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RESEARCH ARTICLES

Psychometric Properties of the Workload Scale in Ecuadorian Teachers

Propiedades psicométricas de la Escala de Carga de Trabajo en profesores ecuatorianos

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Summary

The objective of this research was to analyze the psychometric properties of the workload scale in Ecuadorian teachers. An instrumental design study was developed where data from 304 teachers of both sexes whose ages ranged from 20 to 60 years were analyzed. The confirmatory factor analysis showed that the internal structure of the workload scale is satisfactory (($\chi 2$ = 28,147, df = 9, p = 0.01; CFI = 0.958; TLI = 0.931 and RMSEA = 0.080), evidence of convergent and discriminant validity was reached. Reliability is acceptable ($\alpha > 0.8$). It is concluded that the workload scale in Ecuadorian teachers is a valid and reliable brief measure.

Keywords: Factor analysis; Reliability; Workload; Teachers; Ecuador.

Resumen

El objetivo de la presente investigación fue analizar las propiedades psicométricas de la escala de carga de trabajo en profesores ecuatorianos. Se desarrolló un estudio de diseño instrumental donde se analizaron los datos de 304 profesores de ambos sexos cuyas edades oscilaron entre 20 y 60 años. El análisis factorial confirmatorio mostró que la estructura interna de la escala de carga de trabajo es satisfactoria (($\chi 2$ = 28,147, df = 9, p = 0.01; CFI = 0.958; TLI = 0.931 y RMSEA = 0.080), se alcanzó evidencia de validez convergente y discriminante. La confiabilidad es aceptable ($\alpha > 0.8$). Se concluye que la escala de carga de trabajo en profesores ecuatorianos es una medida breve válida y confiable.

Palabras claves: Análisis factorial; Confiabilidad; Carga de trabajo; Profesores; Ecuador.

INTRODUCTION

Classroom teaching around the world was affected by the pandemic caused by the new coronavirus (SARS-CoV-2) and the repercussions in the global educational field has created negative effects because of COVID-19 (Gonzalez et al., 2020; Iivari et al., 2020). Teachers had to migrate quickly to a virtual world as it is required to teach and study from home (Yawson & Yamoah, 2020). In this regard, technological advances accelerated the online learning momentum worldwide and increased the educational tasks for teachers, since it was necessary to adjust the traditional classroom format, and adapt the educational processes to a virtual scenario (Rapanta et al., 2020), where teachers have to deal with emotional situations on a daily basis and on a personal and intrapersonal level during their working life; they also have to support their students' mental health (Kim et al., 2019). There is no doubt that this type of work involves high emotional work requirements that can be overwhelming and increase the teacher's workload (Lemay et al., 2021).

In this context, it is important to highlight that some researchers consider workload as a multidimensional construct determined by the characteristics of the task, employer, and environmental context that are difficult to identify (Ding et al., 2020). It is also affected by external task demands, environmental and organizational factors, psychological factors, and current perceptual and cognitive abilities. Other researchers consider it as a unidimensional construct such as Calderón-De la Cruz et al. (2018) who, in their study on Peruvian workers, found a unifactorial model. Similarly, the UNIPSICO model of Gil-Monte (2016), one of the frequently cited authors (Díaz & Gómez, 2016), also reported that workload revealed a single dimension. This questionnaire was validated in Spain. A satisfactory unifactorial structure and adequate reliability with respect to its theoretical model were reported, characteristics that make it ideal for validity studies, especially in Spanish-speaking contexts. Likewise, this questionnaire obtained good psychometric properties in Peruvian workers (Calderón-De la Cruz et al., 2018); Satisfactory substantive validity (Merino-Soto et al., 2021); validated into Catalan with acceptable levels (Llorca-Rubio et al., 2022).

This research considers workload assessment as a key factor in assessing the cognitive requirements of jobs and in predicting the workers' capacity for additional tasks (Weinger et al., 2004).

Gomes and Quintão (2012) found that the majority of teachers with higher teaching hours reported symptoms of depression and that women had higher levels of fatigue and emotional exhaustion than men. A different study by Tacca and Tacca (2019) reported that emotional exhaustion occurs mostly in men and that women have greater resilience and self-fulfillment than men. (Acosta-Romo & Maya-Pantoja, 2020) found that health care personnel have been severely affected by the pandemic with strenuous periods and double shifts, which has also affected research professionals (Ocampo-Gómez et al., 2020).

