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Unified Multidimensional Calling Scale: Brazilian Version's Psychometric Properties and Invariance

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Abstract

This study aimed to translate, adapt, and present the psychometric properties of the Unified Multidimensional Calling Scale – UMCS and the invariance of the measure by sex for the Brazilian population. The study included a sample of 2111 adult workers (67% women) aged between 18 and 77 years (M = 41.70; SD = 11.10). The Brazilian version of the scale showed better fit indices with a seven-factor structure and gender invariance. In addition, the measure showed external evidence with significant work, protean career orientation, job satisfaction, life satisfaction, and workaholism. Thus, it was concluded that the results obtained expand the nomological network of the construct of Occupational Callings and discuss its theoretical and practical implications. The results favor using the adapted measure in research and evaluation contexts in career themes in Brazil.

Keywords: labor, career, occupational health, psychometrics, professional development

ESCALA DE CHAMADOS OCUPACIONAIS: PROPRIEDADES PSICOMÉTRICAS E INVARIÂNCIA DA VERSÃO BRASILEIRA

Resumo

Este estudo teve como objetivo traduzir, adaptar e, apresentar as propriedades psicométricas do *Unified Multidimensional Calling Scale – UMCS*, assim como invariância da medida por sexo para a população brasileira. O estudo contou com uma amostra de 2111 trabalhadores adultos (67% mulheres), com idades entre 18 e 77 anos (M = 41,70; DP = 11,10). A versão brasileira da escala apresentou melhores índices de ajuste com uma estrutura de sete fatores e invariância por sexo. Além disso, a medida apresentou evidências externas com trabalho significativo, orientação proteana de carreira, satisfação no trabalho, satisfação com a vida e workaholismo. Concluiu-se que os resultados obtidos ampliam a rede nomológica do construto Chamados Ocupacionais e discutem suas implicações teórico e práticas. Sendo os resultados favoráveis para o uso da medida adaptada em contextos de pesquisa e avaliação em temas de carreira no Brasil.

Palavras-chave: trabalho, carreira, saúde ocupacional, psicometria, desenvolvimento profissional

ESCALA DE LLAMADOS OCUPACIONALES: PROPIEDADES PSICOMÉTRICAS E INVARIANCIA DE LA VERSIÓN BRASILEÑA

Resumen

Este estudio tuvo como objetivo traducir, adaptar y presentar las propiedades psicométricas de la Escala Unificada Multidimensional de Llamado – UMCS, así como la invariancia de la medida por sexo para la población brasileña. El estudio incluyó una muestra de 2111 trabajadores adultos (67% mujeres), con edades comprendidas entre 18 y 77 años (M = 41,70; DT = 11,10). La versión brasileña de la escala mostró mejores índices de ajuste con una estructura de siete factores e invariancia de género. Además, la medida presentó evidencia externa con trabajo significativo, orientación profesional proteica, satisfacción laboral, satisfacción con la vida y adicción al trabajo. Se concluyó que los resultados obtenidos amplían la red nomológica del constructo denominado Llamados Ocupacionales y discuten sus implicaciones teóricas y prácticas. Los resultados son favorables para el uso de la medida adaptada en contextos de investigación y evaluación en temas de carrera en Brasil.

Palabras clave: trabajo, carrera profesional, salud ocupacional, psicometría, desarrollo profesional

According to the literature, the first conceptions of Calling are biblical and rooted in religious philosophies, such as having a spiritual calling to perform sacred works and fulfilling a deep and meaningful pro-social destiny. However, it often required personal sacrifice and revolved around self-transcendence (Dik & Shimizu, 2019). At the time, most occupations operated under the servitude regime, and individuals who perceived their work as a calling and had others perceiving it as a calling were more socially valued than others. This perception characterizes social supremacy in the face of a rigid division of labor between social classes (Thompson & Bunderson, 2019). It is a classical-religious conception of calling and may currently be found among professions linked to religion and religious indoctrination (Thompson & Bunderson, 2019).

With the advent of the Protestant Reformation in the 16th century, based on the teachings of Martin Luther, all types of work were considered callings, showing that these were talents given by God to fulfill a worthy social purpose (Thompson & Bunderson, 2019). This conception of calling was characterized as a secular classic because it empowered individuals with the importance of their labor, even the simplest, thus weakening the religious component of a divine calling (Dik & Shimizu, 2019). In this conception, people perceive their calling to a specific work that emerges from a contextual and historical source, such as an organization, community, government, or social mission, which must be fulfilled as an ethical and moral obligation (Thompson & Bunderson, 2019).

