Revista Iberoamericana para la Investigación y el Desarrollo Educativo
ISSN 2007 - 7467

https://doi.org/10.23913/ride.v12i24.1168

Artículos científicos

Factores de riesgo psicosocial y calidad de vida durante el confinamiento por covid-19 en universidades

Psychosocial Risk Factors and Quality of life During COVID-19 Lockdown at Universities

Fatores de risco psicossociais e qualidade de vida durante o confinamento por covid-19 em universidades

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Revista Iberoamericana para la Investigación y el Desarrollo Educativo
ISSN 2007 - 7467

Resumen

El objetivo de este trabajo fue identificar los factores de riesgo psicosocial (FRPS) que influyen con más peso en la calidad de vida del personal de universidades y las características sociodemográficas y laborales que diferencian la percepción de los FRPS después de 15 meses de confinamiento por la pandemia de la covid-19. Se trató de un estudio cuantitativo, transversal y explicativo. La muestra fue no probabilística por conveniencia e incluyó 156 colaboradores de universidades del centro de México. Los participantes respondieron en línea la Guía de referencia III y la Guía de referencia V de la Norma Oficial Mexicana 035 de la Secretaría del Trabajo y Previsión Social, así como el cuestionario CVRS, Short Form-36. Entre los resultados, destaca que 57.7 % de la muestra reportó FRPS en niveles medio, alto y muy alto. La vitalidad fue la subescala peor evaluada (M = 65.3); modelos de regresiones por pasos mostraron que la interferencia trabajo-familia (ITF) explicó la vitalidad con 19 % de la varianza (que se incrementó a 23 % al incluir la violencia). Las características sociodemográficas y laborales vinculadas con una mayor percepción de riesgo fueron: edad de 40 a 49 años, estado civil divorciado, grado de maestría, puesto de profesor de tiempo completo y contrato por tiempo indeterminado. La baja vitalidad explicada por la ITF puede ser resultado del largo periodo de teletrabajo no planificado, que parece afectar más a los adultos en edad media.

Palabras clave: calidad de vida, covid-19, factores de riesgo psicosocial, trabajadores, pandemia, psicología social.

Abstract

The objective of this work was to identify the psychosocial risk factors (PSRF) that most influence the quality of life of university personnel and the sociodemographic and labor characteristics that differentiate the perception of PSRF after 15 months of confinement due to the COVID-19 pandemic. It was a quantitative, cross-sectional and explanatory study. The sample was non-probabilistic for convenience that included 156 collaborators from universities in central Mexico. Participants responded online the Reference Guide III and Reference Guide V of the Official Mexican Standard 035 of the Ministry of Labor and Social Welfare, as well as the HRQoL questionnaire, Short Form-36. Among the results, it stands out that 57.7 % of the sample reported FRPS at medium, high and very high levels. Vitality was the worst evaluated subscale (M = 65.3); stepwise regression models showed that work-

family interference (WFI) explained vitality with 19 % of the variance (which increased to 23% when violence was included). The sociodemographic and labor characteristics associated with a higher perception of risk were: age 40 to 49 years, divorced marital status, master's degree, full-time teaching position, and open-ended contract. The low vitality explained by the WFI may be the result of the long period of unplanned teleworking, which seems to affect middle-aged adults more.

Keywords: quality of life, covid-19, psychosocial risk factors, workers, pandemic, social psychology.

Resumo

O objetivo deste estudo foi identificar os fatores de risco psicossociais (PSRFs) que têm maior influência na qualidade de vida do pessoal universitário e as características sociodemográficas e laborais que diferenciam a percepção dos PSRFs após 15 meses de confinamento devido à pandemia de covid-19. 19 pandemia. Trata-se de um estudo quantitativo, transversal e explicativo. A amostra foi não probabilística por conveniência e incluiu 156 colaboradores de universidades da região central do México. Os participantes responderam online ao Guia de Referência III e Guia de Referência V da Norma Oficial Mexicana 035 do Ministério do Trabalho e Previdência Social, bem como o questionário CVRS, Short Form-36. Dentre os resultados, destaca-se que 57,7% da amostra relataram FRPS em níveis médio, alto e muito alto. Vitalidade foi a subescala pior avaliada (M = 65,3); Modelos de regressão stepwise mostraram que a interferência trabalho-família (WFI) explicou a vitalidade com 19% da variância (que aumentou para 23% quando a violência foi incluída). As características sociodemográficas e laborais associadas à maior percepção de risco foram: idade de 40 a 49 anos, estado civil divorciado, mestrado, magistério em tempo integral e contrato sem termo. A baixa vitalidade explicada pela ITF pode ser resultado do longo período de teletrabalho não planejado, que parece afetar mais os adultos de meia-idade.

Palavras-chave: qualidade de vida, covid-19, fatores de risco psicossociais, trabalhadores, pandemia, psicologia social.

Fecha Recepción: Octubre 2021 **Fecha Aceptación:** Abril 2022

Introduction

Psychosocial risk factors (PSRF) are aspects of work organization with the potential to affect the health and quality of life of workers through the generation of chronic stress, which has been shown to cause physical, mental and in exposed individuals (Anaya, Saldaña and Ramírez, 2017; Moreno, 2011; Van den Broek et al., 2014). Theories of stress in the context of work began to spread long before the Joint Committee of the International Labor Organization [ILO] and the World Health Organization [WHO] (1984) published the report on psychosocial factors at work , recognition and control, and since then has continued the development of theoretical models that attempt to explain the mechanism by which FRPS could undermine the health-related quality of life (HRQoL) of workers, as well as the presence of psychosocial risks , that is, manifest damage to health, such as burnout (Moreno, 2011).

In a broad sense, quality of life is defined as the individual's perception of their position in life, in the context of the culture and its value system in relation to their goals, expectations, standards and concerns (World Health Organization Quality of Life Assessment Group [WHOQOL], 1995). Specifically in the field of health, Sánchez, García and Martínez (2017) mention that HRQoL assesses health status as a predictor of personal quality of life. And it does so through the evaluation of three biopsychosocial dimensions: the biological aspect includes the presence or absence of disease; in the psychological sphere is mental health, and in the social sphere, interfamily relations, at work and in society.

Psychosocial risk factors at work

In the work context, stressful situations alter HRQoL by triggering a harmful psychobiological response (Navinés, Martín, Olivé, & Valdés, 2016). That is why the FRPS have been studied from the theories of work stress. In this way, the researchers posit that labor demands that exceed the worker's capacity, the degree of freedom of decision to face such demands, insufficient resources, and the interaction between the worker and his or her work environment (Caplan, Cobb, French, Van Harrison and Pinneau, 1975; Cooper and Marshall, 1976; Karasek, 1979), as well as the evaluation of transactions between the worker and the environment classified as harmful, challenging or threatening depending on environmental characteristics and personality (Cox, Griffiths and Rial, 2005; Lazarus, 1974), can generate stress and contribute to the appearance or exacerbation of mental and behavioral

disorders (burnout, anxiety and depression), musculoskeletal disorders and cardiovascular diseases, obesity, diabetes, hypertension, dyslipidemia and metabolic syndrome, all of them favored by unhealthy lifestyles and negative coping behaviors: smoking, poor diet , alcohol consumption and drug abuse (International Labor Organization [ILO], 2016; Navinés et al., 2016).

