Validity Evidence of the CAAS in Brazilians with Higher Education

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Abstract
The contemporary work context is characterized by unpredictability, thus requiring the ability of individuals to adapt to changes imposed by the market. Career adaptability refers to the individual's ability to handle working transitions in turbulent times. This study aimed to test the structural invariance of the last Brazilian version of the Career Adapt-Abilities Scale (CAAS) according to sex and observe possible differences between men and women in the dimensions of adaptability. The sample consisted of 599 Brazilian professionals, of both sexes, with higher education level. The CAAS was subject to confirmatory factor analysis and invariance testing, demonstrating structural invariance according to sex. A subsequent MANOVA evidenced the lack of differences between men and women in the four dimensions of the CAAS. Results corroborate the consistency and reliability of the CAAS as an instrument for measuring career adaptability in both sexes.
Keywords: career adapt-ability scale; evidence of validity; career counseling

Evidências de Validade da EAC em Brasileiros com Educação Superior

Resumo
O contexto laboral contemporâneo caracteriza-se por imprevisibilidade, exigindo do indivíduo capacidade de adaptação a mudanças impostas pelo mercado. A adaptabilidade de carreira refere-se à capacidade do indivíduo de lidar com transições profissionais e situações de turbulência. Este estudo objetiva testar a invariância estrutural da última versão brasileira da Escala de Adaptabilidade de Carreira (EAC) em função do sexo e observar possíveis diferenças entre homens e mulheres nas dimensões de adaptabilidade. Participaram 599 profissionais brasileiros, de ambos os sexos, com educação superior. A EAC foi sujeita a análise fatorial confirmatória e a teste de invariância, tendo sido confirmada a sua invariância estrutural em função do sexo. Uma MANOVA subsequente evidenciou ausência de diferenças entre homens e mulheres nas quatro dimensões da EAC. Os resultados corroboram a consistência e a confiabilidade da EAC como um instrumento para medir a adaptabilidade de carreira em ambos os sexos.
Palavras-chave: escala de adaptabilidade de carreira, evidências de validade, aconselhamento de carreira

Evidencias de Validez de la EAC en Brasileños con Educación Superior

Resumen
El contexto laboral contemporáneo se caracteriza por imprevisibilidad, exigiendo del individuo capacidad de adaptación a cambios impuestos por el mercado. La adaptación de la carrera se refiere a la capacidad del individuo de lidiar con transiciones profesionales y situaciones de turbulencia. Este estudio tiene como objetivo testar la invariancia estructural de la última versión brasileña de la Escala de Adaptabilidad de Carrera (EAC) en función del sexo y observar posibles diferencias entre hombres y mujeres en las dimensiones de adaptación. La muestra fue compuesta por 599 profesionales brasileños, de ambos sexos, con educación universitaria. La EAC fue sometida a análisis factorial confirmatorio, y al test de invariancia, siendo confirmada su invariancia estructural en función del sexo. Posterior realización de MANOVA evidenció la ausencia de diferencias entre hombres y mujeres en las cuatro dimensiones de la EAC. Los resultados corroboraron la consistencia y confiabilidad de la EAC como un instrumento de medida de adaptación de la carrera en ambos sexos.
Palabras clave: Escala de Adaptabilidad de carrera; Evidencias de Validez; Asesoramiento de Carrera

Introduction

The world is currently experiencing rapid changes in human and professional relations with impacts on the market, which has become more dynamic, unpredictable, and unstable. In this scenario, the complexity of both interpersonal relations and production means influence the lives of individuals as well as groups. In terms of labor, one may observe the creation of new professions, the dynamic and complex nature of roles, borderless careers, as well as the constant demand for professional qualification. Socioeconomic changes all over the world have accentuated problems related to the lack of quality of life at work, to unemployment,

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and to the more frequent career transitions for young people and adults (Duarte, 2013; Note, Ginevra, & Soresi, 2012).

Market dynamics and instability increasingly require professionals to be able to adapt to changes which directly affect their professional and personal lives. Super's (1957, 1980) career development theory was based on empirical research that took place over sixty years. It allows the understanding that career development occurs throughout life due to a set of evolutionary and vocational tasks (Ambiel, 2014; Lassance, Paradiso, & Silva, 2011). In the 1970s and 1980s, Donald Super had already pointed to the importance and influence of market instability on career development (Super & Knasel, 1981), with an intensification of studies on the subject in the last decades of the twentieth century.