More recently, debates emerged in vocational psychology, organizational behavior, and management on the definition of calling, which evolved and has been categorized as "modern" or "neoclassical" (Lysova et al., 2019). Like the classic conceptions of calling, the modern concept also emphasizes that work is inseparable from an individual's life and strongly linked to one's identity. However, this last conception does not involve a pro-social objective nor a transcendent summoning from an external source (Dik & Shimizu, 2019; Lysova et al., 2019). Hence, one's work is done on its merit because of its meaning to the person performing it; it may include activities that lead to fulfilling a unique purpose in life or a means for self-realization (Dik & Shimizu, 2019; Thompson & Bunderson, 2019). That said, the beginning of this modern conception of calling coincides with the emergence of a search for meaningful work, in which calling primarily focuses on the pursuit of passion and pleasure at work, even if this does not have a servile or divine nature (Dobrow et al., 2019). Neoclassical definitions of calling in the context of career derive from the way calling has been understood historically, emphasizing it as part of one's destiny or as an external demand, also maintaining an emphasis on pro-social duty, being remarkably similar to those adopted by classical conceptions, but without religious connotations (Dik & Shimizu, 2019). The facets of calling include the importance of the meaning of work; the perception of one's destiny to pursue a particular career or job; a moral obligation to serve; and finally, a willingness to make personal sacrifices for the sake of work (Duffy et al., 2018).

Contemporary research has identified professional calling as a set of an individual's unique skills, with multiple meanings, including that of satisfying, in addition to internal

motivations (e.g., self-realization and the achievement of personal and professional goals), external motivations (e.g., pro-social behavior), such as fulfilling a family legacy, moral duty, or social need. All these motivations are rooted in a deep individual meaning (Dik & Shimizu, 2019; Lysova et al., 2019; Vianello et al., 2020). The professional calling construct, even within its complexity, implies that an individual, who identifies themself with a sense of vocation, is seeking and choosing a career not so much for financial gain, personal progress, or social status but because of the deep meaning each assign for their work purpose (Dik & Shimizu, 2019; Vianello et al., 2020).

In the scientific theoretical consensus, professional calling is a multidimensional construct with affective, motivational, and spiritual facets related to the identity of the relationship between individuals and specific domains of life or work (Vianello et al., 2018). Having a calling implies being aware of the path that leads individuals to a meaningful and satisfying professional sense of self-fulfillment. Using a broad concept to measure the components of professional calling increases the generalization of results to other work and career phenomena, clarifying the limits of generalization. Hence, it allows for a detailed analysis of the relationships between the different components of professional calling and other variables (Dobrow et al., 2019).

A broader concept of the main dimensions of the previous notions of professional calling was adopted as the construct evolved (Thompson & Bunderson, 2019; Dobrow et al., 2019; Praskova et al., 2014). According to Dobrow et al. (2019), people with a calling toward a career or domain are passionate about their work, have a purpose in life, sacrifice other areas of their lives in favor of their mission, and feel that their calling is always on their mind, reporting that their calling comes from something transcendent, greater than or beyond them, and that part of their calling means to be of service to others. In addition, it has been repeatedly shown that having a calling lead to commitment and engagement. Finally, individuals with a calling are more satisfied and fulfilled with their work and life (Dobrow et al., 2019; Vianello, 2020).

Duffy et al. (2018) consider that when studying one's calling and its impacts on one's career, it is necessary first to identify how it unfolds in the individuals' lives and contemporary careers. Additionally, professional calling focuses on the meaning of work according to individual goals and professional aspirations (Duffy et al., 2018; Lysova et al., 2019). Studies addressing the purpose of work, considering the different types of callings and their various components in the context of contemporary careers inside and outside organizations, are still incipient in the literature (Thompson & Bunderson, 2019; Hirschi et al., 2019). Based on these new scenarios about contemporary careers, exploring the complexities involved in how people frame or interpret their callings involves cross-cultural comparisons of calling concepts. This line of research should include exploring ways in which different cultural contexts shape people's calling experiences, as it would allow a more contextualized understanding of professional calling (Lysova et al., 2019).

There is yet to be an agreement on the main components of professional calling (Thompson & Bunderson, 2019), so a theoretical model and comprehensive instruments are

suggested to test a diversified sample and present information on the invariance of the construct over time. The Unified Multidimensional Calling Scale (UMCS) (Vianello et al., 2018) is currently the most comprehensive tool for evaluating professional calling, as it measures the main facets already mapped in the literature, in addition to including all the theoretical concepts of the construct, classic, modern, and neoclassical (Thompson & Bunderson, 2019). Additionally, the UMCS is the only multidimensional measure of professional calling invariant over time, i.e., its internal structure and the construct's domains do not vary over time (Vianello et al., 2018). The measure was applied to a sample of Italian college students (N = 5,886) and adult workers (N = 205). The scale presents excellent psychometric properties regarding reliability and validity. Its structural validity was verified through exploratory and confirmatory factor analyses (Vianello et al., 2018). Table 1 describes the construct and its respective dimensions in detail. Hence, this study's hypothesis 1 is to verify evidence based on the internal structure of the adapted instrument (H1).