Based on the emphasis of the WHO and the ILO regarding FRPS, the governments of some countries have established in their regulations the identification and analysis of these in order to protect the physical and mental health of workers (Cousins et al., 2004; Ministry of Social Protection, July 17, 2008; Pérez and Nogareda, 2012). In Mexico, the term FRPS appeared for the first time in the reform of the Occupational Health and Safety Regulations (Presidency of the Republic, November 13, 2014). There it was defined as follows:

> Those that can cause anxiety disorders, non-organic disorders of the sleep-wake cycle and severe stress and adaptation, derived from the nature of the functions of the job, the type of work shift and exposure to severe traumatic events or acts of labor violence, for the work carried out (párr. 17).

The regulation, in addition to defining the FRPS, established for employers the obligation to evaluate and control them. However, it is not until 2018, with the publication of the Official Mexican Standard NOM-035-STPS-2018, when its definition is reaffirmed and the classification is specified:

> FRPS understand dangerous and unsafe conditions in the work environment; workloads when they exceed the capacity of the worker; the lack of control over the work (possibility of influencing the organization and development of the work when the process allows it); working hours longer than those provided for in the Federal Labor Law, shift rotation that includes night shifts and night shifts without recovery and rest periods; work-family interference, negative leadership, and negative relationships at work (Secretaría del Trabajo y Previsión Social [STPS], 2018, párr. 14)

This standard focuses on the identification, analysis and prevention of FRPS, as well as the promotion of favorable organizational environments (STPS, 2018), and not on the presence of stress or stress-related diseases. The standard discloses in terms of Mexican legislation the categories and dimensions in which the FRPS are grouped, the instruments for their evaluation (Reference Guides II and III), the classification of the level of risk and intervention recommendations from the medium level. risky. It also establishes the minimum

criteria of validity and reliability required in case of opting for instruments other than the Reference Guides, in order to be considered as support in compliance with the regulations. An alternative is the one developed by Unda et al. (2016) to assess the FRPS in the work of university professors. The instrument showed a Cronbach's alpha between 0.75 and 0.92, which positions it as valid and reliable, however, being so specific, it does not include other actors in university education (administrative, technical, operational staff) immersed in the same system. organization, as well as different groups of workers.

FRPS at work have increased and intensified from modifications to job performance resulting from globalization and technological advances, new contractual and working time arrangements, as well as demographic changes (Van den Broek et al., 2014 ; Moreno, 2011; Uribe, Gutierrez and Amézquita, 2020). To the prevalent FRPS are added the emerging ones, such as teleworking and isolation (García, Torrano and García, 2020). And it is that since the appearance of the 2019 coronavirus disease (covid-19) pandemic, the emerging ones have acquired great relevance, due to the need for an accelerated and unplanned adaptation in many of the economic and social activities. Indeed, with the limitation of some activities to mitigate the global spread of the type 2 coronavirus that causes severe acute respiratory syndrome (SARS-CoV-2), researchers began to identify the consequences on HRQoL in the general population. For example, a study conducted simultaneously in Italy and Israel during lockdown in people not infected by covid-19 showed higher levels of anxiety and depression compared to the prevalence in the general population in years before the pandemic. (Amit, Dubovi y Ruban, 2021).

Psychosocial risk factors in the educational field

Specifically in the education sector, the sudden closure of schools in March 2020 forced teachers and support staff to move education from a historically face-to-face model to a distance education model. In many cases, probably most of them, this transition took place without adequate preparation of physical, material and personal resources to face tele-education. And it is that although advances were already shown in this area with the inclusion of some virtual educational programs, these were preferred by students who could not access face-to-face and full-time education.

Now, even before the pandemic, educational institutions were and are particularly susceptible to exposure to FRPS due to the type of task, which brings with it significant

psychological demands, added to the pressure to be increasingly expert and effective, work with students with emotional or behavioral problems and lack of resources (Seferoğlu, Yildiz and Avci, 2014). As is well known, the organizations that train professionals, that is, the universities and higher education institutions, are of great importance for the development of the communities, since the young university students will be inserted in the economic activities of the region and the country. Therefore, the physical, mental and social health of the staff turns out to be a key element in the training of students, since the negative effect of FRPS on exposed workers can affect the performance of the organization and adversely influence the teaching-learning process (Vera, Valdez, Contreras y Castillo, 2021).

Some empirical studies have identified that teachers present high levels of psychological demands, low influence on decision-making and autonomy (Heredia et al., 2018), low esteem and double presence, particularly in women (García, Iglesias, Saleta and Romay , 2016). Low job control, job insecurity, effort, and overcommitment explained 25% of the variance of psychosomatic symptoms and 32% of anxiety (Gómez, Perilla, & Hermosa, 2019). In non-teaching university workers, psychological demands, decision latitude, and social support were associated with emotional exhaustion and personal achievement, burnout subscales (Knani, Fournier, & Biron, 2018). Other FRPS identified in both teachers and non-teachers were: strict deadlines, overwork, difficulty meeting requirements, and communication problems (Mátó, Tarkó, Lippai, Nagymajtényi, & Paulik, 2020).

Although there are studies on the FRPS present in the context of work in universities, these are still scarce and the results do not reflect a consensus. For example, some authors report low to medium levels of FRPS (Acosta et al., 2017; Gómez et al., 2019), in contrast to other studies that found high levels of FRPS (Heredia et al., 2018; Wray and Kinman, 2020). The majority, however, agree that relationships and social support, psychological demands, workload, job instability and compensation are FRPS that affect the health of university workers. As can be seen, some of them are related to changes in educational management such as: increased enrollment, budget reduction, temporary contracts, staff cuts and increased technology (Gómez et al., 2019; Unda et al. al., 2016).

In this sense, full-time professors but with a non-permanent contractual situation presented worse health status and more stress symptoms than professors hired permanently, because, added to the same teaching and research load, they are in a job uncertainty (Cladellas, Castelló and Parrado, 2018); as well as higher correlations between the FRPS (psychological demands, active work, compensation and double presence) and perceived

stress, the latter predominantly in women, although no differences were found by sex in the double presence dimension (Tacca y Tacca, 2019).

The work overload-job instability pair is joined by the work-family conflict, because in an attempt to meet higher demands, university employees allocate additional time to their workday, which interferes with rest or family time (García et al., 2016; Seijas, 2019). This is particularly notable in teachers who telecommute, since in working from home the separation between work and family life is blurred (although this is in contrast to the results of Heiden, Widar, Wiitavaara and Boman [2020], who refer not having found a significant relationship between work-life balance and telecommuting). Telecommuting has also been linked to isolation (García *et al*., 2020).