Based on the above, validating a scale that assesses workload in the Ecuadorian context is of utmost importance, as the literature consulted shows that it is a little studied construct and that there are no valid and reliable instruments that assess workload in the Ecuadorian population. It also allows the analysis and confirmation of the test structure, theoretically proposed by Matthews et al. (2020).

The cultural validation will fill a knowledge gap in the Ecuadorian psychometric area. This will allow to develop research activities with an instrument according to the labor reality in Ecuador, primarily in education teachers. Having an instrument that reports evidence of validity and reliability will have positive implications, and the measurement results will allow to establish improvement plans and strategies to allow better time management and work tasks in order to improve labor productivity and relationships among workers and especially among teachers (Alvites-Huamaní, 2019).

Several studies on workload have been developed. Reyes and Imber, (1992) carried out initial studies finding that teachers, who think their workload as unfair, are more likely to perform poorly on the job and that job performance can be improved by simply reducing their workload. Boedeker (2001) found an association between workload and work-related diseases. Employees with higher workloads were more likely to suffer from heart disease or hypertension.

In relation to work-family conflict, Ahuja et al. (2002) reported that workload was directly associated with exhaustion and job satisfaction.

Weinger et al. (2004) analyzed the workload of medical teachers, finding that an increased workload may reduce their alertness. De Cuyper and De Witte (2006) suggest that contract types are not mediated by workload and this is not predictive of life satisfaction.

Tomic and Tomic (2011) developed their workload study finding that workload was negatively associated with engagement, the higher the workload scores, the lower the vigor and dedication scores.

Funke et al. (2012) made suggestions on a comprehensive theory of team workload and methods to assess it. Over the years, different studies have been developed such as Saltos et al. (2018) in nurses; Firdaus et al. (2019), Werang (2017) and Huyghebaert et al. (2018) in teachers. These studies show the positive and negative effects of workload on emotional exhaustion, anxiety and different health disorders. In the psychometric field, Kjønø et al. (2022) validated the PWQ workload questionnaire with 26 items and two factors and an alpha of 0.94. Kahraman et al. (2018) analyzed the workload questionnaire finding an internal consistency of 0.86 with a high retest reliability ICC = 0.865. Calderón-De la Cruz et al. (2018) reported a unidimensional model and 6 items, with factor loadings above 0.55 and RMSEA 0.11.

In recent years, the subject has been further addressed, especially in the context of the pandemic. Such as the study by Perks (2020), where he considers the possibility of artificial intelligence may reduce teachers' work. Montani et al. (2020) found that work engagement mediated the inverted U-shaped relationship between workload and innovative behavior. Stapleton et al. (2020) identified work, workload, and finances as the primary sources of stress. Gonzalez et al., (2020) even found in students the effects of increased activities which changed students' learning strategies called continuous learning. Lastly, the work of Koksal et al. (2020) found higher levels of depression in women, especially in those whose workload increased.

It is important to highlight that the Workload Scale (ECT), designed by Gil-Monte (2016), has obtained good psychometric properties among Peruvian workers (Calderón-De La Cruz et al., 2018); validated in health care personnel during the COVID-19 pandemic (Esteban-Carranza et al., 2021); and in professors (Minaya-Herrera et al., 2022).

In Ecuador, workload is considered to be a risk factor since many teachers work two or more jobs (Jacome-Muñoz et al., 2021) and that this fact increased as a result of the COVID-19 pandemic (Molina et al., 2021). However, there are no questionnaires on workload validated in the Ecuadorian context that could help to acknowledge this problem in the educational area.

METHOD

Type of Study

Associative strategy with instrumental design because it is intended to validate a measurement instrument (Ato et al., 2013).

Participants

Through a non-probabilistic sampling, a voluntary participation of 304 teachers of both sexes working in the educational institutions of the Adventist network of the southern Ecuadorian mission was achieved.

Table 1 shows that 58,9% are female teachers, 53,6% are between 30 and 60 years old, 60,5% are married and 48,7% are teachers at secondary school level.