Table 1

Definition of Dimensions and Items of the Unified Multidimensional Calling Scale – UMCS

Dimensions	Definition and examples	Items
Passion	It reflects the pleasure and satisfaction individuals experience when performing tasks related to their callings. "*Eu sou apaixonado pelo meu trabalho*" [I am passionate about my work]	1, 2, 3, 4
Sacrifice	It measures the individual's' disposition to sacrifice other domains of their lives to fulfill their callings. "*Eu continuaria trabalhando no que atuo, mesmo que tivesse que enfrentar sérios obstáculos*" [I would keep working in my field even if I had to face difficult obstacles].	5, 6, 7,8
Transcendent Summons	It measures the presence of a spiritual impulse to engage in activities of one's calling. "*Eu estou me empenhando no meu atual ramo de trabalho porque acredito que fui convocado/chamado a fazer o que faço*" [I am committed to my current line of work because I believe I was summoned/called to do what I do].	9, 10,11,12
Prosocial orientation	It refers to other-oriented purposes that guide engagement in one's professional calling. "*Atender às necessidades da sociedade é uma parte importante do meu trabalho*" [Meeting the needs of society is an important part of my job].	13, 14, 15, 16
Pervasiveness	It refers to the constant presence of one's professional calling in their thoughts and consciousness, even when the individual is not directly involved in activities related to this domain. "*Mesmo quando não estou trabalhando, penso sobre meu trabalho com frequência*" [I think about my work often even when I am not working].	17, 18, 19,20
Purposefulness	It reflects how much engagement with one's calling allows one to find purpose and meaning in life. "*Eu acredito que meu trabalho seja um caminho para alcançar meu propósito de vida*". [I believe my work is a path to fulfill my life's purpose].	21, 22, 23, 24
Identification	It refers to the importance of one's calling in determining who an individual is and the feeling of predetermination and inevitability of pursuing their calling. "*Meu trabalho será sempre uma parte da minha vida*". [My work will always be part of my life].	25, 26, 27,28

According to the literature, individuals with a calling are more likely to consider their work meaningful (Faletehan, Thompson & Wempe, 2021). Additionally, a calling can contribute to achieving a meaningful, remarkable, and supportive career, contributing to achieving personal and professional goals (Ahmed & Mozammel, 2019; Faletehan et al., 2021). Therefore, professional callings are a resource and a predictive characteristic of meaningful work and can predict valuable career outcomes (Lysova et al., 2019). In this sense, hypothesis 2 (H2) is that callings are positively associated with meaningful work.

Faletehan et al. (2021) suggest that individuals develop self-relevant and meaningful goals in the context of their social and professional relationships and define a calling as a reflection of such experiences, that is, a purpose in life. Therefore, callings can be defined as a predominantly self-established, self-directed, higher-order career goal that generates meaning and purpose for individuals and their communities (Praskova et al., 2014; Yang & Liu, 2021) from a perspective of goal setting and self-regulation. Hence, professional callings are expected to be positively associated with protean career orientation, our hypothesis H3.

Additionally, Vianello et al. (2020) show that the benefits associated with identifying and pursuing a professional calling are related to several positive career outcomes, including improved job and life satisfaction and being more dedicated to progress and achieving professional goals. Duffy et al. (2018) addressed professional calling and its impact on individuals' careers. They found it is fundamental for a meaningful career and achieving job and life satisfaction. Douglass et al. (2016) and Vianello et al. (2020) also stress the importance of work for individuals' satisfaction with their careers and lives. Therefore, the professional calling construct is expected to be positively associated with job satisfaction (H4a) and life satisfaction (H4b).

Although experiencing a calling is predominantly associated with positive outcomes, under certain circumstances, a calling may have negative consequences, such as workaholism (Duffy et al., 2018). For example, a study addressing psychologists shows that some participants reported sacrificing other domains of their lives, such as leisure and family, in favor of their professional calling. In addition, Duffy et al. (2016) found evidence that a professional calling may be linked to workaholism, where an individual sacrifices personal time to experience their calling (Duffy et al., 2018).

Thompson and Bunderson (2019) report, for example, that zoo employees who believed they were living their professional calling were more likely to sacrifice their time to dedicate themselves to their work. Additionally, Clinton et al. (2017) found that professional callings were related to working overtime. Accordingly, Hirschi et al. (2019) also identified such a correlation with workaholism.