University work and the covid-19 pandemic

In the context of the covid-19 pandemic, the education sector has faced a great challenge to maintain courses, comply with educational programs and learn on the fly more than 15 months after the closure of schools, but still few studies have analyzed the influence of FRPS on the health of university personnel. In this regard, Gabr, Soliman, Allam and Abdel (2021) analyzed, from a sample of 142 participants from a university in Egypt, the relationship between technostress, the availability of modern computers, adequate Wi-Fi, training in the use of technological tools, as well as blood cortisol levels as a physiological indicator of stress. Women presented higher levels of technostress and all subscales were related to being a woman and one or more variables. Sociodemographic variables, training, good Wi-Fi, and modern computers explained 48% of techno-overload, 36% of techno-invasion, and 70% of complexity (techno-stress subscales). Blood cortisol level was higher in participants with higher technostress scores.

In a study carried out in Spain, Colombia, Chile, and Nicaragua, the influence of covid-19 during quarantine was identified in 554 university employees and 1,084 students. The results revealed that employees experienced an increase in stress level from 42% to 45% within the first four weeks. The percentage who reported remaining at the same level of stress as before the quarantine decreased by 12% after five weeks and the decrease in quality of life increased by 5%; in relation to symptoms of depression and anxiety, the percentage increased from 38% to 49% after the fifth week (Jojoa, Lazaro, Garcia, Gonzalez y Urizar, 2021).

Another study carried out in higher education institutions in Europe, North America, Central America, South America, Africa and Australia analyzed the impacts of covid-19 and the isolation derived from quarantine among 238 workers and 473 students. The results revealed that both academic staff and students (more than 60% of respondents) stated that the closure affected their work or study. The problems during confinement were: interruption of communication (51.29%), adjustment of schedules (50.72%), delays (44.99%), difficulty in combining work or studies with the family (43.55%), cancellation of meetings (36.96%).) and difficulty for research (29.66%). Other problems overlapping with stress and anxiety (30%) included lack of institutional support, lack of motivation, stress of living and working at home, and physical discomfort due to inadequate facilities. Nearly 60% of respondents felt the closure had a moderate to much greater impact on their workload, with the top personal challenges due to social isolation being: lack of interactions with colleagues and staff (72%), lack of motivation (57%), anxiety (40%), boredom (35%), loneliness (30%) and fear (20%) (Leal et al., 2021).

For their part, van Niekerk and van Gent (2021) carried out a study to determine the mental health and well-being of teachers, administrators and service personnel of a university in South Africa after phases four and five of confinement. Of the 280 participants, 72.5% were mentally well, while the rest had medium to severe levels of psychological distress. Women, administrative and service staff, and workers with comorbidities had significantly higher levels of psychological distress and lower levels of mental well-being. This suggests that university workers have been subjected to work overload, long hours to update courses, attention to students, colleagues and superiors at any time, because when working from home any time seems appropriate to work, and to this we must add the tension and anxiety for personal and family health with the consequent increase in stress, which could be reflected in health alterations (Ajmain *et al*., 2020; Eurofound & International Labour Office, 2017).

Derived from the above, the following research questions emerge: which FRPS, according to the NOM-035-STPS-2018 classification, have influenced HRQoL during the covid-19 pandemic? Are there differences in the perception of FRPS according to sociodemographic and labor characteristics? It is hypothesized that during confinement, workload, working hours, work-family interference, and work relationships predict HRQoL more intensely in women, full-time professors, and administrative staff. To provide an answer, the objective is to identify the FRPS that most influence the HRQoL of university

personnel and the sociodemographic and labor characteristics that differentiate the perception of the FRPS after 15 months of confinement.

Method

It is a cross-sectional design, with an explanatory scope that included university workers, teachers and non-teachers. This research corresponds to the partial results of a broader study that addresses additional organizational variables and that will continue in the period of return to attendance of university workers in Mexico.

Participants

The sample was non-probabilistic for convenience. It included workers over 18 years of age, with a minimum secondary education and a formal employment contract who agreed to participate and signed an informed consent. A total of 156 workers from three institutions belonging to the technological universities subsystem located in a state in the central region of Mexico participated.

Instruments

The participants answered a series of measurement instruments in an online version: the Reference Guide III of the Official Mexican Standard NOM-035-STPS-2018 (STPS, October 23, 2018), the HRQoL questionnaire SF36 (Short Form- 36) by Ware (1993) and Reference Guide V of NOM-035-STPS-2018, sociodemographic and labor data (STPS, October 23, 2018).

Reference Guide III assesses FRPS in the workplace. It is made up of 72 items that are grouped into five categories: Work environment (AT), Factors of the activity (FPA), Organization of working time (OTT), Leadership and relationships at work (LRT) and Organizational environment (EO). In turn, these categories are made up of 10 domains: Work environment conditions (CAT), Workload (CT), Lack of control over work (FCT), Work-family interference (ITF), Work shift (JT), Leadership (LI), Relations at work (RT), Violence (VI), Recognition of performance (RD) and Insufficient sense of belonging and instability (PI).

Reference Guide III is a Likert-type scale ranging from “Almost always”, “Always”, “Sometimes” to “Almost never” and “Never”. The score can range from zero to four for some

items and vice versa for others. The total scale considers the sum of all the items and, according to the criteria defined by the same Guide, they can assume very high, high, medium, low and zero risk levels. The same treatment applies to categories and domains. The instrument considers that the higher the score obtained, the higher the level of risk. Uribe et al. (2020) evaluated the reliability of the instrument in a sample of 114 Mexican workers, and found that for the general scale Cronbach's alpha was 0.95 and for the domains it ranged between 0.67 and 0.93, levels by which it can be considered between acceptable and good.

The SF36 questionnaire, adapted by Alonso, Prieto and Antó (1995), consists of 32 Likert-type questions and four dichotomous option questions (yes and no). The sum of 35 items allows the scale to be grouped into eight subscales: Physical function (FF), Physical role (RF), Body pain (DC), General health (SG), Vitality (VT), Social function (FS), Emotional role (RE) and Mental Health (SM) and includes a question that is not part of any of the subscales and only assesses the perception of change in health from one year to the next. The SF36 score ranges from 0 to 100 and has no cut-off points, so a higher score reflects a better state of health.

The FF, RF, DC, FS and RE scales represent the state of health as the absence of limitations or disability and the maximum result of 100 is obtained when the participants do not report any disability, that is, they present an expected unipolarity of responses in the top end. The SG, VT and SM scales are bipolar, since they contemplate a wider range of health states, both positive and negative, for this reason a more favorable self-assessment of the health state is required to achieve the highest possible result (Zúniga, Carrillo , Fos, Gandek and Medina, 1999). In a study of its psychometric properties in Mexico, acceptable to good Cronbach's alpha coefficients were obtained for all the subscales, varying between 0.68 and 0.95 (Sánchez et al., 2017). Table 1 shows the conceptual definition of the explanatory variables (FRPS scale domains), as well as the response variables (HRQoL subscales).