The Super Vocational Development Theory consolidated in three segments: development of vocational maturity aimed at career adaptability, self-concept, and context (Life Span, Life Space Theory), as Lassance, Paradiso e Silva (2011) point out, noting that Super incorporated the changes in the world of work from the 1970s onwards. Thus, vocational issues should be understood as part of a process linked to human development in a life span as well as in a life space dimension, which refers to the social situations and roles that each one encounters throughout life, being the self the element that integrates this experience.

Such theory considers the longitudinal dimension of career development. It occurs over a sequence of stages, which Super defined as maxicycles denominated as growth (childhood, from zero to 14 years), exploration (adolescence, from 15 to 24 years), establishment (young adult, from 25 to 44 years), maintenance (maturity, from 45 to 64 years), and disengagement (old age, from 65 years and over). Throughout these vocational stages (maxicicles) one is also faced with transitions in the same stage of career (minicicles) (Lassance & Sarriera, 2012; Lassance, Paradiso, & Silva, 2011; Savickas, 2005). In these transitional moments, the individual must update the tasks of exploration (search for an alternative), establishment (insertion in a new activity), and maintenance (assertion in the new activity), thus readapting to the context of change (Lassance, Paradiso, & Silva, 2011). Hence, considering career development through maxicycles and that individuals face transitions between such stages and even within them, one may argue that the adaptability process takes place throughout this course (Savickas, 1997), which is intensified by the instability of the current work context.

Initially, Super (1980) presented the concept of vocational maturity, whose definition emphasizes a person's willingness to face evolutionary tasks in their development. According to Ambiel (2014), this concept had great theoretical importance for understanding teenager vocational development, since once the vocational maturity was established, the young adult could then trace his or her mostly linear professional trajectory. Through the improvement which resulted from studies and from understanding the modern work context, while considering the adult population, Super et al. (1996) proposed substituting the vocational maturity concept with career adaptability in order to better describe the phases in this development stage. In 1997, Savickas proposed such substitution for the whole life cycle due to expressive changes in the labor market (Audibert & Teixeira, 2015; Fiorini, Bardagi, & Silva, 2016).

The concept of career adaptability was built and improved as based on a more current constructivist context through research by authors such as Mark Savickas (2005). Such concept as based on more recent definitions and research efforts refers to an individual's ability to deal with career trauma, turbulence, and transitions, which is a very current reality considering the dynamic and unstable work environment established in the 21st century (Ambiel, 2014; Savickas, 2005; Savickas et al., 2009; Lassance, Paradiso, & Silva, 2011).

Career adaptability is, therefore, a multidimensional construct composed of four factors or dimensions, used as resources by the individual to manage transitions throughout the process of building his/ her career, as asserted by Savickas (2005) and Duarte, et al. (2009). These dimensions, known as the "four Cs", are the following: (a) concern, which refers to the concern about one's professional future, leading the individual to plan, anticipate, and prepare for diverse professional situations; (b) control, which refers to feeling responsible for constructing one's own career, resulting in decision-making to determine the professional future and confrontation with vocational issues; (c) curiosity, which refers to the initiative of making discoveries and searching for alternatives and job opportunities; it involves exploring occupational options and interaction with the labor market; and (d) confidence, which refers to confidence with respect to career issues and to one's ability to do things well, i.e., to what extent the individual feels capable of achieving his or her professional goals even in the face of obstacles (Ambiel, 2014; Savickas, 2005).

According to Savickas (1997, 2005), the four dimensions (or four Cs) encompass processes which are essencial to a proper career development and must be carefully observed and investigated considering the modern work market. Thus, the most adaptable individuals would be those capable of concern for their professional future, of feeling in control of their own careers, of searching for new job opportunities, and of being confident regarding their competence to achieve professional goals in the face of obstacles. Within the Life Design paradigm's assumptions, career adaptability is one of the central goals of professional orientation or career counseling intervention involving such an approach (Ribeiro, 2011).

In 2009, Savickas and colleagues proposed a fifth dimension of career adaptability named commitment. Such dimension can be found in studies carried out by Einarsdóttir, Vilhjálmsdóttir, Smáradóttir, and Kjartansdóttir (2015) in an Irish sample, and recently in a more detailed analysis of the five-factor instrument (Nye, Leong, Prasad, Gardner, & Tien, 2017). This dimension points to the fact that indecision in career choice cannot be discarded, thus leading the individual to be active when facing new possibilities and experiments.