According to the meaning workers assign to their jobs, whether a social, personal, or even transcendental meaning, professional callings may induce individuals to invest too much in their work at the risk of experiencing unhealthy conditions and workaholism (Duffy et al., 2018; Thompson & Bunderson, 2019; Hirschi et al., 2019). Hence, hypothesis H5 is proposed, in which callings are expected to be positively associated with workaholism,

Given the importance of the professional calling construct, the theoretical aspects of its dimensional nature, its correlates, and adaptation to different professional groups need to be verified in a comprehensive sample. In this sense, this study aimed to translate, adapt, and present the psychometric properties of the UMCS, in addition to its invariance according to sex for the Brazilian population. In addition to verifying evidence based on the instrument's internal structure, evidence based on the relationships with external variables is also presented to expand the construct's nomological network (i.e., meaningful work, protean career orientation, job satisfaction, life satisfaction, and workaholism).

Thus, the cross-cultural adaptation of the instrument in a Brazilian heterogeneous sample considering contextual, economic, and cultural peculiarities is interesting for scientific research in the career field, considering that a measure employing a wide range of theoretical concepts of the professional calling construct is needed. The objective is to maximize the generalizability of results across the many different concepts in the literature to fill both a conceptual and methodological gap.

Method

Participants

A convenience sample comprised individuals working or who had already worked in professions associated with a group identity (e.g., health, education, or security professionals). The minimum sample size required (746 participants) was calculated using the G*Power software (Faul et al., 2007). G*Power is a software used to analyze the power of statistical tests (correlations, regressions, and others). It is commonly used in social, behavioral, and biomedical sciences. The sample consisted of 2111 participants: 1415 women (67%) and 696 men (33%), aged between 18 and 77 (M = 41.7, SD = 11.1), living in the southeast (N = 1363; 64.6%), south (N = 284; 13.5%), mid-west (N = 196; 9.3%), northeast (N = 197; 9.3%), or north of Brazil (N = 71; 3.4%).

Among the participants, 1605 (76.0%) had a graduate degree, 368 (17.4%) had an undergraduate degree, 133 (6.3%) had secondary education, and only 5 (0.2%) had middle school. Regarding monthly family income, 1381 (65.4%) had an income above R$5,725.00 and 730 (34.6%) below R$5,725.00. Regarding the participants' current employment, 1557 (73.8%) were employed, 77 (3.6%) were unemployed, 64 (3.0%) retired, and 413 (19.6%) were not formally employed (e.g., entrepreneurs or self-employed). Of these, 847 (40.0%) were in the public sector, 792 (37.0%) in the private sector, 213 (10.1%) in both sectors; 259 (12.3%) did not fit any of these categories. Most participants, 1229 (58.2%), were healthcare providers (i.e., doctors, nurses, psychologists, nursing technicians, etc.), 262 (12.4%) were security professionals (e.g., firefighters, lifeguards, etc.), 217 (10.3%) were in the education field (e.g., teachers, academic coordinators, etc.), and 403 (19.1%) were professionals from different fields.

Instruments

a) UMCS (Vianello et al., 2018). An original instrument composed of 28 items rated on a 7-point Likert scale (1= Strongly Disagree to 7= Strongly Agree). It comprises 7 dimensions: passion (α = 0.86, ω = 0.86), purposefulness (α = 0.69, ω = 0.70), sacrifice (α = 0.95, ω = 0, 95), pervasiveness (α = 0.80, ω = 0.80), prosocial orientation (α = 0.81, ω = 0.81), transcendent summons (α = 0.85, ω = 0.86), and identification.

b) Work as Meaning Inventory (WAMI) (Zanotelli et al., 2022). It was initially developed by Steger et al. (2012) and later adapted and validated for the Brazilian context. It consists of 10 items (e.g., "Eu encontrei uma carreira significativa" [I have found a meaningful career]; α = 0.93, ω = 0.94, and composite reliability = 0.94), rated on a Likert scale (1= Strongly Disagree to 5= Strongly Agree).

c) Protean Career Orientation Scale (Andrade et al., 2022): Originally developed by Baruch (2014). The instrument consisted of 14 items (e.g., "Eu conduzo a minha carreira, principalmente de acordo com meus planos" [I navigate my career, according to my plans in particular]; α = 76, ω = 77) and was adapted and validated for the Brazilian context. It is rated on a 7-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (7).

d) Generic Job Satisfaction Scale (Andrade et al., 2020): adapted to the Brazilian context, consisting of 5 items (e.g., No meu trabalho eu posso aplicar todos os meus talentos e habilidades" [In my work I can apply all my talents and skills]; α = 0, 87). It is rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree).

e) Satisfaction with Life Scale (SWLS) (Zanon, Bardagi, Layous & Hutz, 2014). It was adapted to the Brazilian context and consisted of 5 items (e.g., "A minha vida está próxima do meu ideal" [My life is close to ideal]; α = 0.87) rated on a 7-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (7).

