

Assessment of health workers' engagement in Uruguay using the Utrecht work engagement scale (UWES)
Evaluación del *engagement* en trabajadores de la salud en Uruguay a través de la escala Utrecht de *engagement* en el trabajo (UWES)

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Abstract: The aim of this paper was to examine the psychometric properties of the Spanish version of the Utrecht Work Engagement Scale (UWES) in its 17-item version for the assessment of health workers in Uruguay. The sample consisted of 1,324 workers of both sexes (63.7% of women) from different health institutions, public (45.7%) and private (54.3%), in Montevideo and from the rest of the country (64.4% and 35.6% respectively).

The internal consistency analyzes, employing Cronbach's alpha coefficient, reveal satisfactory levels of internal consistency for the total scale and the three factors, and reinforce the evidence of weakness of two items on the scale. The factorial structure analyzes by confirmatory factor analysis show an adequate fit of the trifactorial model to the data, although the high correlation between the latent factors could indicate that the unifactorial model may also be acceptable. Evidence from this study suggests that the Spanish version of the UWES-17 may be a valid and reliable instrument for the measurement of engagement and its three factors in health workers in Uruguay.

Keywords: work engagement, Utrecht Work Engagement Scale, UWES, psychometric properties

Resumen: El objetivo principal de este estudio fue examinar las propiedades psicométricas de la versión en español de la escala Utrecht de *engagement* en el trabajo (UWES) en su versión de 17 ítems para la evaluación de trabajadores de la salud en Uruguay. La muestra se compuso de 1324 trabajadores de ambos sexos (63.7% de mujeres) de diferentes instituciones de salud, públicas (45.7%) y privadas (54.3%), de Montevideo y del interior del país (64.4% y 35.6% respectivamente).

Los análisis de consistencia interna, mediante coeficiente alfa de Cronbach, revelan niveles satisfactorios de consistencia interna de la escala total y los tres factores, y refuerzan la evidencia de debilidad de dos ítems de la escala. Los análisis de estructura factorial a partir de un análisis factorial confirmatorio, muestran el ajuste medianamente aceptable del modelo trifactorial a los datos, aunque los elevados índices de correlación entre los factores latentes indican que un modelo unifactorial también podría ser aceptable. La evidencia de este estudio sugiere que la versión en español del UWES-17 puede ser un instrumento válido y confiable para la medición del compromiso y sus tres factores en los trabajadores de salud en Uruguay.

Palabras clave: *engagement*, Utrecht Work Engagement Scale, UWES, propiedades psicométricas

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Introduction

Since the beginning of the 21st century, there's been a growing impulse towards positive psychology. This has shifted focus from disease and risk factors towards health promotion and wellness. From this perspective, new areas of study for work rise within psychology, such as Positive Organizational Psychology and the Positive Occupational Health Psychology which focuses on the healthy organizational life at different levels: individual, inter-individual, group, organizational and social (Salanova, Martínez, & Llorens, 2014). Work engagement¹ is among these positive aspects of work.

Currently, two different yet related lines have been identified with respect to the conceptualization of work engagement as a positive and work-related state of wellbeing. On the one hand, some authors propose that work engagement and burnout are polar opposites in the same continuum of well-being related to work (Maslach & Leiter, 1997), which implies that these constructs cannot be studied independently.

On the other hand, an alternative line suggests that the worker that is not "burned out" by his/her job is not necessarily engaged, nor is the worker with low levels of work engagement "burnt out" (Schaufeli & Bakker, 2004), so that it considers work engagement and burnout as independent and distinct constructs (Schaufeli & Bakker, 2001). Work engagement is defined as "a positive, fulfilling, work-related state of mind that is

characterized by vigor, dedication, and absorption" (Schaufeli, Salanova, González-Romá, & Bakker, 2002, p. 74). The authors argue that it is not characterized by being a momentary state, but refers to a rather persistent affective and cognitive state over time. The vigor factor refers to high energy levels and resilience while working, disposition to strive and persistence, even when the worker faces difficulties. Dedication refers to high degrees of involvement in the work and a sense of significance, as well as the experience of enthusiasm, pride, inspiration and challenge for the work. Finally, absorption refers to the full concentration and enjoyment of work, so that the worker does not realize the passage of time and is carried away by work. The latter resembles the concept of *flow* posed by Csikszentmihalyi, but they differ since absorption refers to a more permanent psychological state (Bakker, Schaufeli, Leiter, & Taris, 2008; Nakamura & Csikszentmihalyi, 2014; Schaufeli & Bakker, 2004).