Our literature review will restrict itself to the analysis of the career adaptability construct in terms of the first four dimensions, which are part of measurement instruments and most commonly referenced in several recent studies in this research field (Fiorini et al., 2016).

The importance of studying the career adaptability construct prompted the meeting of a group of psychologists to develop and test the validity of an international instrument, with the purpose of measuring career adaptability in different countries and cultural scenarios. Such efforts resulted in the Career Adapt-Ability Scale (CAAS) (Savickas & Porfeli, 2012), which was adapted and validated for Brazil (Audibert & Teixeira, 2015; Teixeira et al., 2012). This instrument has been used in various studies in Brazil and worldwide, and its psychometric properties have been tested in different cultures (Duarte et al., 2009; Chan & Mai, 2015; Ghosh & Fouad, 2016; McKenna, Zacher, Ardabili, & Mohebbi, 2016; Negru-subtirica, Pop, & Crocetti, 2015; Olugbade, 2016).

The original version of the instrument was comprised of 25 items divided into subscales which made up the four dimensions. After the initial studies, the international scale was altered to comprise 44 items, eleven for each dimension. This version was then tested in thirteen countries in order to verify its structure, reliability, and validity, finally reaching a version with 24 items (Savickas & Porfeli, 2012). In 2017, Maggiori, Rossier, and Savickas published a reduced version of the scale with twelve items in order to facilitate the various research efforts conducted in recent years on career adaptability. Research results have been showing good validity and reliability indices for this version and a strong association with the original CAAS.

According to Teixeira et al. (2012), the first version of the Brazilian career adaptability scale (CAAS) departed from a version of the Portuguese scale, whose items were analyzed by a group of specialists on professional guidance investigations involved with research on career adaptability. The final version of the Brazilian instrument consisted of 22 items and presented good to very good internal consistency indices (Hair Jr., Babin, Money, & Samouel, 2005): concern (0.83), control (0.74), curiosity (0.79), and confidence (0.82).

To review and test the validity of the Brazilian CAAS, given the fact that it ended up with a different number of items when compared to that of other countries, Audibert and Teixeira (2015) submitted the instrument to an exploratory and confirmatory factorial analysis using responses from 990 university students. Results showed good to excellent reliability indices (between 0.83 and 0.94) for a scale version comprised of 24 items, six for each dimension. Hence, this is the latest version published in the literature related to the Brazilian CAAS. The authors consider the need to carry out nationwide research with participants with different education levels, since their study was conducted with a homogeneous sample composed of university students mainly from the metropolitan area of Porto Alegre, Brazil.

A recent study by Ambiel, Carvalho, Martins, and Tofoli (2016) presented the results of a study comparing teenager and adult workers regarding career adaptability in which they used the Brazilian version of the CAAS with 24 items. The instrument's structure was tested yielding good to acceptable results, with some items being singled out for reflection and revision. Rudolph, Lavigne, & Zacher (2017) have shown that, with the publication of the CAAS, empirical research on career adaptability has evidenced great growth since 2012, and in 2015 alone more than 50 articles can be found on the international literature. In Brazil, Fiorini, Bardagi, & Silva (2016) also illustrate the increase in national publications, presenting a review of the five published articles on the construct.

Recent research efforts have shown the existence of many variables that may be related to the concept of adaptability (Rudolph, Lavigne, & Zacher, 2017). Being adaptability, both predicted, and a predictor of other variables translated in measures, responses, or adaptation results. Variables such as values (Lassance & Sarriera, 2012); vocational identity (Negru-subtirica et al., 2015); self-efficacy (Guan et al., 2013); self-esteem (Cai et al., 2015); personality (Bargadi & Albanaes, 2015; Guan et al., 2017); professional success and turnover intent (Guan et al, 2015; Chan, Mai, Kuok, & Kong, 2016); entrepreneurship (McKenna et al, 2016; Tolentino et al., 2014); impostor syndrome or phenomenon (Neureiter & Traut-Mattaush, 2017); career involvement (Nilforooshan & Salimi, 2017); among others, have been investigated by various authors in recent studies. Different methods were used such as quantitative, qualitative, and longitudinal studies (Autin, Douglass, Duffy, England, & Allan, 2017; Guan et al, 2017; Guan et al., 2013, 2015; Negru-subtirica et al., 2015; Rudolph, Lavigne, & Zacher, 2017). Career adaptability is thus a construct that is being studied worldwide with different populations and in diverse western and eastern countries, which illustrates its importance for professional guidance and career counseling and even for human resources management in organizations. The ability to adapt is now a widespread requirement in the context of a work market characterized by profound changes in the last decades.