Table 1.
Participants' characteristics

Characteristics		**n**	**%**
Sex	Female	179	58.9
	Male	125	41.1
Age	20 – 35	141	46.4
	36 – 60	163	53.6
Marital status	Single	84	27.6
	Married	184	60.5
	Other	36	11.8
Education level	Preschool	24	7.9
	Primary	132	43.4
	Secondary	148	48.7

Source: Elaborated by the author

Instruments

The workload scale (ECT) was used for data collection. It was designed by Gil-Monte (2016) for the Spanish context using six questions to assess workload. Its answer options are in Likert scale format: 0 = never, 1 = rarely: a few times a year, 2 = sometimes: a few times a month, 3 =

frequently: a few times a week, and 4 = very frequently: every day. The ECT has proven to be valid (GFI = 0,935, CFI = 0,914, RMSEA = 0,050) and reliable (α = .86).

The WHO-5 Well Being Index (WHO-5 WBI), a scale designed by Simancas-Pallares et al. (2016), is made up of five items with four Likert-type response options (0 = never, 1 = sometimes, 2 = many times and 3 = always). It has proven to be reliable (α = 0.85) and a factor structure that explains 56.17 % of the total variance with good fit indexes.

Kessler Psychological Distress Scale (K10) has been validated by (Larzabal-Fernandez et al., 2020) for the Ecuadorian population. It is made up of 10 items with five Likert-type response options (never, almost never, sometimes, almost always and always). The scale has been reported to be valid (CFI= ,993; TLI= ,991; RMSEA= ,044) and reliable (α = .70).

Procedure

Based on the Ecuadorian Government's regulations and in response to the COVID-19 pandemic, the data collection was sent virtually via Google forms to the teachers' email addresses and was also shared via Facebook and WhatsApp. The first section of the form included the informed consent, the research objective, and emphasized that participation was voluntary and anonymous. The study was approved by the ethics committee of the Graduate School of the Universidad Peruana Unión with number 2021-CE-EPG-000023.

Data Analysis

First, the descriptive statistics of the ECT items were analyzed, the value taken into account for skewness and kurtosis was ± 1.5 based on Varela and Lévy (2006). Second, the AMOS version 21 statistical software was used to perform a confirmatory factor analysis (CFA) in order to analyze the internal structure of the scale using structural equation modeling (SEM); Goodness of fit indexes were considered such as: Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Normed Fit Index (NFI) and Incremental Fit Index (IFI). The parameters for the root mean squared error of approximation (RMSEA) and Root Mean Square Residual (RMR) were also used. The recommendations of Hu and Bentler (1999) were taken into account, who state that the value of the CFI, TLI, GFI, AGFI, NFI, and IFI should be greater than 0.90 and the RMSEA $\leq$ 0.08 for an acceptable model fit. Last, the SPSS version 25.0 statistical software was used to analyze the relationship between the study

variables and establish the convergent and discriminant validity, and calculate the reliability of the scale through Cronbach's Alpha coefficient and its respective confidence intervals (Dominguez-Lara & Merino-Soto, 2015).

RESULTS

Item analysis

Descriptive statistics.

Table 2 shows the mean, standard deviation, skewness and kurtosis for the six items of the ECT. It can be seen that item 2 has the highest average score (M = 3,57). As for variability, item 6 (SD = 1.06) shows the greatest dispersion. The values of skewness and kurtosis of the ECT items do not exceed the range > ± 1.5.

Table 2.
Preliminary analysis of scale items

Item	M	SD	A	K
Item 1	3.15	.992	.,423	-.602
Item 2	3.57	.814	-.576	.428
Item 3	3.26	1.011	-.628	-.370
Item 4	3.44	.854	-.781	.661
Item 5	3.45	.939	-.828	.401
Item 6	3.11	1.068	-.644	-.556

Note: M = Mean, SD = Standard deviation, A = Coefficient of skewness, K = Coefficient of kurtosis.
Source: Elaborated by the author.

Internal structure analysis.

To verify the internal structure of the scale, previous evidence was taken into account and the six items were loaded on a latent variable (Table 3). The goodness of fit indexes confirmed the one-factor model ($\chi 2$ = 28,147, df = 9, p = 0.01; RMR = 0.036; GFI = 0.971; AGFI = 0.931; CFI = 0.958; TLI = 0.931; NFI = 0.941; IFI = 0.959 and RMSEA = 0.080). In summary, the original unidimensional structure model reported a good fit (Figure 1).