The concept of work engagement as an independent construct was operationalized with the Utrecht Work Engagement Scale (UWES), a self-assessment questionnaire (Schaufeli & Bakker, 2004; Schaufeli et al., 2002). It consists of 17 items that grouped into three factors: vigor, dedication and absorption. It is available in around 30 languages (Schaufeli, s/f). The original version of the scale demonstrated good psychometric properties in terms of internal consistency and validity of construct (Balducci, Fraccaroli, & Schaufeli, 2010; Extremera, Sánchez-García, Durán, & Rey, 2012; Nerstad, Richardsen, & Martinussen, 2010; Schaufeli et al., 2002; Seppälä et al., 2009; Shimazu et al., 2008), although there are some exceptions (Bilgel, Bayram, Ozdemir, Dogan, & Ekin, 2012; Müller Gilchrist, Pérez Villalobos, & Ramirez

¹ Since a term was not yet found in our language that can convey the entire meaning of it without errors or simplifications (Salanova y Schaufeli, 2009), the authors prefer to use the term in English.

Fernández, 2013; Naudé & Rothmann, 2004; Oramas Viera, González, Reynosa, del Castillo Martín, & Vergara Barrenechea, 2014; Shimazu et al., 2008; Souza Vazquez, dos Santos Magnan, Cerentini Pacico, Hutz, & Schaufeli, 2015; Spontón, Medrano, Maffei, Spontón, & Castellano, 2012; Vallières, McAuliffe, Hyland, Galligan, & Ghee, 2017; Viljevac, Cooper Thomas, & Anderson, 2012).

The scale was perfected, from the 17-item version, to shorter versions. Psychometric analyses on the scale of 17 items found that two items were inconsistent, so studies with a 15-item version of the scale can also be found (por ejemplo, Demerouti, Bakker, De Jonge, Janssen, & Schaufeli, 2001; Xanthopoulou, Bakker, Kantas, & Demerouti, 2012). Later, Schaufeli, Bakker and Salanova (2006) developed a 9-item version, the UWES-9, which was validated in 10 countries with a sample of nearly 15,000 people demonstrating satisfactory psychometric characteristics. There are also versions that were adapted to measure academic engagement in students. A version of the scale composed of three items was recently introduced as a reliable and valid indicator of engagement, which can be used as an alternative to the longer version (Schaufeli, Shimazu, Hakanen, Salanova, & De Witte, 2017).

Studies from different countries and languages around the world have validated or evaluated psychometric properties of the UWES-17. Studies are found in Oceania (Viljevac et al., 2012), Asia (Fong & Ng, 2012; Panthee, Shimazu, & Kawakami, 2014; Sulaiman y Zahoni, 2016), Africa (Storm y Rothmann, 2003; Ugwu, 2013; Vallières et al., 2017), Europe (Extremera et al., 2012; Nerstad et al., 2010; Simbula, Guglielmi, Schaufeli, & Depolo, 2013; Zecca et al., 2015), North America (Mills, Culbertson, & Fullagar, 2012) y, most recently, in our region (Müller Gilchrist et al., 2013; Muñoz Cruzado, 2017; Oramas Viera et al., 2014; Souza Vazquez et al., 2015; Spontón et al., 2012). Together, these studies demonstrated the robustness and relevance of the work engagement construct in different cultures.

Results in the context of health workers showed that engaged health professionals show greater satisfaction and lower work stress, offer better treatment to patients and show greater empathy (Hernández-Vargas, Llorens-Gumbau, & Rodríguez-Sánchez, 2014; Jenaro, Flores, Orgaz, & Cruz, 2011; Navarro-Abal, López-López, & Climent-Rodríguez, 2018). In short, they provide a better quality service (Van Bogaert, Wounters, Willems, Mondelaers, & Clarke, 2013). With this in mind, it becomes essential to have evidence to support the validity and reliability of an instrument that allows us to assess the level of work engagement in this population.

The purpose of this study was to examine the psychometric properties of the Spanish version of UWES-17 for the assessment of health workers from different, public and private, institutions in Uruguay, for which no previous studies were found. We specifically sought to evaluate the factorial structure, based on a confirmatory factorial analysis (CFA), and reliability by internal consistency and homogeneity. The factorial structure provides evidence of validity associated with the construct, evaluating the consistency between theoretically expected behavior and empirical behavior. Internal consistency, on the other hand, allows to estimate the degree of accuracy of the measurement, assessing at what level it is affected by the elements that have been decided to include in the instrument, i.e. the sampling of contents (Martínez Arias, Hernández Lloreda, & Hernández Lloreda, 2006).