From the literature review, one may notice that the research has been performed mostly with samples of undergraduate students (Guan et al., 2017; Kohen, Klehe, & Vianen, 2012; Nilforooshan & Salimi, 2017; Presbitero & Quita, 2017; Shin & Lee, 2017). There even exists a Portuguese version of the CAAS adapted for that population (Monteiro & Almeida, 2015). There are also studies with samples of technology students (Silva & Gamboa, 2014), senior students (Ghosh & Fouad, 2016), postgraduate students (Autin et al., 2017; Chong & Leong, 2017; Douglass & Duffy, 2015; Guan et al., 2015), and young adults (Creed, Fallon, & Hood, 2009). Recent studies have also investigated the adaptability dimensions in samples composed of teenagers and high school students (Ambiel et al., 2016; Ginevra, Pallini, Vecchio, Nota, & Soresi, 2016). There are, thus, research gaps regarding the adult population of more mature aged groups or holding other educational credentials. This study aims at helping to fill some of those gaps.

Despite being already a relatively well-defined construct, investigations must continue to improve the career adaptability concept, as well as its measurement instruments, in order to understand its relationship with other variables which are fundamental in career development and transition processes. Moreover, Brazil still lacks research on the construct in question (Fiorini et al., 2016). The understanding of career adaptability in different contexts and relative to diverse variables is essential given the instability of the work market, in which labor relations become increasingly unpredictable, thus requiring the individual to adapt to the liquidity of imposed situations.

The latest Brazilian version of the CAAS was published by Audibert and Teixeira (2015). They pointed out the importance of studies with populations of various educational levels in order to further test its validity. Given the prominence of the construct in the literature review, which showed the importance of improving the Brazilian version of this instrument, this study aimed to test the evidence of validity of Audibert and Teixeira's (2015) version of the career adaptability scale (CAAS) in a sample consisted of Brazilians with complete higher education, specifically testing for the invariance of its structure according to sex. Additionally, possible gender differences are tested for the four dimensions of adaptability that make up the scale.

Method

Participants

The study sample consisted of 599 Brazilian professionals with complete higher education. Sociodemographic data indicated ages varied between 22 and 70 years (X=38; sd=10.7). The sample majority was female (64.4%), married (46.7%), had no children (61%), was working at the time of data collection (89%), and worked in public institutions (60%). Additionally, 27.21% declared holding a master's degree. Relative to the region of Brazil where they worked, the majority declared working in the Southeast (77.1%). Participants were graduates from different academic domains, thus representing diverse fields of knowledge recognized in Brazil. Of all participants, 87% stated that their current occupation was directly related to their graduation course.

Instrument

The Career Adaptability Scale (CAAS) consists of 24 items, with a 5-point Likert response scale (from 1 - Developed little or nothing to 5 - I developed extremely well). In addition to the CAAS, the questionnaire asked

questions about participants' sociodemographic characteristics, such as age, gender, marital status, type of higher institution in which participants took their degree, education, relationship between graduation course and current occupation, and region of the country where they reside.

Data gathering

After approval by the Research Ethics Committee of the Faculty of Philosophy Sciences and Letters of Ribeirão Preto of the University of São Paulo, protocol number 30826814.1.0000.5407, invitations were sent by e-mail to participants and placed in social networks (Facebook and Linkedin). After accepting the Informed Consent Term, the respondent was directed to an internet page containing the instrument and the sociodemographic questionnaire. Through this procedure, the anonymity of the participants was guaranteed. After answering all the questions, the participant could send them to a database accessed only by the researchers.

Data analysis

The data were initially analyzed by the use of descriptive statistics using version 23 of the Statistical Package for Social Sciences (SPSS) software. Data entry accuracy was checked as well as response distribution and frequency. Respondents who chose the same response for over 80% of the questions were discarded in order to reduce the possibility of uninterested participation or inattentive reading of questionnaire instructions. Participants with incomplete higher education were also discarded, as well as duplicated answers identified by email and by participant initials, using other participant data for greater care in eliminating responses from the study. The final sample consisted of 599 professionals with at least complete higher education.