Table 3.
ECT goodness of fit indexes

Goodness of fit index	**Value**	Goodness of fit index	**Value**
RMR	0.036	TLI	0.931
GFI	0.971	NFI	0.941
AGFI	0.931	IFI	0.959
CFI	0.958	RMSEA	0.080

Source. Elaborated by the author.

Source. Elaborated by the author.

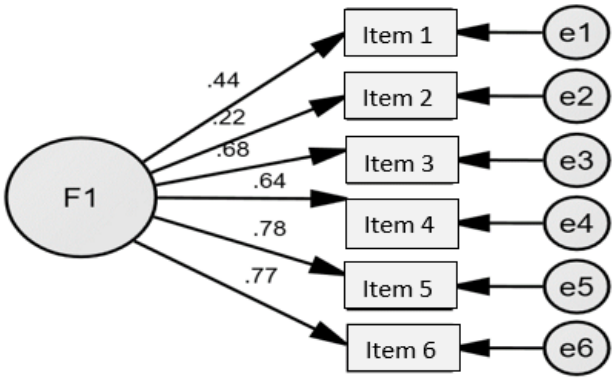

Figure 1.
Unidimensional model of the ECT

Convergent and discriminant validity.

Pearson's correlation analysis shows that the ECT is inversely and statistically significantly related to WHO-5 (r = -.288, p < 0.01); likewise, the ECT is directly and statistically significantly correlated with K10 (r = ,749, p < 0.01).

The findings show evidence of convergent and discriminant validity.

Table 4
Means, standard deviations and correlations between scales; ECT, WHO-5 and K10.

Variable	**M**	**SD**	**1**	**2**
1. WL	19.97	3.86		
2. WHO-5	13.85	2.13	-.288**	
3. K10	32.45	7.56	.749**	-.228**

Note. M = media; SD= standard deviation, ** means p <0,01, WL= Workload; WHO-5= General wellness; K10= Psychological distress.
Source. Elaborated by the author.

Reliability

The reliability of the ECT was calculated through the Cronbach's Alpha coefficient and a value α = 0.765 (95% CI = 0.71 - 0.80) was obtained. The results indicate that the scale is reliable (Raykov, 2001).

DISCUSSION

In recent years, a number of studies have focused on workload, especially in the educational area (Kim, 2019), and the fact that it increased due to the COVID-19 pandemic (Stachteas & Stachteas, 2020). In Latin America this problem has affected health personnel (Delgado-Gallegos et al., 2020), and it has especially affected teachers in Ecuador, leading them to an overload of work (Lozada et al., 2021). In this context, this research on the ECT represents a significant contribution, given that it is a valuable tool to measure workload. Therefore, this research objective was to analyze the psychometric properties of the workload scale in Ecuadorian teachers.

This research analyzes the psychometric properties of the ECT. The findings obtained specify that the items have adequate variance values, and the skewness values are in all cases within the range +/- 1.5 (Varela & Lévy, 2006), as well as the kurtosis values that indicate that the scores have adequate levels of dispersion. The CFA was used to establish the goodness of fit of the unidimensional ECT model previously identified in the specialized literature (Calderón-De la Cruz et al., 2018; Gil-Monte, 2016). The results show that the unidimensional model has a good fit of data ($\chi 2 = 28{,}147$, df = 9, p = 0.01; RMR = 0.036; GFI = 0.971; AGFI = 0.931; CFI = 0.958; TLI = 0.931; NFI = 0.941; IFI = 0.959 and RMSEA = 0.080).

These findings have also confirmed the model fit, which was acceptable through the GFI, NFI and CFI indexes and had adequate values (Lloret-Segura et al., 2014; Varela & Lévy, 2006). The fit to the model was also acceptable with a value of RMSEA 0.080 (Hoyle, 1995). The results of this research corroborate the evidence of convergence and divergence of the ECT scores, which in turn provides validity to the inferences that can be made from the scale scores in the research sample.

The study provides evidence of construct validity. The results of the CFA are similar to those reported in the UNIPSICO validation study, Spanish version (Gil-Monte, 2016). Both studies show the one-dimensionality of the scales, where most of the items report factor loadings greater than 0,4. Also, the total variance of the ECT is 28, 147, which provides further evidence of one-dimensionality (Ferrando, 1996). In addition, the reliability measured by Cronbach's alpha coefficient was adequate (> 0.76), as proposed by Henson (2001).