f) Workaholism Scale – Dutch Work Addiction Scale –DUWAS (Carlotto & Miralles, 2010). It was first developed by Schaufeli (2006) and was later adapted to the Brazilian context. It is composed of 10 items and two dimensions: compulsive work (e.g., "Parece que estou numa corrida contra o relógio" [I seem to be racing against the clock]; α = 0.70) and overwork (e.g., "Sinto que há algo dentro de mim que me impulsiona a trabalhar duro" [I seem to have an inner compulsion to work hard]; α = 0.74). It is rated on a 3-point Likert Scale where (0) corresponds to "Never" and (3) to "Every Day."

g) Socio-demographic questionnaire. Questions addressing the sample's information, including age, gender, education, family monthly income, place of residence, current job, type of job, and profession.

Translation and adaptation procedures

The original English version of the UMCS (Vianello et al., 2018) was used for the cross-cultural adaptation and to obtain valid evidence of the instrument adapted to the Brazilian context. In addition, the guidelines concerning the proper adaptation of instruments to other

cultures provided by the International Test Commission were followed (International Test Commission, 2017).

Three bilingual translators, fluent in English and Brazilian Portuguese, worked on the translation and back-translation. Next, the three translated versions were reconciled into one version, which two judges (experts in professional and career guidance) organized and evaluated. Good results were obtained in the semantic equivalence assessment. Finally, the reconciled Brazilian version was applied in a pilot test with ten professionals (four with professional technical education in nursing, three with a bachelor's degree in psychology, and three with graduate degrees in public safety). The pilot study indicated the need for minor adjustments. After these adjustments were implemented, the final version was applied in the Brazilian context.

Ethical Procedures

This study was submitted to and approved by the Institution Review Board under no. 25833919.5.0000.5542. All participants received clarification about the study's objectives and consented to participate, following Resolutions 466/2012 and 510/2016, the National Health Council on Guidelines and Norms for Research Involving Human Subjects.

Data Collection and Analysis

Data were collected online between March and December 2020 during the COVID-19 Pandemic. Customized invitations were sent by email and social media to recruit professionals from all Brazilian regions. All participants answered the survey online after agreeing with a free and informed consent form.

Data analyses were initially performed to confirm the factor structure of the UMCS (Vianello et al., 2018). Hence, a Confirmatory Factor Analysis (CFA) was performed using the Robust Diagonally Weighted Least Squares (RDWLS) estimation method. The (mathematical) objective of the CFA is to estimate parameters that indicate that the factor structure tested generates a covariance matrix similar to the covariance matrix of the original study's data. That is, the objective is to confirm that the statistical model tested in this study reproduces the correlation structure of the original research. RDWLS is a robust estimator used with categorical variables, small samples, and non-normal distributions and is most suitable for questionnaires rated on a Likert scale (Brown, 2015).

The following indices were assessed to verify the model's goodness of fit: χ^2; χ^2/df, Comparative Fit Index (CFI); Tucker-Lewis Index (TLI), Standardized Root Mean Residual (SRMR), and Root Mean Square Error of Approximation (RMSEA). According to the literature (Brown, 2015), χ^2 values should not be significant; χ^2/df must be less than 5, RMSEA and SRMR must be below 0.08 with a confidence interval (upper limit) below 0.10, while CFI and TLI values must be greater than 0.90, preferably 0.95. Additionally, multigroup analyzes (MFCFA) were performed with the total sample (Putnick & Bornstein, 2016) to verify the instrument's invariance according to sex. The models (configural, metric, and scalar) were assessed according to the respective

adjustment indices: CFI > 0.90; TLI > 0.90; RMSEA <0.08, with a 90% confidence interval not exceeding 0.10. The invariance of the adapted instrument was evaluated by the difference in the CFI between the models (ΔCFI < 0.01) (Cheung & Rensvold, 2002). Cronbach's alpha, McDonald's omega, and composite reliability coefficients were used to verify the measurement's accuracy.

Finally, validity evidence based on external measures (convergent and discriminant validity) was verified using Pearson's correlation. The objective was to assess the association between the general scores obtained in the UMCS (Vianello et al., 2018) and the constructs' scores (WAMI, Protean Career Orientation Scale, Generic Job Satisfaction Scale, Satisfaction with Life Scale, Dutch Work Addiction Scale). All analyses were performed using Jasp 0.14.

Results

Confirmatory Factorial Evidence

Two models were tested using CFA to assess the most appropriate structure of the UMCS in the Brazilian context. Next, to evaluate the model's goodness of fit, Model 1 with seven dimensions was analyzed as indicated by the CFA and by the original and current model proposed by Vianello et al., 2018. Then, Model 2, a second-order factor model and seven first-order dimensions, was analyzed according to previous results found by Vianello et al., 2018. Table 2 presents the adjustment and precision indicators at the p<0.001 significance level for the two models and their respective dimensions.