Tabla 1. Definición conceptual de las variables de estudio

FRPS	Concepto	Núm. Ítems
CAT	Condiciones peligrosas, inseguras o deficientes e insalubres que exigen un esfuerzo adicional de adaptación.	5
CT	Exigencias que exceden las capacidades del trabajador, pueden ser cuantitativas, cognitivas o mentales, emocionales, de responsabilidad, cargas contradictorias o inconsistentes.	15
FCT	Posibilidad para influir y tomar decisiones en la realización de las actividades: la iniciativa y autonomía; el uso y desarrollo de habilidades y conocimientos; la participación y manejo del cambio, así como la capacitación.	10
ITF	Surge cuando existe conflicto entre las actividades familiares o personales y las responsabilidades laborales; cuando de manera constante se atienden responsabilidades laborales durante el tiempo familiar y personal, o se tiene que laborar fuera del horario.	4
JT	Las jornadas de trabajo y rotación de turnos que exceden lo establecido en la Ley Federal del Trabajo. Representan una exigencia de tiempo laboral en términos de la duración y el horario de la jornada. Se convierte en un FRPS cuando se trabaja con extensas jornadas, frecuente rotación de turnos o turnos nocturnos, sin pausas y descansos periódicos establecidos y sin medidas de prevención y protección del trabajador para detectar afectación de su salud de manera temprana.	2
LI	Tipo de relación que se establece entre el patrón o sus representantes y los trabajadores, cuyas características influyen en la forma de trabajar y en las relaciones de un área de trabajo y que está directamente relacionada con la actitud agresiva oo impositiva; falta de claridad de las funciones y escaso o nulo reconocimiento y retroalimentación del desempeño.	9
RT	Interacción que se establece en el contexto laboral, abarca aspectos como la imposibilidad de interactuar con los compañeros para la solución de	9

	problemas y características desfavorables de estas interacciones: deficiente o nulo trabajo en equipo y apoyo social.	
VI	Actos que dañan la estabilidad psicológica, la personalidad, la dignidad o integridad del trabajador tales como: acciones de intimidación sistemática y persistente (descrédito, insultos, humillaciones, devaluación, marginación, indiferencia, comparaciones destructivas, rechazo, restricción a la autodeterminación y amenazas), las cuales llevan al trabajador a la depresión, al aislamiento, a la pérdida de su autoestima. Se incluye el hostigamiento, que es el ejercicio de poder en una relación de subordinación real de la víctima frente al agresor en el ámbito laboral.	8
RD	No hay definición específica para RD ni para PI, solo se mencionan las características de un entorno organizacional favorable: sentido de pertenencia; formación para la realización de las tareas; definición de responsabilidades; participación y comunicación; distribución adecuada de cargas de trabajo con jornadas laborales regulares, y evaluación y reconocimiento del desempeño.	6
PI		4
CVRS	Concepto	Núm. Ítems
FF	Grado en que la salud limita las actividades físicas: autocuidado, caminar, subir escaleras, inclinarse, cargar o llevar pesos, y los esfuerzos moderados e intensos.	10
RF	Grado en que la salud física interfiere en el trabajo y en otras actividades diarias: rendimiento menor que el deseado, la limitación en el tipo de actividades realizadas o la dificultad en la realización de actividades.	4
DC	La intensidad del dolor y su efecto en el trabajo habitual, tanto fuera de casa como en el hogar.	2
SG	Valoración personal de la salud: salud actual, perspectivas de salud en el futuro y resistencia a enfermar.	5
VT	Sentimiento de energía y vitalidad frente al sentimiento de cansancio y agotamiento.	4

FS	Grado en que los problemas de salud física o emocional interfieren en la vida social habitual.	2
RE	Grado en que los problemas emocionales interfieren en el trabajo u otras actividades diarias: reducción en el tiempo dedicado a esas actividades, rendimiento menor que el deseado y disminución del cuidado al trabajar.	3
SM	Salud mental general: depresión, ansiedad, control de la conducta, control emocional y afecto positivo en general.	5

Fuente: Elaboración propia con base en la NOM-035-STPS-2018 (STPS, 23 de octubre de 2018) y el manual de puntuación de la versión española del cuestionario de salud SF-36 (Alonso *et al*., 1995)

Reference Guide V of the Official Mexican Standard NOM-035-STPS-2018 (STPS, October 23, 2018) considers the sociodemographic and job aspects that allow employers to carry out the analyzes referred to in said standard.

Procedure

After the formal invitation to the educational authorities of 16 universities in the months of February to May 2021, three institutions agreed to participate (18.7%); the rest did not respond or declined the invitation. In the universities with institutional acceptance, through the human resources department, the following was distributed to the workers via email: the purpose of the study, the informed consent, the instructions for participation and the access address to the online instruments that were hosted on a secure, purpose-designed website. The data collection comprised the months of June and July 2021. The institutions were coded to safeguard their anonymity, as well as the confidentiality of the participants.

Data analysis

The SPSS 25.0 statistical program was used. A frequency analysis was applied to assess the prevalence of the FRPS and their domains, as well as tests of central tendency for the HRQoL subscales. Hypothesis tests were performed to identify significant differences between subgroups of participants. Likewise, bivariate Spearman correlations and stepwise multiple linear regressions were performed to define the predictors of HRQoL. And the statistical power and effect size were estimated with the G*Power software. The p value was

considered below 0.05 and the variables that resulted in significant correlations were integrated into the stepwise multiple regression model.

Results

Initially, the sociodemographic composition of the participants was analyzed, as shown in Table 2. The highest percentages were distributed as follows: 51.9% were women, 41% were in the age range between 30 and 39 years, 41.7% he or she was married and 46.8% had a formal bachelor's or engineering education.

Tabla 2. Características sociodemográficas de la muestra de estudio

Variables	*n*	%
Sexo		
Mujer	*81*	*51.9*
Hombre	75	48.1
Rango de edad		
20 a 29	26	16.7
30 a 39	*64*	*41.0*
40 a 49	37	23.7
50 a 59	23	14.7
60 y más	6	3.7
Estado civil		
Casado	*65*	*41.7*
Soltero	61	39.3
Unión libre	16	10.3
Divorciado	11	7.1
Viudo	3	1.9
Nivel de estudios		
Secundaria	1	.6
Preparatoria o bachillerato	5	3.2
Técnico superior universitario	5	3.2
Licenciatura o Ingeniería	*73*	*46.8*

Maestría	61	39.1
Doctorado	11	7.1

Nota. *n*=156.

Fuente: Elaboración propia con base en la Guía de referencia V de la NOM-035-STPS-2018 (STPS, 23 de octubre de 2018)

In the case of the labor variables, described in table 3, it is observed that the highest percentages of participants were: part-time professors (PTP) with 41%, hired for an indefinite period (44.2%), the majority responded not be unionized or trustworthy with 69.9% and had a seniority of between one and four years (54.4 %).