The results prove that the scale has a unidimensional structure, similar to other instruments (Calderón-De la Cruz et al., 2018; Gil-Monte, 2016). Thus, it is evident that the instrument can be interpreted in a unidimensional way, which is consistent with the theoretical perspective on workload from Karasek's (1979) Demand-Control theory and Siegrist's (1996) Effort-Reward theory, which show that excessive demands can deteriorate employees' health. In this way, the reported structure constitutes aspects that can be assessed psychometrically with only a single attribute.

Among the study's limitations are that content validity analysis was not performed, because only the 6 items of the ECT were taken. Another limitation was the sample size and selection. Although this research was carried out with voluntary participants, it is likely that some of them may have had some motivation to tell their own reality. Based on this, we suggest developing future research with the ECT and that the sample be expanded in groups of teachers.

Despite these limitations, the ECT is considered valid and reliable for Ecuadorian teachers, and it also contributes to the development of research on teachers' workload.

REFERENCES

Acosta-Romo, M. F., & Maya-Pantoja, G. J. (2020). Competencias clínicas y carga laboral del profesional de Enfermería en la Unidad de Cuidado Intensivo adulto. *Revista Ciencia y Cuidado*, *17*(2), 22–32. https://doi.org/10.22463/17949831.1698

Ahuja, M., Chudoba, K. M., George, J. F., Kacmar, C., & McKnight, H. (2002). Overworked and isolated? Predicting the effect of work-family conflict, autonomy, and workload on organizational commitment and turnover of virtual workers. *Proceedings of the 35th Annual Hawaii International Conference on System Sciences*, 3586–3593. https://doi.org/10.1109/HICSS.2002.994454

Alvites-Huamaní, C. G. (2019). Estrés docente y factores psicosociales en docentes de Latinoamérica, Norteamérica y Europa. *Propósitos y Representaciones*, *7*(3), 141. https://doi.org/10.20511/pyr2019.v7n3.393

Ato, M., López-García, J. J., & Benavente, A. (2013). Un sistema de clasificación de los diseños de investigación en psicología. *Anales de Psicología*, *29*(3), 1038–1059. https://doi.org/10.6018/analesps.29.3.178511

Boedeker, W. (2001). Associations Between Workload and Diseases Rarely Occurring in Sickness Absence Data. *Journal of Occupational and Environmental Medicine*, *43*(12), 1081–1088. https://doi.org/10.1097/00043764-200112000-00010

Calderón-De la Cruz, G. A., Merino-Soto, C., Juárez-García, A., & Jimenez-Clavijo, M. (2018). Validación de la Escala de Carga de Trabajo en Trabajadores Peruanos. *Archivos de Prevención de Riesgos Laborales*, *21*(3), 123–127. https://doi.org/10.12961/aprl.2018.21.03.2

De Cuyper, N., & De Witte, H. (2006). Autonomy and workload among temporary workers: Their effects on job satisfaction, organizational commitment, life satisfaction, and self-rated performance. International *Journal of Stress Management*, *13*(4), 441–459. https://doi.org/10.1037/1072-5245.13.4.441

Delgado-Gallegos, J. L., Montemayor-Garza, R. de J., Padilla-Rivas, G. R., Franco-Villareal, H., & Islas, J. F. (2020). Prevalence of Stress in Healthcare Professionals during the COVID-19 Pandemic in Northeast Mexico: A Remote, Fast Survey Evaluation, Using an Adapted COVID-19 Stress Scales. *International Journal of Environmental Research and Public Health*, *17*(20), 1–12. https://doi.org/10.3390/ijerph17207624

Díaz, F., & Gómez, I. C. (2016). Research on burnout from 2000 to 2010 in Latin America. *Psicología Desde El Caribe*, *33*(1), 113–131. https://doi.org/10.14482/psdc.33.1.8065

Ding, Y., Cao, Y., Duffy, V. G., Wang, Y., & Zhang, X. (2020). Measurement and identification of mental workload during simulated computer tasks with multimodal methods and machine learning. *Ergonomics*, *63*(7), 896–908. https://doi.org/10.1080/00140139.2020.1759699

