (2023) on WFC. While effect sizes for Supervisor Support exceeded the minimum threshold for anxiety and depression but not on WFC (see Table 4).

Table 4
Structural model results

Variable/ Latent Construct	R2	R2 Adj	Effect Size (f2)			Q2	VIF
			WFC	Anx	Dep		
Gender			.002	.018	.010		1.046
PMHC			.000	.044	.042		1.019
CWD			.540	.015	.004		1.576
SS			.011	.059	.067		1.047
SS*CWD			.001	.003	.000		1.002
WFC	.376	.365		.030	.039	.233	1.588
Anx	.223	.209				.110	
Dep	.205	.191				.090	

Note. VIF = Variance Inflation Factor, PMHC = Previous Mental Health Condition, CWD = COVID Work Demands, SS = Supervisor Support, WFC = Work-Family Conflict, Anx = Anxiety, Dep = Depression.

In terms of the control variables, gender and previous mental health condition did not have any significant effect on WFC; however, they did have significant effects on anxiety and depression. The study findings show the direct positive and significant effect that the control variable "Previous Mental Health (PMHC)" has on the perception of anxiety ($b = .548, p < .001$) and depression ($b = .542, p < .001$). Gender also had a significant but lower effect on anxiety ($b = .265, p < .05$) and depression ($b = .202, p < .05$). As can be seen in Table 5, previous mental health condition has a significant relationship to anxiety and depression.

Table 5
Control variables' effects on endogenous constructs

CV→EC	beta	SE	t-value	p-value (One-tail)	CIBC	
					5%	95%
Gender→Anx	.265	.099	2.677	.004	.099	.426
PMHC→Anx	.548	.146	3.757	< .001	.317	.799
Gender→Dep	.202	.101	2.005	.023	.029	.361

PMHC→Dep	.542	.153	3.537	< .001	.296	.801
Gender→WFC	.077	.098	0.785	.216	-.085	.236
PMHC→WFC	-.019	.122	0.159	.437	-.217	.187

Note. CV = Control Variable, Endogenous Construct, SE = Standard Error, CIBC = Confidence Interval Bias Corrected.

Meanwhile, as can be seen in Table 6, CWD had positive and significant relations to WFC ($b = .589, p < .001$) and anxiety ($b = .141, p < .011$) but not a significant one to depression ($b = .077, p = .100$). On the other hand, supervisor support had a negative and significant relationship to WFC ($b = -.083, p < .031$), anxiety ($\beta = -.224, p < .001$), and depression ($b = -.241, p < .001$). Meanwhile, WFC had a positive and significant relationship with anxiety ($\beta = .198, p < .001$) and depression ($\beta = .228, p < .001$).

Table 6
Direct effects

Hypothesis	beta	SE	t-value	p-value (One-tail)	CIBC		Decision
					5%	95%	
Hypothesis 1							
H1a: CWD → Anx	.141	.062	2.289	.011	.038	.242	Supported
H1b: CWD → Dep	.077	.060	1.282	.100	-.023	.175	Not Supported
H1c: CWD → WFC	.589	.037	15.777	< .001	.522	.646	Supported
Hypothesis 2							
H2a: SS → Anx	-.224	.057	3.939	< .001	-.316	-.129	Supported
H2b: SS → Dep	-.241	.052	4.615	< .001	-.324	-.150	Supported
H2c: SS → WFC	-.083	.044	1.867	.031	-.155	-.008	Supported
Hypothesis 3							
H3a: WFC → Anx	.198	.066	3.001	.001	.084	.301	Supported
H3b: WFC → Dep	.228	.065	3.525	< .001	.117	.329	Supported

Note. SE = Standard Error, CIBC = Confidence Interval Bias Corrected, CWD = COVID Work Demands, SS = Supervisor Support, WFC = Work-Family Conflict, Anx = Anxiety, Dep = Depression.