Table 2

Models proposed for the Confirmatory Factor Analysis

Model	χ^2 / df	χ^2 / df	CFI	TLI	SRMR	RMSEA (90% CI)
M1	1118.45 (329)	3.39	0.99	0.99	0.04	0.034 (0.032 − 0.036)
M2	1696.40 (343)	4.94	0.98	0.98	0.05	0.043 (0.041 − 0.045)

Note: χ^2 = Chi-square; df = degrees of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation.

Both models (M1 and M2) showed significant Chi-squares. However, even with a significant Chi-square, the results indicated that the structure with seven factors found in Model 1 presented better goodness of fit for all criteria, as shown in Table 2. The factorial weights (lambdas) of each item per factor and their significance are presented in Table 3.

Reliability Evidence

Next, the precision of the adapted UMCS (Vianello et al., 2018) was assessed using Cronbach's alpha, McDonald's omega, and composite reliability coefficients for each of its seven dimensions, as shown in Table 3.

Table 3

Items Estimates According to Factors and Precision Indexes of the 7-factor Model

Dimension	Item	Estimates (Lambdas)	Cronbach's alpha	McDonald's Omega	Composite Reliability
Passion	1	1.01	0.85	0.86	0.86
	2	1.13			
	3	1.15			
	4	1.09			
Sacrifice	5	1.32	0.90	0.91	0.88
	6	1.44			
	7	1.42			
	8	1.26			
Transcendent Summons	9	1.65	0.94	0.94	0.94
	10	1.78			
	11	1.79			
	12	1.78			
Prosocial Orientation	13	0.98	0.89	0.90	0.91
	14	0.94			
	15	0.79			
	16	0.82			
Pervasiveness	17	1.22	0.88	0.89	0.85
	18	1.41			
	19	1.44			
	20	1.43			
Purposefulness	21	1.30	0.90	0.90	0.92
	22	1.39			
	23	1.16			
	24	1.43			
Identification	25	1.11	0.87	0.87	0.85
	26	1.20			
	27	1.47			
	28	1.15			

All precision indexes showed adequate reliability in the seven dimensions of the instrument's configural model (Table 3).

Invariance Analysis

After the confirmatory factor analysis (CFA), the results of the MGCFA indicated configural, metric, and scalar invariance of the UMCS (Vianello et al., 2018) in the study's context,

as shown in Table 4. In addition, the MGCFA results show evidence that the structure is stable and that there are no response biases based on sex in the sample.

Table 4

Multi-group Confirmatory Factor Analysis (MGCFA)

Measure Invariance (Male x Female)	Goodness-of-fit indexes				
	RMSEA (90% CI)	SRMR	TLI	CFI	ΔCFI
Configural Invariance	.030 (.027 − .032)	.048	.993	.993	–
Metric Invariance	.030 (.027 − .032)	.048	.993	.993	.000
Scalar Invariance	.029 (.027 − .032)	.046	.993	.993	.000

The configural model's adequacy indices showed that the 7-factor structure of the Brazilian version of the UMCS (Vianello et al., 2018) was adequate in both groups (male and female). Furthermore, evidence of metric and scalar invariance was also obtained, considering the CFI difference between the models (Putnick & Bornstein, 2016), as shown in Table 4. Hence, the UMCS is considered equivalent for both men and women in the Brazilian context. In other words, the instrument's Brazilian version presents robust psychometric properties, with no variation between the groups.

Convergent Evidence

Finally, to find convergent evidence of the instrument with other constructs, Pearson's correlations were tested with instruments already adapted to the Brazilian context that address the phenomena relevant to the axiological network of evaluation of the UMCS (i.e., meaningful work, protean career orientation, job satisfaction, satisfaction with life, workaholism).

Convergent correlations were found between the total scores of the professional calling with the constructs of the total scores concerning meaningful work, protean career orientation, job satisfaction, life satisfaction, and workaholism, with a significance level of p<0.001. Professional calling was strongly and positively associated with meaningful work (r = 0.76) and moderately and positively related to protean career orientation (r = 0.32), job satisfaction (r = 0.39), and satisfaction with life (r = 0.36). Additionally, professional calling was weakly and positively associated with workaholism (r = 0.26).