Tabla 3. Características laborales de la muestra de estudio

Variables	*n*	%
Tipo de contrato		
Por tiempo determinado	49	31.4
Por tiempo indeterminado	*69*	*44.2*
Honorarios	38	24.4
Tipo de personal		
Sindicalizado	2	1.3
Ninguno	*109*	*69.9*
Confianza	45	28.8
Antigüedad		
Menos de 6 meses	7	4.5
Entre 6 meses y 1 año	10	6.4
Entre 1 y 4 años	*85*	*54.5*
Entre 5 y 9 años	50	32.1
Entre 10 y 14 años	4	2.6
Puesto		
Profesor de tiempo parcial (PTP)	*64*	*41*
Profesor de tiempo completo (PTC)	29	18.6
Administrativo	42	26.9
Operativo	5	3.2

Directivo	10	6.4
Otro	6	3.8

Nota. *n* =156.

Fuente: Elaboración propia a partir de la Guía de referencia V de la NOM-035-STPS-2018 (STPS, 23 de octubre de 2018)

Prior to performing the data analysis, the reliability of the NOM-035-STPS-2018 FRPS Reference Guide III for the study sample was verified. As a result, a Cronbach's alpha of 0.95 was obtained on the general scale and for the domains it was from 0.50 to 0.94; specifically, the PI domain showed insufficient reliability $\alpha = 0.50$ (Campo and Oviedo, 2008), so it was not considered in subsequent analyses. The reliability for the general HRQoL scale measured with the SF 36 was 0.92 and for the subscales it ranged between 0.74 and 0.87, considered good.

Characterization of the FRPS

The sample presented a high level of risk (26.9%), followed by medium risk (24.4%) and low risk (23.7%) (see table 4).

Tabla 4. Factores de riesgo psicosocial por nivel

Niveles de riesgo	*n*	%
Nulo	29	18.6
Bajo	37	23.7
Medio	38	24.4
Alto	*42*	*26.9*
Muy alto	10	6.4
Total	156	100.0

Nota: *n* = 156.

Fuente: Elaboración propia con base en la Guía de referencia III de la NOM-035-STPS-2018 (STPS, 23 de octubre de 2018)

In the characterization by domains, as shown in table 5, the highest percentage in the very high risk level corresponds to the JT (19.2%), in the high risk level is the CT (32.1%) and in medium risk the FCT and the JT, with 30.1% in both cases. The best evaluated FRPS,

that is, with the highest percentage of null and low risk, were RT (79.5%) and CAT (35.9%), respectively.

Tabla 5. Dominios de los FRPS por nivel

	Nulo		Bajo		Medio		Alto		Muy alto	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
CAT	90	57.7	56	*35.9*	7	4.5	2	1.3	1	0.6
CT	23	14.7	32	20.5	33	21.2	50	*32.1*	18	11.5
FCT	37	23.7	42	26.9	47	*30.1*	19	12.2	11	7.1
JT	32	20.5	17	10.9	47	*30.1*	30	19.2	30	*19.2*
ITF	47	30.1	42	26.9	30	19.2	21	13.5	16	10.3
LI	96	61.5	19	12.2	16	10.3	15	9.6	10	6.4
RT	124	*79.5*	17	10.9	12	7.7	3	1.9	0	0.0
VI	109	69.9	17	10.9	16	10.3	9	5.8	5	3.2
RD	55	35.3	39	25	35	22.4	20	12.3	7	4.5

Nota: $n = 156$.

Fuente: Elaboración propia con base en la Guía de referencia III de la NOM-035-STPS-2018 (STPS, 23 de octubre de 2018)

FRPS based on sociodemographic and labor characteristics

Considering the non-normality of the data identified with the Kolmogorov-Smirnov test, Mann-Whitney U and Kruskal-Wallis H tests were performed to identify the differences between the sociodemographic and labor variables and the FRPS. Regarding the sociodemographic characteristics, there were differences according to the age range, marital status and educational level, but not according to gender, as shown in Table 6. Regarding the age range, observed differences in ITF ($\chi^2(4,156) = 9.97$, $p = 0.041$) greater in workers between 40 and 49 years old ($M = 6.05$, $SD = 2.5$), in contrast to the group of 29 years old or less ($M = 4.04$, $SD = 2.7$). Along the same lines, there were significant differences according to marital status on the CT ($\chi^2(4,156) = 9.52$, $p = 0.049$), higher in the divorced group ($M = 31.27$, $SD = 7.74$) compared to the divorced group. of singles ($M = 23.07$, $SD = 9.37$). The level of studies showed differences in the perception of the general FRPS scale ($\chi^2(5,156) = 11.66$, $p = 0.041$), higher in workers with a master's degree ($M = 94.27$, $SD =$

35.79) in contrast to workers with a bachelor's degree (M = 73.68, SD = 32.10). Perceived risk derived from CT ($\chi^2(5,156) = 19.59$, $p = 0.001$) was higher for workers with a master's degree (M = 28.75, SD = 7.97) than for workers with a bachelor's degree (M = 22.65, SD = 9.04). The perception of ITF ($\chi^2(5,156) = 17.69$, $p = 0.003$) was higher for workers with a master's degree (M = 6.54, SD = 3.21) compared to workers with a bachelor's degree (M = 4.54, DE = 2.54).

Tabla 6. Diferencias en la percepción de FRPS en función de las características sociodemográficas

Variables	Sexo		Rango de edad		Estado civil		Nivel de estudios	
	χ^2	*p*	χ^2	*p*	χ^2	*p*	χ^2	*P*
FRPS	3179	0.616	5.64	0.227	3.05	0.549	*11.66*	*0.041*
CAT	2796	0.388	7.10	0.130	5.92	0.205	9.23	0.100
CT	2921	0.679	5.48	0.241	*9.52*	*0.049*	*19.59*	*0.001*
FCT	3527	0.082	2.56	0.634	1.85	0.762	6.01	0.305
JT	3210	0.536	2.71	0.606	2.31	0.678	10.65	0.059
ITF	3143.5	0.705	*9.97*	*0.041*	2.72	0.605	*17.69*	*0.003*
LI	3237.5	0.475	4.05	0.398	.618	0.961	8.09	0.151
RT	3099.5	0.825	5.80	0.214	1.77	0.778	2.95	0.707
VI	2979.5	0.836	3.49	0.479	3.10	0.540	7.35	0.196
RD	3308	0.336	7.42	0.115	4.72	0.317	10.56	0.061

Nota: $n = 156$, $p < 0.05$.