Method

Study Design

This study is instrumental, as it sought to study the psychometric properties of an assessment questionnaire (Montero & León, 2007).

Participants

Non-probabilistic sampling was carried out, i.e. we included workers from different health institutions with greater access through postgraduate students in Health Services Management from the Catholic University of Uruguay in 2017. The inclusion criteria included the willfulness to participate and that workers were effectively working at the institution during data collection or who were active workers of the institutions.

A total of 1.699 responses were obtained, of which 375 cases were discarded due to responses omitted from the evaluated instrument, i.e. the cases were list eliminated. The final sample consisted of 1,324 workers of both sexes (63.7% female; 23.5% male; 12.8% without information) belonging to ten health care service institutions. These included public (45.7%) and private (54.3%) institutions in Montevideo and the interior of the country (64.4% and 35.6% respectively). 66.7% of the sample was between 30 and 50 years old at the time of evaluation. 88.7% of it was composed of workers in an operator role, while 8% had a management, leadership or supervisory role. In terms of occupational group, nurses (64.1%) composed the majority of the sample; followed by physicians (9.9%), service assistants (7.9%) and administrative workers (6.3%). The sample consisted of people with different seniority in the institutions (15.7% up to two years; 22.1% between two and five years; 23.6% between five and ten years; 22.6% between 10 and 20 years; 14.2% over 20 years) and, in part, multi-employed workers (45.6%). In terms of type of service, sample workers were part of critical/intermediate care services (19.6%), inpatient (15.9%), emergency (10.4%), and others (53.3%).

Instruments

– *Utrecht Work Engagement Scale (UWES)*. The Spanish version of the UWES scale was employed (Schaufeli y Bakker, 2004; Schaufeli et al., 2002). It is a self-report questionnaire composed of 17 items that account for the three factors that make

up work engagement: vigor (items 1, 4, 8, 12, 15, 17), dedication (items 2, 5, 7, 10, 13) and absorption (items 3, 6, 9, 11, 14, 16). The instructions call respondents to rate how often they have felt the way described in each item, with a Likert-type response scale of seven options ranging from never - no time (with zero value), to always - every day (with a value of six). Schaufeli and Bakker (2004) reported that the UWES has reliability from its internal consistency with Cronbach alpha values ranging from 0.80 to 0.90.

– *Socio-Demographic Data Questionnaire*. To gather this type of information, the questionnaire inquired on age, sex, occupational group, seniority in the institution, the presence of other employment, the role in the work team, as well as the type of service in which the person worked.

Procedure

Prior to the collection of the data, the research project was evaluated by the Ethics Committee of the Faculty of Psychology of the Catholic University of Uruguay, being the result that this project constitutes a low risk of vulnerability to ethical principles. We then asked for authorization from the heads of each institution and/or the participating sector of the health institution. Data collection took place between March and December 2017. Postgraduate students from Health Services Management of the Catholic University of Uruguay collected the data and members of the research team processed it in 2018. In addition, participating workers granted informed consent after the objective of the study and its conditions were explained to them. Participation in the study was voluntary and workers were assured of the confidentiality of the information and the anonymity of their responses.

Data Analysis

The statistical analyses that guided the this study were conducted using the SPSS v. 24 (IBM Corp., s/f) and AMOS v. 24 (Arbuckle, 2016).

First, we conducted the descriptive statistical analysis of the items that make up the scale (mean, standard deviation, asymmetry and kurtosis). Subsequently, we performed an analysis of the internal consistency of the questionnaire through the Cronbach alpha coefficient, both for the total scale and for the three factors, along with inter-item correlations and item-total correlation. We used an iterative process to identify items that negatively affected or did not contribute positively to the level of the level. We then performed a CFA using the Generalized Least Squares (GLS) method for estimating parameters. The choice of this estimation method was made taking into account that the variables were ordinal and do not maintain a normal distribution. The objective of the CFA was to evaluate the adjustment to the sample data from this study to the theoretical model proposed by the authors of the questionnaire (Schaufeli y Bakker, 2004; Schaufeli et al., 2002), where the observable measure variables (items) of work engagement load on one of the three latent, non-observable factors (vigor, dedication and absorption), which correlate with each other.