Discussion

This study aimed to translate, adapt, and present the psychometric properties of the UMCS for the Brazilian population. Hence, confirmatory factor analyses were performed, and the external validity of the Brazilian version was obtained. The analysis showed that the adapted instrument has adequate psychometric properties to measure Professional Calling among workers in the Brazilian context. Regarding the instrument's factor validity, the CFA allowed the reproduction of the 7-dimensional structure found by the authors of the original instrument

(Vianello et al., 2018) both in the configural and hierarchical models. However, the Brazilian version's 7-dimensional structure of the configural model showed better goodness of fit, proving to be the adequate solution for the adapted version. Additionally, both the values obtained by the alpha (α) and omega ($\dot{\omega}$) coefficients, and the composite reliability, provide evidence that the scale has adequate reliability in all its factors. These results indicate that the measure has satisfactory internal consistency compared to the original version (Vianello et al., 2018), thus corroborating this study's hypothesis 1 (H1).

The results of the Multigroup Confirmatory Factor Analysis confirmed the configural, metric, and scalar invariance of the Brazilian version of the UMCS, suggesting that its structure remained the same (stable) for both sexes (male and female), presenting no response biases in the sample. Thus, the structure of the adapted measure is similar between the groups (configural invariance), the factor loading of the items remained equivalent in both groups (metric invariance), and the subjects' latent traits remained preserved regardless of sex (scalar invariance) (Putnick & Bornstein, 2016). Assessing measurement invariance is a crucial aspect of developing and using psychometric instruments, as it ensures comparing or analyzing differences between groups with technical and methodological rigor (Putnick & Bornstein, 2016).

Unless an instrument is rigorously tested, one cannot claim that its configuration and parameters are similar among different populations (Putnick & Bornstein, 2016). These findings provide the psychometric properties of the adapted instrument, suggesting that the Brazilian version can be used among Brazilian men and women (Putnick & Bornstein, 2016). Additionally, the literature has not yet presented studies on the invariance of the UMCS among men and women. Hence, future studies are suggested to verify whether both groups perceive careers considered professional callings the same way and how the experience of such careers contributes to adjusting their personal, family, and professional relationships. Qualitatively approaching this construct through semi-structured interviews will enable stories of life experiences linked to work to emerge.

Additionally, external validity was verified to expand the nomological network of the construct professional calling (i.e., meaningful work, protean career orientation, job satisfaction, life satisfaction, and workaholism). Regarding the hypotheses concerning the relationship with external variables, professional calling showed a positive and strong correlation with meaningful work, confirming hypothesis H2. Generally, individuals fulfill their callings by doing meaningful work. In a study addressing volunteers from non-profit organizations, being able to experience one's calling is the main reason volunteers join and remain in these organizations for extended periods (Ahmed et al., 2019; Faletehan et al., 2021). In this sense, organizations can develop management practices to help employees pursue their calling and find more value and positive meaning in their jobs (Faletehan et al., 2021). However, the professional calling construct predicts meaningful work because it combines an individual's purpose of what s/he would like to do and how s/he really should do it to fulfill prosocial purposes (Ahmed et al., 2019; Faletehan et al., 2021).

Professional calling was also positively and moderately correlated with the protean career orientation construct, confirming hypothesis H3. Hence, the results suggest that a self-directed career attitude helps people discover and develop a calling. The reason is that a protean, self-directed career attitude promotes proactive professional development (Praskova et al., 2014; Lysova et al., 2019; Ahmed & Mozammel, 2019; Faletehan et al., 2021), enabling the early establishment of career goals (Ahmed & Mozammel, 2019; Faletehan et al., 2021; Yang & Liu, 2021), which can motivate individuals to realize or discern their professional callings, following their values and purposes, which in turn helps them find happiness at work and in life.

A professional calling encourages individuals to psychologically engage in developing their own professional goals, leading to self-management behavior and professional self-development (Yang & Liu, 2021). Furthermore, it means that a self-directed career attitude motivates proactive behaviors that help people know who they are and what kind of work they want, thereby increasing self-awareness or clarity of self and, consequently, the perception of a calling (Praskova et al., 2014; Lysova et al., 2019; Yang & Liu, 2021). Thus, a self-directed career attitude is beneficial for discovering and developing a calling and achieving personal career success. Likewise, the precariousness and scarcity of jobs are essential variables in the current labor market. Under such circumstances, having the sense of a calling can be a crucial supportive resource for career development and the well-being of working adults.

Likewise, job and life satisfaction showed a significant positive and moderate relationship with professional calling, confirming hypotheses H4a and H4b. Results have repeatedly proven that individuals with a calling, regardless of the domain, are more satisfied with their work, career, and life (Vianello et al., 2020; Dobrow et al., 2019). The relationship between a calling and job satisfaction and life satisfaction was more significant even among individuals working under difficult, hostile, or vulnerable conditions with lower levels of core self-evaluations (Douglass et al., 2016; Duffy et al., 2016, 2018). It shows that a professional calling is a vital personal resource that can support individuals, especially when facing reduced personal resources or hardships. It can work as a moderator in some contexts.