Fuente: Elaboración propia

Regarding labor variables, as detailed in Table 7, the type of contract presented significant differences in the FRPS on the general scale ($\chi^2(2,156) = 11.15$, $p = 0.004$), greater in workers hired for time undetermined (M = 90.49, SD = 35.88) than in those hired for fees (M = 66.11, SD = 33.33). The TC ($\chi^2(2,156) = 8.20$, $p = 0.017$) was higher among the group hired for an indefinite period (M = 27.28, SD = 9.21) in relation to those hired for fees (M = 21.97, SD = 8.94). The LI showed significant differences ($\chi^2(2,156) = 15.27$, $p = 0.000$) between those hired for an indefinite period (M = 9.43, SD = 8.09) and those hired for fees (M = 3.76, SD = 4.71), as well as between those hired for fees and those hired for a fixed

period (M = 7.57, SD = 6.38). The RTs ($\chi^2(2,156) = 9.24$, p = 0.010) were significantly higher between the group hired for an indefinite period (M=6.38, SD=5.10) and those hired for fees (M = 3.58, SD = 3.92). The VI showed significant differences ($\chi^2(2,156) = 15.27$, p = 0.000) between the group hired for a fixed time (M = 4.94, SD = 4.18) and for fees (M = 2.63, SD = 3.83) and between those hired for fees and those hired for an indefinite period (M = 4.94, SD = 4.18), ($\chi^2(2,156) = 8.20$, p = 0.017). The RD ($\chi^2(2,156) = 9.78$, p = 0.008) showed differences between the group hired for a fixed time (M = 8.57, SD = 4.81) and for fees (M = 6.03, SD = 5.42) and between those hired by fees and those contracted for an indefinite period (M = 9.09, DE = 4.94).

There were differences according to the type of personnel in the CAT ($\chi^2(2,156) = 8.77$, p = 0.012), whose perception of risk was greater among the workers who answered "None" (M = 4.32, SD = 3.10) in contrast with those who identified themselves as trusted workers (M = 2.77, SD = 2.01). Regarding seniority, there were differences between the perception of the CAT ($\chi^2(2,156) = 13.52$, p = 0.009), as well as in the perception of the CT, although no statistically significant differences were observed between couples with the Bonferroni correction. .

The workplace showed significant differences in the general scale of the FRPS ($\chi^2(5,156) = 19.81$, p = 0.001), higher in the PTC (M = 105.55, SD = 34.98) in contrast to the PTP group (M = 74.63, SD=33.37) and the administrative group (M = 74.21, SD = 31.31). The perception of the CAT ($\chi^2(5,156) = 23.87$, p = 0.001) was higher among the PTC group (M = 5.69, SD = 3.15) compared to the administrative ones (M = 2.90, SD = 2.11) and the PTP (M = 3.59, SD = 2.94), the same as between administrative and other positions (M = 6.50, SD = 1.51). Following job type, CT ($\chi^2(5,156) = 20.52$, p = 0.001) was significantly higher among the PTC group (M = 30.07, SD = 7.92) in contrast to the PTP (M = 22.41, SD = 8.14); the LI showed significant differences ($\chi^2(5,156) = 18.19$, p=.003) between the PTC (M = 12.52, SD = 8.40) and the PTP (M = 5.59, SD = 6.15); differences were also raised in the RTs ($\chi^2(5,156) = 19.96$, p = 0.001), although no statistically significant differences were observed between pairs with the Bonferroni correction. The perception of VI ($\chi^2(5,156) = 24.42$, p = 0.000) was higher among the PTC group (M = 8.79, SD = 5.86) compared to the administrative (M = 4, SD = 4.75) and the PTP (M = 3.19, SD = 3.48).

Tabla 7. Diferencias en la percepción de FRPS en función de las características laborales

Variables	Tipo de contrato		Tipo de personal		Antigüedad		Puesto	
	χ^2	*p*	χ^2	*p*	χ^2	*p*	χ^2	*P*
FRPS	*11.15*	*0.004*	1.69	0.428	5.99	.199	*19.81*	*0.001*
CAT	4.41	0.110	*8.77*	*0.012*	*13.52*	*0.009*	*23.87*	*0.000*
CT	*8.20*	*0.017*	1.58	0.453	*12.26*	*0.015*	*20.52*	*0.001*
FCT	5.84	0.054	4.19	0.123	1.80	0.771	7.71	0.173
JT	2.15	0.340	0.776	0.678	2.49	0.645	3.81	0.577
ITF	1.04	0.592	3.62	0.163	2.45	0.652	7.98	0.157
LI	*15.27*	*0.000*	2.30	0.316	2.49	0.646	*18.19*	*0.003*
RT	*9.24*	*0.010*	0.094	0.954	2.88	0.577	*19.96*	*0.001*
VI	*13.84*	*0.001*	3.52	0.172	6.35	0.174	*24.42*	*0.000*
RD	*9.70*	*0.008*	2.02	0.364	5.59	0.232	9.09	0.106

Nota: $n = 156$, $p < 0.05$.

Fuente: Elaboración propia

Characterization of HRQoL

Initially, the response values were recoded and standardized according to the indications of Ware (1993). The scores for each subscale of the SF36 were estimated and the mean, standard deviation, 95% confidence intervals were calculated, as well as the percentages of floor and ceiling for the entire sample, as reported in Table 8. It can be seen in several of the subscales a ceiling effect (the percentage of participants who qualified at the maximum possible level), the RF and the RE stand out, with 88.3% and 76.7% respectively; a strong floor effect (the proportion of participants who scored at the minimum possible level) was not found, only in the RF (1.8%) and RE (8.6%) subscales, which is expected according to the design of the instrument.

The best evaluated subscales were FF and RF with values above 90 and the worst evaluated were VT, SM and SG.

Tabla 8. Estadísticos descriptivos de las subescalas de CVRS

	FF	RF	DC	SG	V	FS	RE	SM
Valor medio	95.6	94.2	85.9	78.3	65.3	83.2	82.9	78.2
Desviación estándar	9.6	18.5	17.8	15.3	18.2	20.2	33.1	16.4
Intervalo de confianza 95 %	94.1, 97.1	91.2, 97.1	83, 88.7	75.9, 80.8	62.5, 68.2	80.0, 86.4	77.6, 88.1	75.6, 80.8
% al piso	0.0	*1.9*	0.0	0.0	0.0	0.0	*9.0*	0.0
% al techo	64.1	*87.8*	42.3	11.5	0.0	46.8	*76.3*	11.5
Base normativa mexicana en > 25 años	89.6	88.7	85.35	52.2	70.7	75.1	88.9	72.1

Nota: n = 156.

Fuente: Elaboración propia con base en Durán, Gallegos, Salinas y Martínez (2004)

Relations between FRPS and HRQoL

Subsequently, Spearman correlations were made between the variables. As evidenced in Table 9, most of the FRPS domains were negatively and significantly correlated with the HRQoL subscales in weak to moderate values (Coolican, 2005). This shows that the higher the perception of the FRPS level, the lower the HRQoL measured through its subscales. The DC was significantly, negatively and moderately correlated with the ITF, the LI and the RD; VT was significantly, negatively, and moderately correlated with FCT, ITF, LI, VI, and RD; SM was significantly, negatively, and moderately correlated with all FRPS domains except JT, whose correlation was significant but weak.