Both absolute and incremental indices were used to evaluate the goodness of fit of the model. The calculated absolute goodness-of-fit indices were the chi-square statistic (χ^2), the Root Mean Square Error of Approximation (RMSEA) and the standardized residual mean root (SRMR). Values below 0.07 for the RMSEA and below 0.9 for the SRMR indicate an acceptable fit of the model to the data. Unfortunately, χ^2 is sensitive to the sample size, so the probability of the model being rejected increases with the sample size. Therefore, the following relative fit indices were also calculated, with their respective cut-off criteria: .96 for the comparative fit index (CFI), and .90 for the Tucker-Lewis index (TLI) (Hooper, Coughlan, y Mullen, 2008; Hu y Bentler, 1999).

Results

Descriptive Statistics and Reliability of the UWES-17

Table 1 shows the descriptive statistics and internal consistency indices for the UWES-17 scale.

The means are generally quite high, and the correlations are consistently statistically significant. Within the theoretical range of 0 to 6, the mean score (standard deviation) was 4.26 (0.97), 4.40(1.01), 4.63 (1.11) and 3.80 (1.12) for the total score of the scale, vigor, dedication and absorption, respectively. These average factor values suggest that participants experienced the different aspects of work engagement relatively frequently, at least weekly.

Cronbach's alpha coefficients reveal good internal consistency for the scale and each of its three factors (0.91 for the total scale, 0.79 for vigor, 0.85 for dedication, and 0.74 for absorption), exceeding Nunnally and Bernstein's (1995) standard criterion of 0.70 for Cronbach's α .

From the analysis of α if the element is suppressed, it was found that, if item 6 of absorption is removed ("It is difficult to detach myself from my job") and item six of the vigor factor ("At my work I always persevere, even when things do not go well"), the internal consistency of each factor does not vary. Therefore, we consider that these two items could be removed from the scale. These results are consistent with the findings of the instrument's authors (Schaufeli y Bakker, 2004), which is why studies can be found with a version of the scale consisting of 15 items.

The 17 items on the scale have positive correlations and significantly different from zero (to 1%), with inter-item correlations ranging from 0.15 to 0.70. Item-total correlations were significant at level 0.01 and ranged from 0.46 to 0.79.

Table 1.

Descriptive analysis of the UWES-17 items and reliability of the scale and factors (N = 1.324)

Items for each factor	Min Max	-M (SD)	ITC	α -i	Asymmetry (SE)	Kurtosis (SE)
Vigor ($\alpha=0.79$)						
VI1 - At my work, I feel bursting with energy	0-6	4.35 (1.38)	0.67	0.75	-.91 (0.07)	.32 (0.13)
VI2 - At my job. I feel strong and vigorous	0-6	4.58 (1.25)	0.64	0.74	-.99 (0.07)	.86 (0.13)
VI3 - When I get up in the morning, I feel like going to work	0-6	3.68 (1.16)	0.66	0.75	-.54 (0.07)	-.66 (0.13)
VI4 - I can continue working for very long periods at a time	0-6	4.11 (1.65)	0.57	0.76	-.68 (0.07)	-.44 (0.13)
VI5 - At my job, I am very resilient, mentally	0-6	4.72 (1.25)	0.59	0.76	-1.13 (0.07)	1.21 (0.13)
VI6 - At my work I always persevere, even when things do not go well	0-6	5.01 (1.30)	0.41	0.79	-1.70 (0.07)	2.82 (0.13)
Dedication ($\alpha= 0.85$)						
DE1 – I find the work that I do full of meaning and purpose	0-6	4.66 (1.40)	0.67	0.81	-1.11 (0.07)	.79 (0.13)
DE2 – I am enthusiastic about my job	0-6	4.59 (1.41)	0.71	0.80	-1.12 (0.07)	.91 (0.13)
DE3 – My job inspires me	0-6	4.31 (1.51)	0.75	0.78	-.93 (0.07)	.33 (0.13)
DE4 - I am proud on the work that I do	0-6	5.17 (1.18)	0.59	0.83	-1.83 (0.07)	3.74 (0.13)
DE5 - To me, my job is challenging	0-6	4.47 (1.56)	0.56	0.84	-1.11 (0.07)	.64 (0.13)
Absorption ($\alpha=0.74$)						
AB1 - Time flies when I'm working	0-6	4.42 (1.46)	0.58	0.71	-.93 (0.07)	.32 (0.13)
AB2 - When I am working. I forget everything else around me	0-6	3.76 (1.75)	0.51	0.70	-.63 (0.07)	-.53 (0.13)
AB3 - I feel happy when I am working intensely	0-6	3.46 (1.90)	0.44	0.71	-.39 (0.07)	-.97 (0.13)
AB4 - I am immersed in my work	0-6	4.49 (1.35)	0.69	0.69	-.99 (0.07)	.77 (0.13)
AB5 - I get carried away when I'm working	0-6	3.66 (1.68)	0.61	0.67	-.54 (0.07)	-.57 (0.13)
AB6 - It is difficult to detach myself from my job	0-6	2.98 (1.93)	0.36	0.74	-.02 (0.07)	-1.21 (0.13)
Total Scale ($\alpha= 0.91$)						