The CAAS was then submitted to a confirmatory factorial analysis, testing the invariance of the structure obtained by gender (Hair Jr., Anderson, Tatham, & Black, 2009, Maroco, 2010) using the AMOS software (version 22, SPSS Inc, Chicago, IL). The Maximum Likelihood method was used. Multiple adjustment indices were assessed taking into account their reference values (Hu & Bentler, 1999; Kline, 2011): The Chi-Square / Degrees of Freedom ratio - $\chi 2$ / df <3, Bentler's Comparative Fit Index - CFI> 0.90, Goodness of Fit Index - GFI> 0.90, Root Mean Square Error of Approximation - RMSEA <0.08 and Standardized Root Mean Square Residual - SRMR <0.08.

Considering that we wanted to test the invariance of the structure of the scale according to sex, we first tested a basal model that served both sexes (Byrne, 2010). After obtaining the basal model with acceptable adjustment indices, the invariance of the model was tested in men and women. In a first step, the model was individually adjusted to each of the groups. Then, the invariance of the measurement model was evaluated in both groups by comparing the non-constricted model (with factorial weights and variances / covariance of free factors) with a constricted model where the factorial weights and variances / covariance of the two groups were fixed. The statistical significance of the difference of the two models was obtained using the chi-square test as described in Maroco (2010).

In order to test the internal convergent and discriminant validity, the Average Variance Extracted (AVE) and the Composite Reliability (CR) of each factor were calculated. Hair et al. (2009) suggest that he CR should be used in structural equation analysis given the tendency of Cronbach's alpha to minimize reliability. The AVE measures the amount of variance captured by the construct in contrast to the amount of variance captured by the measurement error. Satisfactory values of CR and AVE should be, respectively, at the level of 0.7 and 0.5 or above (Hair et al., 2009; Nunnally & Bernstein, 1994; Maroco, 2010). The internal discriminant validity evaluates the extent to which the factors differ from one another and is considered adequate when the variance of a construct (AVE) is greater than the shared variance between such a construct and another construct of the model (Fornell & Larcker, 1981). As such, the discriminant validity was assessed by observing whether the square root of the AVE of each factor was greater than the correlation between that factor and any other factor in the model.

Finally, tests were performed in order to assess differences between men and women in relation to the four factors that make up the CAAS (Concern, Control, Curity and Confidence) in order to assess the possible effects of sex on the various dimensions of career adaptability.

Results

Descriptive statistics

Table 1 contains the means, standard deviations and asymmetry and kurtosis values for each item of the CAAS. The univariate indices of asymmetry and kurtosis were generally low and within the recommended

values of | 3 | and | 10 | (Kline, 2011). The results thus indicate the absence of serious violations with respect to the normal distribution of results.

Confirmatory factor analysis of the CAAS

The basal model obtained in the confirmatory factorial analysis performed with the original four-factor structure presented unsatisfactory adjustment indices, particularly the CFI and GFI indices were below the satisfactory value of 0.90 ($\chi2$ / gl = 2.852; CFI = 0.877; GFI = 0.831, RMSEA = 0.056, SRMR = 0.061). It was therefore necessary to re-specify the model, taking into account the modification indices suggested by the AMOS software (v. 22, SPSS Inc, Chicago, IL) and taking into account the theoretical plausibility of the suggested re-specifications. In this way, correlations between the errors of items 5 and 6 (belonging to the Concern factor), 19 and 20, 20 and 22, 23 and 24 (all belonging to the Confidence factor) were introduced. With the introduction of these re-specifications, there was a substantial improvement in the adjustment indices of the factorial model, with satisfactory indices ($\chi2$ / gl = 2.405, CFI = 0.908, GFI = 0.861, RMSEA = 0.049, SRMR = 0.061). A relatively low GFI value (<0.90) can be observed. However, considering that the latter index is closely dependent on the size of the sample, we can consider it acceptable (Maroco, 2010). Subsequently, the invariance of the career adaptability measure model for men and women was evaluated. Figure 1 presents the factorial weights estimates as well as the individual reliability of items in the model.

It can be considered that the model with constricted factor weights in men and women did not present a significantly worse adjustment than the model with free parameters (factorial weights: $\chi2_{dif}$ (20) = 23.434, p = 0.268). Regarding the model with fixed variances / covariates, it was found to be significantly worse than the model with free parameters (covariance: $\chi2_{dif}$ (10) = 22.732; p = 0.012). Considering, however, that no differences were observed at least at the factorial weights level, the invariance of the career adaptability measure between men and women can be said to have been attained.