Dominguez-Lara, S., & Merino-Soto, C. (2015). ¿Por qué es importante reportar los intervalos de confianza del coeficiente alfa de Cronbach? *Revista Latinoamericana En Ciencias Sociales, Niñez y Juventud*, *13*(2), 1326–1328. http://revistaumanizales.cinde.org.co/rlcsnj/index.php/Revista-Latinoamericana/article/view/2030

Esteban-Carranza, R. F., Mamani-Benito, O. J., Rodriguez-Alarcon, J. F., Corrales-Reyes, I. E., & Farfán-Solís, R. (2021). Escala de preocupación por el contagio de la COVID-19 en personal de la salud peruano. *Revista Colombiana de Psiquiatría*, 19–21. https://doi.org/10.1016/j.rcp.2021.03.006

Ferrando, P. J. (1996). Evaluación de la unidimensionalidad de los items mediante análisis factorial. *Psicothema*, *8*(2), 397–410. http://www.psicothema.com/psicothema.asp?id=38

Firdaus, R. A., Akuba, S. F., & Purnamasari, D. (2019). The Influence of Motivation, Leadership and Perceived Workload as Intervening on Teacher Commitment. *Journal of Educational Science and Technology (EST)*, *5*(3), 268. https://doi.org/10.26858/est.v5i3.10847

Funke, G. J., Knott, B. A., Salas, E., Pavlas, D., & Strang, A. J. (2012). Conceptualization and Measurement of Team Workload. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, *54*(1), 36–51. https://doi.org/10.1177/0018720811427901

Gil-Monte, P. R. (2016). The UNIPSICO questionnaire: psychometric properties of the scales measuring psychosocial demands. *Archivos de Prevención de Riesgos Laborales*, *19*(2), 86–94. https://doi.org/10.12961/aprl.2016.19.02.2

Gomes, A. P. R., & Quintão, S. D. R. (2012). Burnout, satisfação com a vida, depressão e carga horária em professores. *Análise Psicológica*, *29*(2), 335–344. https://doi.org/10.14417/ap.56

Gonzalez, T., de la Rubia, M. A., Hincz, K. P., Comas-Lopez, M., Subirats, L., Fort, S., & Sacha, G. M. (2020). Influence of COVID-19 confinement on students' performance in higher education. *PLOS ONE*, *15*(10), 1–23. https://doi.org/10.1371/journal.pone.0239490

Henson, R. K. (2001). Understanding Internal Consistency Reliability Estimates: A Conceptual Primer on Coefficient Alpha. *Measurement and Evaluation in Counseling and Development*, *34*(3), 177–189. https://doi.org/10.1080/07481756.2002.12069034

Hoyle, R. (1995). *Structural Equation Modeling: Concepts, Issues, and Applications*. SAGE Publications. https://www.amazon.com/Structural-Equation-Modeling-Concepts-Applications/dp/0803953186

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Huyghebaert, T., Gillet, N., Beltou, N., Tellier, F., & Fouquereau, E. (2018). Effects of workload on teachers' functioning: A moderated mediation model including sleeping problems and overcommitment. *Stress and Health*, *34*(5), 601–611. https://doi.org/10.1002/smi.2820

Iivari, N., Sharma, S., & Ventä-Olkkonen, L. (2020). Digital transformation of everyday life – How COVID-19 pandemic transformed the basic education of the young generation and why information management research should care? *International Journal of Information Management*, *55*, 1–6. https://doi.org/10.1016/j.ijinfomgt.2020.102183

Jacome-Muñoz, M., Noroña-Salcedo, D., & Vega-Falcon, V. (2021). Factores psicosociales y desempeño docente en un instituto superior tecnológico en Quito, Ecuador. *Revista Médica Electrónica*, *43*(5), 1254–1268. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1684-18242021000501254#B5

Kahraman, T., Göz, E., & Genç, A. (2018). Validity and reliability of the Turkish version of the Physical Workload Questionnaire. *Work*, *59*(2), 295–302. https://doi.org/10.3233/WOR-172670

Karasek, R. A. (1979). Job Demands, Job Decision Latitude, and Mental Strain: Implications for Job Redesign. *Administrative Science Quarterly*, *24*(2), 285. https://doi.org/10.2307/2392498

Kim, K. (2019). Teachers' administrative workload crowding out instructional activities activities. Asia Pacific *Journal of Education*, *39*(1), 1–19. https://doi.org/10.1080/02188791.2019.1572592