In Table 7, it can be appreciated that WFC significantly mediated the relationship between CWD and anxiety ($IE = .117, p = .004$). Also, WFC significantly mediated the relationship between CWD and depression ($IE = .134, p < .001$).

Table 7
Indirect effects

Hypothesis 4	IE	TE	Med%	SE	t-value (2-tail)	p-value 5.00%	CIBC		Decision
							2.5%	97.5%	
H4a: CWD → WFC → Anx	.117	.258	45.3	.040	2.919	.004	.038	.197	Supported
H4b: CWD → WFC → Dep	.134	.211	63.5	.040	3.391	.001	.058	.212	Supported

Note. IE = Indirect effect, TE = Total effect, Med% = percent of mediation, SE = Standard Error, CIBC = Confidence Interval Bias Corrected, IEO = Indirect Effect Only

Finally, we examined the moderating role of supervisor support on the relationship between CWD and WFC, anxiety, and depression. As can be appreciated in Table 8, supervisor support did not moderate these relationships.

Table 8
Moderation results

Hypothesis 5	beta	SE	t-value (One-tail)	p-value 5.00%	CIBC		Decision
					5%	95%	
H5a: SS x CWD → Anx	-.046	.056	.830	.203	-.136	.048	Not Supported
H5b: SS x CWD → Dep	.008	.054	.150	.440	-.084	.096	Not Supported
H5c: SS x CWD → WFC	-.027	.036	.748	.227	-.084	.034	Not Supported

Note. SE = Standard Error, CIBC = Confidence Interval Bias Corrected, CWD = COVID Work Demands, SS = Supervisor Support, WFC = Work-Family Conflict, Anx = Anxiety, Dep = Depression.

et al. (2021) have argued, the data point to a greater work-family conflict among employees during the COVID-19 epidemic than there was previously. The need to continue working creates a conflict because they are also exposed to contracting the COVID-19 virus and, in turn, infecting their loved ones. Consequently, the COVID-19 pandemic's spillover appears consistent with earlier literature highlighting the impact of work-family conflict (American Psychological Association, 2020; Baerlswyl et al., 2016; Rosario-Hernández et al., 2021).

Regarding the direct effects of supervisor support, our research indicates that it has a negative and substantial relationship with WFC-DC, anxiety, and depression. This means that supervisor support helps employees avoid these undesirable health outcomes. These results imply that, as the JD-R model suggests, supervisor support functions as a resource for employees (Bakker & Demerouti, 2007). Furthermore, supervisor support directly lessens the detrimental effects of work demands on mental health and work-family conflict (e.g., Cohen & Wills, 1985; Heller et al., 1986).

In terms of the effect of WFCDC on mental health, our results indicate that conflicts between work and family responsibilities result in a decline in workers' mental health, as some literature has pointed out previously (e.g., Bedeian et al., 1988; Bilodeau et al., 2023; Burden & Googins, 1987; Cho & Allen, 2013; Greenhaus & Parasuraman, 1987; Hwang & Yu, 2021; Shinn et al., 1989; Vargas-Jiménez et al., 2020). The loss in mental health may be the result of an inability to manage the demands of both work and family, which can deplete resources and reduce an employee's ability to fulfill their responsibilities in both the work and family domains (Greenhaus & Beutell, 1985; Kirby, 2017; Steiber, 2009).

Concerning the mediating role of WFCDC, we found that it mediated significantly the relationship between CWD and mental health. In terms of anxiety symptomatology, the WFCDC partially mediates the relationship between CWD and anxiety in such a way that 45.3% is due to its indirect effect. Regarding depression, since the direct effect of CWD on depression was not significant, the entire relationship between CWD and depression is mediated by WFCDC. We argue that employees must use many resources to deal with the multiple role conflicts they face in the work and family domains. Therefore, this use of resources exhausts them exponentially, leaving them exposed and fragile in mental health.