Convergent and discriminant validity

The internal convergent validity of the CAAS was evaluated through Composite Reliability (CR) and the Average Variance Extracted (AVE), as shown in Table 2. The values of the discriminant validity are within the parameters required for the Concern factor and close to such parameters for the Control, Curiosity and Confidence factors (CR> 0.70, but AVE <0.50).

The discriminant validity was tested by assessing whether the square root of the AVE of each factor was superior to the correlations between the factors. Given that the square root values of the AVE of each factor ($\sqrt{AVE}_{Concern}$ = .756; $\sqrt{AVE}_{Control}$ = .678; $\sqrt{AVE}_{Curiosity}$ = .689; $\sqrt{AVE}_{Confidence}$ = .688) were superior to the correlations between the factors (between Concern and Control = .536, between Concern and Curiosity = .568, between Concern and Confidence = .515, between Control and Curiosity = .623, between Control and Confidence = .612, between Curiosity and Confidence = .658) (Table 3), discriminant validity was attained.

Differences between men and women

As can be observed by the correlations between the factors that make up the CAAS, these cannot be

Table 1.
Descriptive statistics, asymmetry and curtosis

	AC_1	AC_2	AC_3	AC_4	AC_5	AC_6	AC_7	AC_8	AC_9	AC_10	AC_11	AC_12
M	3.56	4.05	3.72	3.92	3.75	3.66	3.54	3.85	4.37	4.08	4.03	4.05
SD	0.97	0.91	0.95	0.90	0.97	0.97	1.05	0.94	0.75	0.90	0.93	0.90
Asymmetry	-0.30	-0.71	-0.44	-0.61	-0.43	-0.45	-0.34	-0.38	-0.99	-0.75	-0.78	-0.65
Curtosis	-0.27	0.04	-0.18	0.04	-0.39	-0.26	-0.53	-0.63	0.40	0.03	0.08	-0.19
	AC_13	**AC_14**	**AC_15**	**AC_16**	**AC_17**	**AC_18**	**AC_19**	**AC_20**	**AC_21**	**AC_22**	**AC_23**	**AC_24**
M	3.45	3.82	3.67	3.70	3.68	3.81	4.02	4.18	3.97	4.32	3.96	4.04
SD	1.00	0.95	0.99	0.93	1.00	0.98	0.85	0.79	0.87	0.74	0.84	0.79
Asymmetry	-0.32	-0.53	-0.32	-0.27	-0.34	-0.52	-0.67	-0.66	-0.57	-0.80	-0.50	-0.45
Curtosis	-0.31	-0.18	-0.57	-0.55	-0.67	-0.41	0.14	-0.19	-0.01	-0.09	-0.08	-0.28