Kim, L. E., Jörg, V., & Klassen, R. M. (2019). A Meta-Analysis of the Effects of Teacher Personality on Teacher Effectiveness and Burnout. *Educational Psychology Review*, *31*(1), 163–195. https://doi.org/10.1007/s10648-018-9458-2

Kjønø, L. G., Killingmo, R. M., Vigdal, Ø. N., Grotle, M., & Storheim, K. (2022). Assessing physical workload among people with musculoskeletal disorders: validity and reliability of the physical workload questionnaire. *BMC Musculoskeletal Disorders*, *23*(1), 282. https://doi.org/10.1186/s12891-022-05222-y

Koksal, E., Dost, B., Terzi, Ö., Ustun, Y. B., Özdin, S., & Bilgin, S. (2020). Evaluation of Depression and Anxiety Levels and Related Factors Among Operating Theater Workers During the Novel Coronavirus (COVID-19) Pandemic. *Journal of PeriAnesthesia Nursing*, *35*(5), 472–477. https://doi.org/10.1016/j.jopan.2020.06.017

Larzabal-Fernandez, A., Ramos-Noboa, M. I., Jaramillo-Zambrano, A., & Hong-Hong, A. E. (2020). Propiedades psicométricas de la Escala de Malestar Subjetivo de Kessler (K10) en adultos Ecuatorianos. *CienciAmérica*, *9*(3), 27–40. https://doi.org/10.33210/ca.v9i3.265

Lemay, D. J., Bazelais, P., & Doleck, T. (2021). Transition to online learning during the COVID-19 pandemic. *Computers in Human Behavior Reports*, *4*, 100130. https://doi.org/10.1016/j.chbr.2021.100130

Llorca-Rubio, J. L., Llorca-Pellicer, M., Gil-Monte, P. R., & Gil-LaOrden, P. (2022). Validación psicométrica de la batería UNIPSICO en valenciano/catalán: análisis de las escalas que evalúan las variables psicosociales de demanda. *Archivos de Prevención de Riesgos Laborales*, *25*(3), 285–299. https://doi.org/10.12961/aprl.2022.25.03.05

Lloret-Segura, S., Ferreres-Traver, A., Hernández-Baeza, A., & Tomás-Marco, I. (2014). El análisis factorial exploratorio de los ítems: una guía práctica, revisada y actualizada. *Anales de Psicología*, *30*(3). https://doi.org/10.6018/analesps.30.3.199361

Lozada, D., Paredes, M., Viloria, H., & Rivadeneira, D. (2021). Riesgos en el uso de whatsapp: Sobrecarga y desgaste profesional en docentes universitarios. *Revista Universidad y Sociedad*, *13*(1), 219–226.

Matthews, G., De Winter, J., & Hancock, P. A. (2020). What do subjective workload scales really measure? Operational and representational solutions to divergence of workload measures. *Theoretical Issues in Ergonomics Science*, *21*(4), 369–396. https://doi.org/10.1080/1463922X.2018.1547459

Merino-Soto, C., Calderón-De la Cruz, G., Gil-Monte, P., & Juárez-García, A. (2021). Validez sustantiva en el marco de la validez de contenido: Aplicación en la escala de Carga de Trabajo. *Revista Argentina de Ciencias Del Comportamiento*, *13*(1), 81–92. http://www.scielo.org.ar/scielo.php?pid=S1852-42062021000100081&script=sci_abstract&tlng=en

Minaya-Herrera, M. E., Cabral, G. R., Mamani-Benito, O., Tarqui, E. E. A., & Landa-Barzola, M. (2022). Adaptation and workload as predictors of professional self-efficacy in Peruvian university teachers during the COVID-19 pandemic. *Electronic Journal of Research in Educational Psychology*, *20*(56), 27–42.