Finally, we found no significant interactions concerning the moderating role of social support in the relationship between CWD, mental health, and WFCDC. These findings imply that supervisor support, as a moderator variable, has little bearing on how the primary variables under investigation relate to one another; therefore, this suggests that the main effect applies equally at all levels of the variables and moderator (Jose, 2013). There has been conflicting evidence supporting this stress-buffering notion (Bavik et al., 2020). Some research has not found that social support, in our case supervisor support, moderates or buffers the association between work demands, work-family conflict, and mental health. According to Bavik et al. (2020), researchers have suggested that comprehending the advantages of social support is more crucial than examining its mitigating consequences.

Discussion and Conclusion

This study aimed to examine the effect of CWD on employees' mental health and WFCDC. Also, this study pretended to test the mediating role of WFCDC in the relationship between CWD and mental health and the moderating role of supervisor support in these relationships. Firstly, the study findings show the direct positive and significant effect that the control variables, Previous Mental Health (PMHC) and Gender, have on the perception of anxiety and depression. Even though the control variables were not considered as part of the study hypothesis due to their significant effects on mental health, we recommend that they might be included in future research.

Our main findings provide evidence regarding the detrimental effects of CWD on the mental health of employees, specifically on anxiety and WFCDC, which is consonant with some of the literature (e.g., Lan et al., 2020; Toh et al., 2021; Moreno-Jiménez et al., 2021; Rosario-Hernández et al., 2021). Our research indicates that CWD negatively impacts workers to the point where anxiety becomes apparent; however, it is important to mention that when we compare these results with some other studies done during the heightened phase of the pandemic (e.g., Rosario-Hernández et al., 2021), the magnitude of the relationships has diminished.

Meanwhile, the effects of CWD on depressive symptomatology were much smaller in the present study and even non-significant when compared with the Rosario-Hernández and collaborators' study (2021). This is probably due to the moment these studies were conducted; one was during the most critical part of the pandemic, and the present one was near the aftermath of the pandemic. On the other hand, the effect of CWD on WFCDC is even more pronounced when one considers the various responsibilities that workers play in their personal and professional lives, which exacerbates work-family conflict. Our results are consistent with other studies regarding the detrimental effect of CWD on work-family conflict (e.g., Butler et al., 2005; Ilies et al., 2007; Major et al., 2002; O'Driscoll et al., 1992; Rosario-Hernández et al., 2021). This can be seen in the magnitude of said relationship ($b = .589$) and CWD's brutal effect size on WFCDC ($f^2 = .540$). As Rosario-Hernández

Theoretical and Practical Implications

Stress, depression, and anxiety are statistically the most commonly reported mental health concerns at work (Greden et al., 2019). Employees experiencing these conditions are ineffective, prone to accidents, riddled with mistakes, prone to taking sick days, and have

high turnover. The World Health Organization (WHO, 2022) estimates that 12 billion working days are lost annually worldwide to depression and anxiety, at \$1 trillion annually in lost productivity of employees. Because mental health problems are pervasive among people who work, workplaces are being targeted more and more in efforts to increase mental health promotion, prevention, and interventions. The gains to employers of investing in mental health and well-being are seen in improved work engagement, job satisfaction, retention, attraction, and performance while preventing emotional exhaustion and decreasing the perception of work-family conflict (Demerouti, et al., 2001; Schaufeli et al., 2009; Zhou, et al. 2022; Rosario-Hernandez et al., 2021). According to the “World Mental Health Report” from the (WHO, 2022), these trends hold regardless of country, industry, age group, role, or gender.

This study contributes to the intersection between industrial/organizational psychology and mental health at work during the COVID-19 pandemic. Although some studies (Rosario-Hernández et al., 2021; Moreno-Jiménez et al., 2021; Cai et al., 2020; Gold, 2020; Kisely et al., 2020; Lan., 2020a) indicate the impact of work demands during the pandemic on mental health and work-family conflict, no studies examine this aspect of COVID-19 with employees in Puerto Rico, the United States of America, and the Dominican Republic. This study adds to the body of literature, which suggests that during the COVID-19 pandemic, the volatility of the work conditions considerably increased the employee’s perception of anxiety, depression, and work-family conflict (Rosario-Hernández et al., 2021; APA, 2020; Baerlswyl et al., 2016).