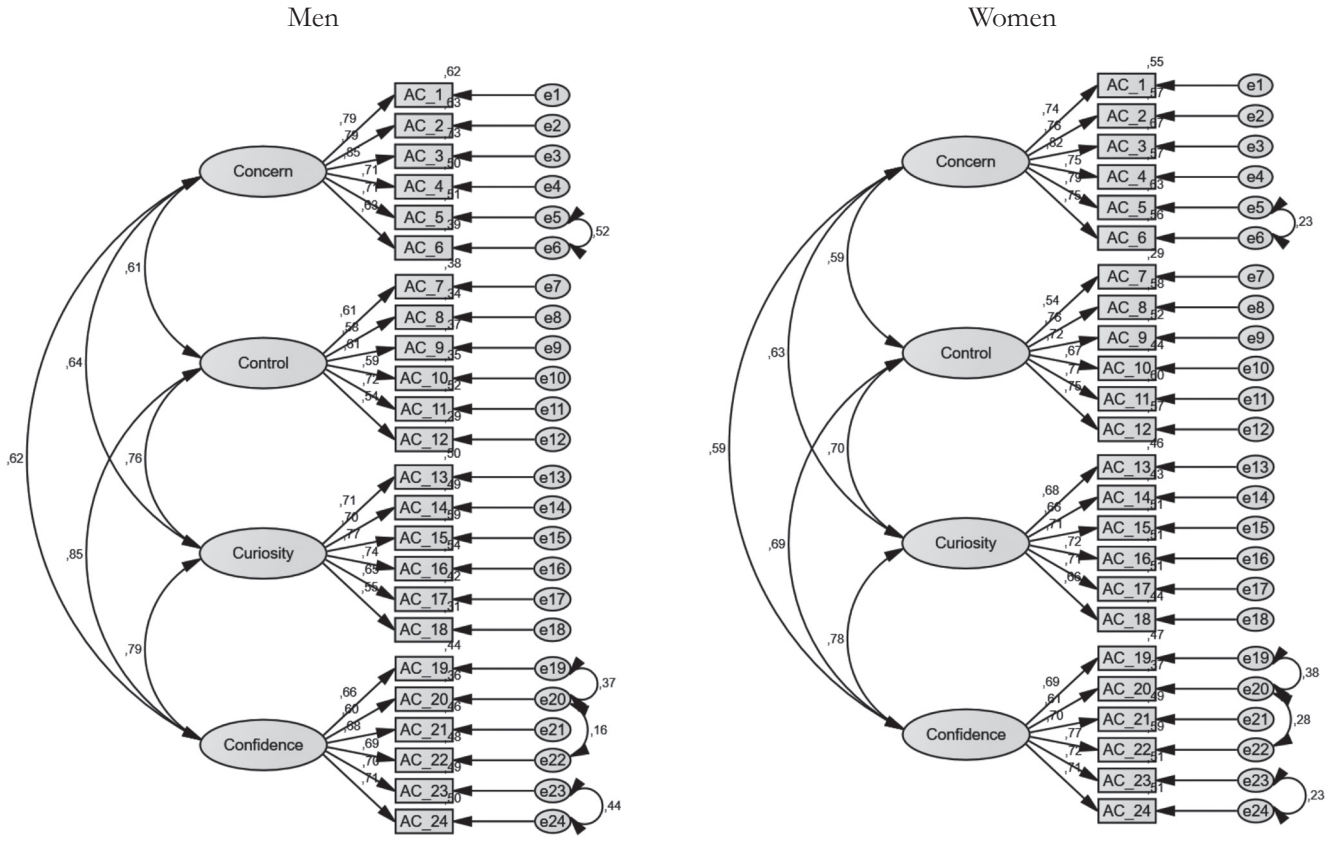

Figure 1. Career adaptability scale model in men and women (χ^2 (484)=1164.000; χ^2/df=2.405; CFI=0.908; GFI=0.861; RMSEA=0.049; C.I. 90% for RMSEA]0.045;0.052[. The model is invariant in both groups (factorial weights: χ^2_{dif} (20)=23.434; *p*=0.268).

Table 2.
Composite Reliability (CR) e Average Variance Extracted (AVE)

Factors	CR	AVE
Concern	.85	.50
Control	.79	.39
Curiosity	.80	.41
Confidence	.80	.41

considered independent of each other. Consequently, in order to not over-or under-evaluate the existing differences according to the sex of the participants, a Multivariate Analysis of Variance (MANOVA) was performed to assess possible differences between men and women regarding career adaptability. First, the assumptions of multivariate normality and variance-covariance homogeneity were validated using SPSS statistical software (version 23, SPSS Inc., Chicago, IL). Since SPSS does not test for multivariate normality, this assumption was tested for each of the independent variables with Kolmogorov-Smirnov univariate tests ($p \geq 0.05$ for both groups) (Maroco, 2010). The assumption of variance-covariance homogeneity in each group was evaluated using the Box's M test (M = 18,122, F (906609.205) = 1,798, p = 0.055). According to the results of the MANOVA, there was no effect of sex on the dependent variables, that is, no differences were observed between men and women regarding the career adaptability factors of the CAAS (Λ Wilks = 0.986; F (4) = 2.05, p = 0.086, η^2_p = 0.014, Power = 0.613).

Discussion

The present study aimed at assessing gender differences in the Brazilian population, both with respect to the Career Adaptability Scale as a measure of professional adaptability, as well as with respect to each of the factors or constructs that compose it. Thus, in an initial

Table 3.
Correlations between the CAAS factors

	Concern		Control		Curiosity		Confidence
Concern	—						
Crontrol	0.536	***	—				
Curiosity	0.568	***	0.623	***	—		
Confidence	0.515	***	0.612	***	0.658	***	—

* p < .05, ** p < .01, *** p < .001

step, the invariance of the CAAS for men and women was tested. Secondly, it was assessed whether there were differences between men and women in relation to the factors that make up the scale: Concern, Curiosity, Confidence and Control. Results evidenced the invariance of CAAS according to gender and also the absence of differences between men and women in relation to the four dimensions of adaptability measured by the scale.