Tabla 9. Correlaciones bivariadas entre FRPS y CVRS

Variable	FF	RF	DC	SG	VT	FS	RE	SM
CAT	-0.24**	-0.15	-0.16*	-0.22**	-0.24**	-0.21**	-0.00	*-0.32***
CT	-0.29**	-0.15*	-0.28**	-0.20**	-0.26**	*-0.36***	-0.18*	*-0.30***
FCT	-0.15	-0.25**	-0.29**	-0.24**	*-0.31***	-0.25**	-0.13	*-0.31***
JT	-0.15	-0.16*	-0.23**	-0.10	-0.28**	*-0.30***	-0.24**	*-0.28***
ITF	-0.27**	-0.28**	*-0.35***	-0.21**	*-0.41***	*-0.40***	-0.22**	*-0.40***
LI	-0.22**	-0.24**	*-0.32***	-0.28**	*-0.34***	-0.24**	-0.07	*-0.32***
RT	-0.17*	-0.08	-0.24**	-0.19*	-0.25**	-0.17*	-0.01	*-0.30***
VI	-0.26**	-0.21**	-0.23**	-0.20**	*-0.36***	*-0.34***	-0.17*	*-0.43***
RD	-0.18*	-0.23**	*-0.31***	-0.28**	*-0.38***	*-0.22***	-0.13	*-0.31***

*$p < 0.05$. **$p < 0.01$

Fuente: Elaboración propia

To identify the influence of FRPS domains on HRQL, eight stepwise multiple linear regression models were tested under the eight HRQoL subscales. Table 10 shows that ITF, RD, FCT, VI, JT, and RT significantly predict all HRQoL subscales, however, only predictors with medium effect size and power are described below. statistics was adequate. In this sense, the ITF predicted the DC with 14% of the variance, a mean effect size of 0.16 and a good statistical power of 0.95; adding the predictor RD increases the explained variance to 18% with a mean effect size of 0.23 and a statistical power of 0.98 (Cárdenas and Arancibia, 2014). The results show that as variables are incorporated into the model, it has a greater explanatory power of the DC, which suggests that the results are relevant for the prediction. It should be noted that the variance inflation factor (VIF) multicollinearity indicators less than 10 and tolerance values greater than 0.20 indicate that there are no high correlations between the model factors, and the Durbin-Watson indicator was found by below 2.5.

In the case of TV, the same table 10 shows that the ITF explained 19% of the variance and when VI was incorporated into the model, it presented a greater explanatory power, with 23%, as well as a higher level of statistical power and a larger size. of the average effect that exceed the indices of 0.80 and 0.15 respectively; the VIF was 1.17 and the tolerance was 0.85; the Durbin-Watson value was 1.72. The FS was explained by the ITF and the VI with 21% of the variance, presented a mean effect size of 0.26 and a statistical power of 0.99; the

VIF was 1.17 and the tolerance was 0.85, with a Durbin-Watson value of 2.18. For its part, the MS was explained by the IV with 18% of the variance and increased to 24% when adding the ITF, with a mean effect size of 0.31 and a statistical power of 0.99, the VIF was 1.17, the tolerance of 0.85 and the Durbin-Watson value was 1.87.

Tabla 10. Modelos de regresiones lineales múltiples por pasos

Modelos	F	R2	ΔR2	B	Error estándar	β	p	1- β	f^2
Función física									
Paso 1	7.74 (1,154)	0.048	0.042				0.006	0.508	0.050
ITF				-0.697	0.250	-0.219			
Rol físico									
Paso 1	9.56 (1,154)	0.058	0.052				0.002	0.484	0.061
ITF				-1.483	0.480	-0.242			
Dolor corporal									
Paso 1	25.37(1,154)	*0.141*	0.136				0.001	*0.953*	*0.164*
ITF				-2.215	0.440	-0.376			
Paso 2	17.67(2,153)	*0.188*	0.177				0.001	*0.988*	*0.231*
ITF				-1.666	0.468	-0.283			
RD				-0.813	0.275	-0.234			
Salud general									
Paso 1	17.19(1,154)	.100	0.095				0.001	0.788	0.111
FCT				-0.745	0.180	-0.317			
Vitalidad									
Paso 1	36.50(1,154)	*0.192*	0.186				0.001	*0.996*	*0.237*

ITF				-2.629	0.435	-0.438			
Paso 2	23.886(2,153)	*0.238*	0.228				0.001	*0.999*	*0.312*
ITF				-2.095	0.459	-0.349			
VI				-0.867	0.284	-0.233			
Función social									
Paso 1	30.61(1,154)	*0.166*	0.160				0.001	*0.985*	*0.199*
ITF				-2.721	0.492	-0.407			
Paso 2	20.46(2,153)	*0.211*	0.201				0.001	*0.996*	*0.267*
ITF				-2.134	0.519	-0.319			
VI				-0.953	0.322	-0.230			
Rol emocional									
Paso 1	6.98 (1,154)	0.043	0.037				0.009	0.502	0.044
VI				-1.411	0.534	-0.208			
Paso 2	5.71(2,153)	0.070	0.057				0.004	0.576	0.075
VI				-1.136	0.544	-0.168			
JT				-2.333	1.125	-0.167			
Paso 3	5.25(3,152)	0.094	0.076				0.002	0.632	0.103
VI				-1.835	0.640	-0.271			
JT				-2.654	1.125	-0.190			
RT				1.349	0.667	0.192			
Salud mental									

Paso 1	35.08(1,154)	*0.186*	0.180				0.001	*0.994*	*0.228*
VI				-1.453	.245	-0.431			
Paso 2	24.24(2,153)	*0.241*	0.231				0.001	*0.999*	*0.317*
VI				-1.126	.257	-0.334			
ITF				-1.382	.415	-0.254			

Nota: $n = 156$, $p < 0.05$

Fuente: Elaboración propia

Discussion

Following the objective of the present investigation, it was identified that the ITF significantly predicted, with a medium effect size (> 0.16) and good statistical power (> 0.95), four of the eight HRQoL subscales: DC, VT, FS and SM. Likewise, it was observed that when adding the RD and the VI, the explained variance increases, which partially confirms the working hypothesis for the study participants. This result is consistent with the theories that explain the effect of FRPS on workers' health. Cooper and Marshall (1976) already mentioned that both the intrinsic characteristics of the job and the home-work interaction, relationships at work and professional career were potential sources of stress.

In the present study, although the ITF showed that the majority of the workers reported levels of risk between null and low (30.1% and 26.9% respectively), 43% of the participants perceived themselves as being at medium, high and very high risk, which agrees with the study by Leal et al. (2021), who found that half of the workers and university students surveyed during confinement due to the pandemic had difficulty reconciling work/studies with family, also similar to that reported by Gabr et al. (2021), who, in the same context, found moderate levels of technoinvasion that can lead to high levels of work-family conflict.

Likewise, studies prior to covid-19 allude to the fact that the ITF is one of the FRPS that affects university workers, since teachers at this level frequently spend additional time in addition to the working day, which interferes with rest or family (Garcia et al., 2016; Seijas, 2019). Particularly, during online university education, work overload hinders family

conciliation, which leads to the extension of the day at night and on weekends (García et al., 2020), all of which supports the findings of this study. , although it is opposed to those of Heiden et al. (2020), who did not identify a significant relationship between work-family balance and telecommuting.