Note. VI = Vigor; DE = Dedication; AB = Absorption; M = Mean; SD = Standard Deviation; ITC = Corrected Item-Total Correlation; α -i = Cronbach's alpha if the item is removed from the factor; SE = Standard Error.

Table 2 shows the CFA results of the three correlated factors model for UWES-17. The results suggest that the three-factor model is moderately acceptable to data from health workers in Uruguay. Chi-square (χ^2) was found to be statistically significant, with a $p < 0.01$, which was expected given the sample size. Based on the cut-off value for RMSEA of 0.07 and for SRMR of 0.9, being these measures of absolute adjustment, the three-factor model of engagement indicates a good fit to the data. Among the incremental adjustment rates, both the comparative fit index (CFI) and the Tucker Lewis index (TLI) did not reach acceptable values.

For this model, the factorial loads for all UWES-17 items were significant at the level of 0.01 with a magnitude ranging from 0.4 to 0.85 (Table 3). The lowest factorial loads obtained from the CFA were for the items "At my work I always persevere, even when things do not go well" (VI6) and "It is difficult to detach myself from my job" (AB6) (Figure 1), which is consistent with results from other studies and our internal consistency analysis. As expected, correlations between the three latent factors were high, greater than 0.90 in all cases.

Table 2.

Goodness of fit indices for the three-factor model of the UWES-17 scale according to GLS (N=1.324)

Parameter estimation method	Fit Indices					
	χ^2	df	RMSEA [IC 90%]	SRMR	CFI	TLI
GLS	733.43*	116	0.063 [0.059-0.068]	.064	0.51	0.43

Note: GLS= Generalized Least Squares; χ^2 = chi-square; df= degrees of freedom; RMSEA= Root Mean Square Error of Approximation; IC=Confidence Interval; SRMR = Standardized Root Mean Squared Residual; CFI=Comparative Fit Index; TLI= Tucker-Lewis Index.

* $p < 0.01$.

Table 3.

Standardized factor loads of the UWES-17 items in their corresponding latent variables according to GLS (N=1.324)

Item/Variable	Factor Loading
Vigor	
VI1 At my work, I feel bursting with energy	0.80
VI2 At my job, I feel strong and vigorous	0.72
VI3 When I get up in the morning, I feel like going to work	0.73
VI4 I can continue working for very long periods at a time	0.63
VI5 At my job, I am very resilient, mentally	0.68
VI6 At my work I always persevere, even when things do not go well	0.45
Dedication	
DE1 I find the work that I do full of meaning and purpose	0.75
DE2 I am enthusiastic about my job	0.84
DE3 My job inspires me	0.85
DE4 I am proud on the work that I do	0.70
DE5 To me, my job is challenging	0.63
Absorption	
AB1 Time flies when I'm working	0.66
AB2 When I am working, I forget everything else around me	0.58
AB3 I feel happy when I am working intensely	0.50
AB4 I am immersed in my work	0.77
AB5 I get carried away when I'm working	0.69
AB6 It is difficult to detach myself from my job	0.40

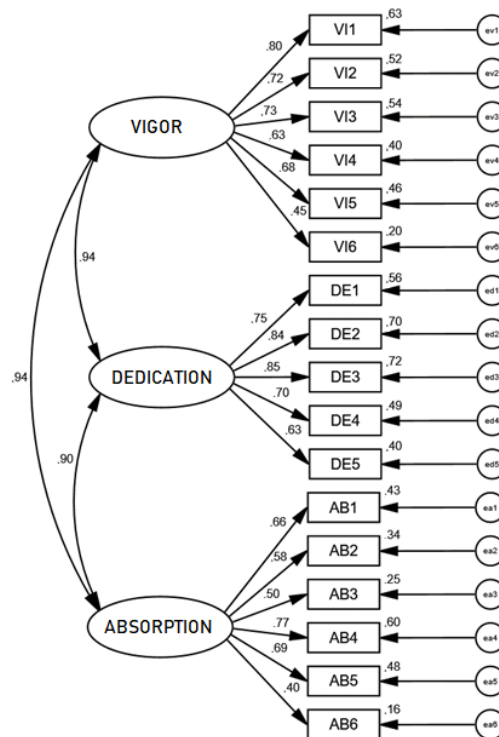


Figure 1.