In line with results from numerous studies already conducted in different cultures, as evidenced by the meta-analysis by Rudolph, Lavigne & Zacher (2017), the results here observed contribute to reinforcing the consistency of the CAAS as a measure of career adaptability. Such consistency has been proven over the last few years through its testing in populations with different demographic characteristics (eg. age, gender, educational level) (eg Zacher, 2014; Hirschi, 2009), as well as through the observation of its association with other measures of adaptability (eg. cognitive abilities, personality traits, self-esteem, proactive personality, hope, optimism), adaptive responses (career planning, career adaptation, occupational self-efficacy, self-efficacy for career decision making) and adaptive outcomes (eg career identity, career satisfaction, commitment to the organization, work stress, employability, entrepreneurship, life satisfaction) (eg. Rudolph, Lavigne & Zacher, 2017). The observation of the invariance of the scale according to sex, in the context of the Brazilian culture, constitutes a new contribution that reinforces its validity, evidencing its good psychometric properties in an increasingly varied range of cultures and sociodemographic groups. This fact points to a continuous consolidation of the career adaptability construct, as defined and operationalized in the career construction theory and general career guidance (Savickas, 2013), as a central concept for the development of career paths in a historical time and context in which these are characterized by high levels of uncertainty, unpredictability and marked by numerous changes and transitions throughout life. A context that requires the development and operationalization of constant adaptive skills: a constant work of preparation for future career challenges (Concern); the assumption of responsibility for the development of one's professional career (Control); the exploration of possible identities and professional opportunities (Curiosity); the belief in the ability to solve problems related to the professional path (Savickas & Porfeli, 2012). The invariance of the CAAS structure in multiple cultural and sociodemographic contexts allows its use in multiple sociocultural contexts and subsequent performance of successive comparisons of results within a theoretical framework in a process of increasing empirical consolidation.

With regard to gender and gender issues, previous studies have provided contradictory results influenced by cultural aspects. By way of example, Hou, Leung, Li, Li, & Xu, (2012), in a study of Chinese students, found that men evidence more career adaptability than women. Contrary to this finding, other studies report the lack of differences between men and women in terms of career adaptability (eg Hirschi, 2009). Sociocultural factors certainly give ground to such disparate research results when gender and gender issues are involved. In view of such disparities, it is important to test the existence of differences in various cultures in order to understand what factors may be causing the variability of results so far observed in the literature. With this purpose, we compared the results in the four dimensions of career adaptability between men and women in our sample. As reported, no differences were observed according to sex. This seems to point to the growing gender equality of Western cultures in terms of careers and career paths. While there are still significant gender inequalities (for example, in terms of salary, in terms of representativeness in managerial positions, in terms of work-family balance), it also seems evident that both

sexes seem equally affected by relevant changes that have been taking place in the world of work in recent decades. One of the changes that seems to affect equally man and women refers to the constant increase in the levels of uncertainty, precariousness and volatility of labor relations. Career pathways are less and less linear, driven by innumerable changes and transitions. They call for the development of individual career management skills, irrespective of gender, in a context that is constantly changing, therefore demanding increasingly higher levels of professional adaptability. It may be said that if, on the one hand, steps are needed to achieve full equality between men and women in the work sphere, on the other, men and women are equally affected by labor changes that have introduced heightened levels of uncertainty and insecurity to their career paths. Given that Brazil is no exception to such changes in the world of work as well as in the changes in gender relations dynamics, the need to develop and put into practice adaptive capacities in a changing labor context seems to be common to both sexes, also in the Brazilian society.

Concluding remarks

This paper contributes to the empirical consolidation of career adaptability studies. It is a body of research with increasing relevance in the context of today's labor markets due to the need to respond to increasing non-linearity, constant mutability and the coping with periods of transition of professional paths. Future studies in the Brazilian sociocultural context will be necessary to assess career adaptability in relation to other socially relevant demographic variables such as socioeconomic level, ethnicity, level of education, training area, geographic location. The continuous development of a relevant body of knowledge about career adaptability will surely be a significant contribution to both designing and implementing intervention projects in career guidance and to the elaboration of public policies in this area.

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