In this research, the ITF was able to explain by itself physical and mental health consequences probably in response to stress derived from this FRPS domain, such as DC with 14% and alterations in mental health measured through the subscales of VT, SM and FS with 19%, 16% and 18% of the variance, respectively, which contrasts with Gabr et al. (2021), whose findings mention that high levels of technostress were related to high levels of cortisol in the blood, but it was not significant in the dimension of technoinvasion. The impact on mental health (VT, FS and SM) is consistent with the results among the teaching, administrative and service staff of universities that during confinement reported that 27.6% of the participants presented medium to severe psychological distress and 39.3% presented moderate levels of well-being or were declining (van Niekerk and van Gent, 2021). Similarly, in the study carried out among university workers in Ibero-America, it was detected that self-reported symptoms of depression and anxiety increased by 11% during confinement (Jojoa et al., 2021).

The VI and the RD increased the explanation of the influence of the ITF on the CD of university workers, which is consistent with other reports that link FRPS triggers of work stress to the presence of chronic pain, or as a psychosomatic symptom (Navinés et al., 2016), or derived from musculoskeletal disorders (ILO, 2016). With the above, it is possible to establish that although the majority of the workers were found to be at low and null risk levels of ITF, an important group reported medium, high and very high risk levels (19.2%, 13.5% and 10.3% respectively), which could indicate that the conditions of the modification to university tele-education have contributed to the presence of physical and psychological alterations in university employees, probably due to inadequate infrastructure to carry out work at home and isolation (García et al. ., 2020; Leal et al., 2021). Gabr et al. (2021) mention, regarding the fact that during confinement other members of the family were under the teleeducation or telework modality, that the technoinvasion was related above all to being a woman, a teacher and a poor Wi-Fi connection, which is understandable. by assuming that several members of the family were connected to the internet network at the same time; in another study, coexistence problems and psychological and physical abuse were predictors for online teaching (Jojoa *et al*., 2021).

When comparing the perception of FRPS based on sociodemographic characteristics, no differences were found in terms of sex, contrary to findings that report that women have higher levels of risk both in face-to-face and online teaching (Gabr et al., 2021; Garcia et al. 2016; Garcia et al., 2020). Workers ages 40-49, divorced, and workers with a master's degree perceived higher risk on ITF, CT, and the overall FRPS scale compared to workers age 29 and younger, single, and with a bachelor's degree, who likely are starting life as a couple (National Institute of Statistics, Geography and Informatics [Inegi], 2020) as well as their work history (Organization for Economic Co-operation and Development [OECD], 2019), which suggests that the family composition and economic responsibility can be determining factors in the perception of FRPS.

Labor characteristics also showed differences. One of them: workers hired for an indefinite period, that is, with stable and permanent contracts, presented a worse perception of risk on the general scale of FRPS, CT, LI, RT, VI and RD compared to those hired for fees, which This could be explained by the fact that university work, being a complement to other work activities, constitutes an additional source of economic and professional development for these workers (Cladellas et al., 2018). The PTCs present higher FRPS scores on the general scale, worse CAT perception, higher TC, poor IL perception and more LV than in other positions, which partially supports the previous findings of Cladellas et al. (2018), since the authors found higher job stress scores in full-time teachers but with non-permanent contracts, and in the sample of this study the PTCs are workers hired for an indefinite period.

Additionally, it was found that more than half (57.7%) of the university employees presented medium, high and very high risk levels, which, according to Mexican regulations, obliges employers to carry out intervention actions that mitigate the FRPS. These results correspond to what was reported in previous studies (Heredia et al., 2018; Wray and Kinman, 2020) and partially contrast with other findings that indicated levels of risk between low and medium. (Acosta *et al*., 2017; Gómez *et al*., 2019).

When analyzing by domains, it was possible to verify that the highest percentage of risk at the very high level was JT, at the high risk level CT was found, and at the medium risk level, FCT and JT. As expected, JT is an FRPS that affects university workers that has been consistently demonstrated (García et al., 2016; García et al., 2020; Seijas, 2019) and that has probably increased during confinement and university tele-teaching. The CT and the FCT are also FRPS frequently linked to university education with health consequences

(stress, burnout, psychological discomfort, among others) derived from the very nature of the teaching activity; In this sense, researchers have reported high psychological and quantitative demands, low autonomy and control, as well as strict deadlines (Knani et al., 2018; Mátó et al., 2020; Tacca and Tacca, 2019).

Regarding the HRQoL of the workers, only the VT presented values below the national average (Durán et al., 2004), which suggests the presence of low energy, tiredness and exhaustion as a consequence of social isolation, which, in turn, In turn, it can lead to demotivation and professional stagnation (García et al., 2020), which should be compared during the transition to face-to-face activities and the full return to universities. For this reason, it is necessary to evaluate both HRQoL and FRPS in the medium and long term.

Some limitations of the reported research are: it is not possible to establish causality due to the cross-sectional nature of the study; there is the possibility of presenting a social desirability bias when dealing with self-perception surveys distributed by the same university personnel; it does not allow the results to be extrapolated to the group of university personnel in Mexico, as it was carried out on a non-random sample of participants.

Conclusions

The results have shown the presence of FRPS in the workers of the universities of central Mexico. Some of them, such as CT and FCT, considered prevalent and typical of teaching and service activities such as those provided by non-teaching staff, are maintained and others are increased due to the context the world is going through, for example, the ITF, specifically related to work at home, where the line between family life and work is lost. In the same way, it is evident that there are FRPS that must be addressed by employers before damage to the health of university personnel occurs, specifically in the field of mental health. In this line, the VT, explained by the ITF and the VI, which presented the lowest score of the HRQoL subscales, highlights the current fatigue and exhaustion of university workers. It would be expected that at least the ITF improves with the return to face-to-face attendance and that the end of the isolation helps to improve the VT of the workers, but new measurements will be necessary and further study of the work IV with specific instruments or through qualitative evaluation methods. Given the global change in the organization of work, particularly in universities, accelerated by the covid-19 pandemic, educational policies could focus efforts that support workers to improve conditions during telework, provide

appropriate tools and continuous training , accompaniment in the transition to attendance and subsequently balance workloads to reduce extramural overload that increases the ITF.

Future lines of research

The present work contributes to knowledge by showing that confinement due to covid-19 could affect the mental health of university workers in central Mexico, however, research is required in other institutional contexts that include other universities belonging to the education subsystem (state, national technological, among others), as well as in private institutions, to find out if, depending on the type of university, the management mitigated or exacerbated the FRPS. It is suggested to analyze family composition and socioeconomic level as determinants in the perception of ITF, and follow up with longitudinal studies on the return to face-to-face care and at the end of the health emergency.

Acknowledgment

This research was carried out in doctoral studies with scholarship number 614500 granted by the National Council of Science and Technology (Conacyt), for which the support is appreciated.

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