UWES factor structure in Uruguayan health workers according to the confirmatory factor analysis using GLS (N=1.324).

Discussion

The UWES scale is widely used around the world to assess work engagement. Although the Spanish version is available on the developer's website, no evidence was found from previous studies on work engagement or the properties of this scale in Uruguay. The main objective of this study was to examine the psychometric properties of the Spanish Utrecht Work Engagement Scale (UWES) in its 17-item version for the assessment of health workers in Uruguay. We examined the reliability of the scale by internal consistency and homogeneity, and also investigated the factorial validity of UWES-17 by adopting a CFA approach. The objective of this analysis was to verify whether the structure of three correlated factors proposed by the authors of the scale (Schaufeli y Bakker, 2004) presented an appropriate fit for the sample of this study. Overall, the UWES-17 demonstrated satisfactory levels of psychometric properties. Satisfactory internal consistency was found for

the three factors ($\alpha \geq 0.70$). An appropriate level of homogeneity of the scale was supported by significant inter-item correlations between the 17 items and the substantial item-total correlations ($r \geq 0.40$). These results suggest that UWES-17 is a reliable assessment scale for work engagement in the Uruguayan context.

As previously raised by Schaufeli & Bakker (2004), the results of the reliability indices show that the items " At my work I always persevere, even when things do not go well " (VI6) and " It is difficult to detach myself from my job " (AB6), could be eliminated from the scale as they do not increase the internal consistency of the factors, but decrease it instead.

The results of the CFA performed in this study show a moderately acceptable adjustment of the model of three latent correlated factors for work engagement, with acceptable values for RMSEA and SRMR, but estimates that do not meet the expected values for the CFI and TLI. In addition, factorial loads are greater than 0.5

in most items, with only two values below this criterion. These values correspond to items VI6 and AB6, which is consistent with the results obtained in relation to the internal consistency of the scale. While the moderately acceptable adjustment of the three-factor model is consistent with the notion of the three-dimensional nature of work engagement, these three factors appear to be highly correlated ($r = 0.90 - 0.94$), suggesting the possibility of a higher order factor. This little discrimination between factors might suggest that work engagement can be considered both as a three-factor and one-factor construct.

Final Considerations

From the analysis carried out in this study, we conclude that the Spanish UWES in its 17-item version proved to be a valid and reliable instrument for the assessment of work engagement and its three correlated factors (vigor, dedication and absorption) in Uruguayan health workers. Also, scores should be carefully interpreted, as there appears to be little discrimination between the factors.

The results of this study demonstrates the psychometric weakness of items AB6 and VI6 and is aligned with the contents of the instrument manual (Schaufeli y Bakker, 2004). It is also significant to comment that these results seem reasonable in view of the characteristics of the work of health personnel, where the ease of "disconnecting" from their work and the ability to work in the face of adverse conditions could constitute necessary mechanisms for proper performance and mental health of workers.

There are some limitations to this study, including those related to the use of a convenience sample. The results of this analysis are likely not to be representative to the entire population of health workers in Uruguay, and therefore these results should not be generalized to other contexts. However, we consider that the inclusion of a variety of Uruguayan health institutions in the capital and inland cities, as well as both public and private institutions, could mitigate this limitation.

This is the first study to evaluate the UWES factorial structure in Uruguayan health workers using CFA. This work provides evidence of the validity and reliability of UWES-17 in a significant context, as are health professionals.

This study aims to promote research and action in the positive aspects of occupational health in Uruguay, especially those aimed at promoting the occupational well-being of health workers, taking into account that the health and well-being of health workers allows not to only improve their performance, but also the quality of the services offered to users.

Authors' participation:

a) Conception and design of the work; b) Data acquisition; c) Analysis and interpretation of data; d) Writing of the manuscript; e) Critical review of the manuscript.

L.G.G. has contributed in a,b,c,d,e; J.L. in a,b,c,e; A.F.U. in a,d,e; V.CH.T. in a,d,e

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