Molina, G. A., Ayala, A. V., Endara, S. A., Aguayo, W. G., Rojas, C. L., Jiménez, G. E., Moyón, M. A., & Moyón, F. X. (2021). Ecuador and Covid-19: A pandemic we won't be able to run away from. International *Journal of Infectious Diseases*, *109*, 33–35. https://doi.org/10.1016/j.ijid.2021.05.077

Montani, F., Vandenberghe, C., Khedhaouria, A., & Courcy, F. (2020). Examining the inverted U-shaped relationship between workload and innovative work behavior: The role of work engagement and mindfulness. *Human Relations*, *73*(1), 59–93. https://doi.org/10.1177/0018726718819055

Ocampo-Gómez, E., Jiménez-García, S., & Palacios-Ramírez, L. (2020). El investigador fragmentado: conflictos y tensiones derivados de la diversificación de su carga laboral. *Revista Iberoamericana de Educación Superior*, *11*(30), 41–56. https://doi.org/10.22201/iisue.20072872e.2020.30.587

Perks, S. (2020). AI could reduce teacher workload. *Physics World*, *33*(8), 11. https://doi.org/https://doi.org/10.1088/2058-7058/33/8/15

Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online University Teaching During and After the Covid-19 Crisis: Refocusing Teacher Presence and Learning Activity. *Postdigital Science and Education*, *2*(3), 923–945. https://doi.org/10.1007/s42438-020-00155-y

Raykov, T. (2001). Bias of Coefficient afor Fixed Congeneric Measures with Correlated Errors. *Applied Psychological Measurement*, *25*(1), 69–76. https://doi.org/10.1177/01466216010251005

Reyes, P., & Imber, M. (1992). Teachers' perceptions of the fairness of their workload and their commitment, job satisfaction, and morale: Implications for teacher evaluation. *Journal of Personnel Evaluation in Education*, *5*(3), 291–302. https://doi.org/10.1007/BF00125243

Saltos, M., Perez, C., Suarez, R., & Linares, S. (2018). Análisis de la carga laboral del personal de enfermería, según gravedad del paciente Analysis of the workload of nursing staff, according to the severity of the patient. *Revista Cubana de Enfermeria*, *34*(2), 1–9. http://www.revenfermeria.sld.cu/index.php/enf/article/view/2170/366

Siegrist, J. (1996). Adverse health effects of high-effort/low-reward conditions. *Journal of Occupational Health Psychology*, 1(1), 27–41. https://doi.org/10.1037/1076-8998.1.1.27

Simancas-Pallares, M., Díaz-Cárdenas, S., Barbosa-Gómez, P., Buendía-Vergara, M., & Arévalo-Tovar, L. (2016). Propiedades psicométricas del Índice de Bienestar General-5 de la Organización Mundial de la Salud en pacientes parcialmente edéntulos. *Revista de La Facultad de Medicina*, *64*(4), 701. https://doi.org/10.15446/revfacmed.v64n4.52235

Stachteas, P., & Stachteas, C. (2020). The psychological impact of the COVID-19 pandemic on secondary school teachers. *Psychiatriki*, *31*(4), 293–301. https://doi.org/10.22365/jpsych.2020.314.293

Stapleton, P., Garby, S., & Sabot, D. (2020). Psychological distress and coping styles in teachers: A preliminary study. *Australian Journal of Education*, *64*(2), 127–146. https://doi.org/10.1177/0004944120908960

Tacca, D., & Tacca, A. (2019). Sindrome de Burnout en profesores peruanos. *Revista de Investigación Psicológica*, *22*(1), 11–30. http://www.scielo.org.bo/scielo.php?script=sci_arttext&pid=S2223-30322019000200003

Tomic, M., & Tomic, E. (2011). Existential fulfilment, workload and work engagement among nurses. *Journal of Research in Nursing*, *16*(5), 468–479. https://doi.org/10.1177/1744987110383353

Varela, J., & Lévy, J. P. (2006). *Modelización con estructuras de covarianzas en ciencias sociales*. Netbiblo.

Weinger, M. B., Reddy, S. B., & Slagle, J. M. (2004). Multiple Measures of Anesthesia Workload During Teaching and Nonteaching Cases. *Anesthesia & Analgesia*, *98*(5), 1419–1425. https://doi.org/10.1213/01.ANE.0000106838.66901.D2

Werang, B. (2017). The effect of workload, individual characteristics, and school climate on teachers´emotional exhaustion in elementary schools of Papua. *Jurnal Cakrawala Pendidikan*, *37*(3), 457–469. https://doi.org/10.21831/cp.v38i3.20635

Yawson, D. E., & Yamoah, F. A. (2020). Understanding satisfaction essentials of E-learning in higher education: A multi-generational cohort perspective. *Heliyon*, *6*(11), e05519. https://doi.org/10.1016/j.heliyon.2020.e05519