Thus, our findings suggest that when employees have work demands and work-family conflict, their perception of the support they receive from their supervisor is an essential factor in preventing mental health conditions like depression and anxiety. Supervisor support seems to offer potential as a factor that helps manage the detrimental effects of work demands on mental health and work-family conflict. This indicates that the supervisor’s support is essential for the employee’s psychological well-being in extreme situations such as a pandemic and that the employee can be emotionally stable to perform the job when they perceive the supervisor’s social support.

Considering the impact that the control variables, Previous Mental Health (PMHC), and Gender have on psychological well-being, it would be important that employees are made aware of it so that they are encouraged to request the proper accommodations covered by the Disability and Equal Rights legislation of each country. The supervisors must foster a proper, trustworthy environment so employees are motivated to disclose suffering from these conditions and seek help. It is also crucial that supervisors are adequately trained on how to detect and deal with an employee who is suffering from these conditions in such a way that it could support the employee more directly to help them manage the work and family domains and consequently reduce the negative effect on the worker’s mental health.

Although many companies provide accommodations, supervisors frequently have the final say in whether or not employees can use the organizational resources available to them. Therefore, for employees to meet their diverse and complicated needs regarding their work and family responsibilities, supervisors must be flexible when making adjustments to work arrangements. Supervisors must pay attention and collaborate with their employees to determine what accommodations are reasonable and suitable. Supervisors should be prepared to make innovative and acceptable concessions based on the needs of each employee, even though they may need to adhere to organizational

standards. Moreover, supervisors need to communicate their experiences to higher management, other supervisors, and their employees so that the appropriate changes are documented for future decisions and productivity outcomes.

Finally, to implement these specific recommendations effectively, supervisors should receive training to enhance their comprehension of mental health conditions, the impact of work-family conflicts, and how to support the employees under their supervision. Organizations should train supervisors to provide substantial social support to workers through behavior that shows care and willingness to listen to problems so that stressors inherent at the workplace and problems due to the work and family roles can be understood (Noryati et al., 2010).

Strengths, Limitations, and Suggestions for Future Research

To our knowledge, this is the first study to address the effect of CWD in samples of employees from the Dominican Republic, the United States of America (USA), and Puerto Rico simultaneously. The study is supported by the job demands-resources model (JD-R), a tried-and-true theoretical framework for describing the connections between work features and well-being (Baerlswyl et al., 2016; Rosario-Hernández et al., 2021).

The following limitations must be kept in mind when interpreting the results. First, the population representativeness was a convenient sample selection of the workers; it did not corroborate the population similarity of employees in organizations in Puerto Rico, the USA, and the Dominican Republic, which hampers the generalizability of the findings. The Dominican Republic has less participation than the other countries. These limitations can affect the study averages and increase the standard measurement error. Additionally, we relied on self-report data, which may inflate the associations between variables through common method variance (Podsakoff et al., 2003). However, we tested for common method variance following Kock’s (2015) recommendations using the collinearity variance inflation factor (VIF) criterion, and all variables were less than the threshold of 3.3, suggesting that this was not a problem in the current study. The study was a cross-sectional research conducted from June to December of 2022, in the aftermath of the pandemic, which could not reflect the longitudinal changes in the job stressors and well-being of the participants, thus affecting the results. External factors like government policies and access to mental health services could have significantly influenced the findings. Psychological variables such as resilience and social support were not measured but could also affect the results.

For future research, it is recommended that a longitudinal study be conducted to explore the trajectories of job stressors and the well-being of workers, using stratified sampling to achieve a greater representation of countries. Even though the control variables, Previous Mental Health and Gender, were not considered part of the study hypothesis due to their significant effects on mental health, we recommend that they might be included in the hypothesis in future research. Doing research with different countries is recommended, considering the same theoretical framework and proposed research model based on the new work realities.

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