Furthermore, individuals with callings have more explicit professional goals, which promote job satisfaction (Duffy et al., 2018; Yang & Liu, 2021). Callings positively impact the effects of individuals' occupations and generate positive outcomes in their lives (Yang & Liu, 2021). Life purpose, for instance, is one of the central characteristics of professional callings. Individuals with callings may realize the meaning of their existence (Duffy et al., 2016, 2018), thus improving their life satisfaction (Duffy et al., 2018; Praskova et al., 2014; Yang & Liu, 2021), whereas life satisfaction improves one's health and well-being at work (Yang & Liu, 2021).

Although experiencing a professional calling is predominantly associated with positive outcomes in most studies found in the literature, under certain circumstances, a calling may have negative consequences for some people (Duffy et al., 2018). Such findings confirm this study's hypothesis H5, in which callings are expected to positively and weakly correlate with workaholism. Accordingly, Hirschi et al. (2019) also identified a significant and weak correlation

with workaholism. According to the meaning some workers assign to their work, whether it is social, personal, or even transcendental, callings may result in excessive investments in one's job, leading to unhealthy conditions and excessive workload (Duffy et al., 2018; Thompson & Bunderson, 2019; Hirschi et al., 2019). Employees who believed they were living their calling at work were more likely to sacrifice their time to dedicate themselves to their jobs (Thompson & Bunderson, 2019). Furthermore, Clinton et al. (2017) found that professional callings were related to working overtime.

It may seem unlikely that a calling would develop around a job that causes pain and unpleasant feelings rather than pleasure, meaning, and a sense of purpose. However, workaholic individuals work to alleviate the negative emotions they experience when not working. And callings are a path that leads individuals to a deep, meaningful, and rewarding feeling of self-realization and self-transcendence (Thompson & Bunderson, 2019; Vianello et al., 2020). According to the perspective of work as a calling (Duffy et al., 2018), professional callings may be associated with workaholism because some individuals may rationalize their harmful levels of investment in their work as necessary or even laudable, given the social or personal value of what they are trying to accomplish under certain conditions. Such findings show that a calling may be linked to workaholism as those who perceive their callings often sacrifice personal time to experience it (Duffy et al., 2018).

Finally, this study has some limitations, such as its cross-sectional nature, which prevents the establishment of causal relationships. Hence, longitudinal studies are relevant for complementing results with other evaluation methods, such as interviews or observation. In addition, future longitudinal studies are needed to identify changes in the perception of the professional calling construct between employed and unemployed workers during and after they receive guidance and participate in career planning programs. Furthermore, the results cannot be generalized to the entire Brazilian population, considering that data were collected from samples of workers. The UMCS assesses the perception of professional callings; however, as a self-descriptive measure, responses may be biased due to social desirability. The fact that the sample was selected from a specific group of the population (workers) restricts the generalization of results. Comparative studies involving a more significant proportion of people from different Brazilian regions would be equally valuable, as diversified samples present a more substantial potential for the generalization of results.

Regarding the study's applications, organizations should promote the development of professional callings among workers as a general quality of work, not as something exclusive to a particular group of people. Furthermore, organizations must understand what makes a job dull, purposeless, unchallenging, powerless, disconnected, and undervalued to promote professional callings through internal communication among employees. Leaders must help in this transmission and during daily practice, first realizing the importance of their work to later point it out to others. This study contributes to scientific knowledge on the professional calling construct, its use, and its correlation with workers and organizations. One of the strong points presented in this study

concerns the sample size and diversity, which included professionals from different occupational groups (e.g., health, education, and security, among others). It enabled expanding the variance of the investigated constructs. Moreover, the sample heterogeneity enabled the results to be generalized to different occupational contexts.

In short, the instrument's validated Brazilian version can be helpful for researchers and professionals in organizational and work psychology, career, and people management and those looking for a validated, comprehensive, and reliable instrument to measure callings among adult workers in Brazil. Likewise, this instrument will enable the devising of strategies and implementation of people management actions to deal with high worker turnover rates, retain talents, and promote involvement and engagement at work and quality of life (Lysova et al., 2019), positively impacting the well-being of workers and promoting a more pleasant climate and dynamics in the work environment. Finally, note that this study has theoretical and practical importance as it presents evidence of the validity of the version adapted to the Brazilian context, offering a structurally robust model. Additionally, it expands the construct's nomological network as the instrument converges with similar constructs in the career field (i.e., meaningful work, protean career orientation, job satisfaction, life satisfaction, and workaholism). Future studies are suggested to obtain other types of evidence, such as predictive evidence and also based on response processes. Studies may also investigate how the construct and instrument behave over time to understand better how dynamic or stable the degree of professional calling among people is. Furthermore, the parameters of the instrument's items can be investigated via Item Response Theory, and norms for the tool to be used in Brazil can be developed.

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