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# ADAPTATION AND PSYCHOMETRIC VALIDATION OF THE SURVEY OF ORGANIZATIONAL ATTRIBUTES IN DENTAL CARE IN A SPANISH-SPEAKING SAMPLE

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This study aimed to adapt and validate the Spanish version of the Survey of Organizational Attributes in Dental Care (SSOADC) in order to apply it to the national dental care sector. The participants were 366 dentists between 24 and 69 years old who filled out the questionnaires anonymously. Confirmatory factor analyses showed an adequate fit of a 4-factor correlated model, with adequate reliability values, thus replicating the factorial structure of the original instrument. Evidence was also provided on the invariance of this factor structure across genders and years of professional experience. The multiple linear regression showed that the dimensions of work environment give medium-small support to the predictive validity of the scale. The SSOADC demonstrates adequate internal consistency and good factorial validity, representing a valid and reliable adaptation of the instrument.

Keywords: Work environment; Dentistry; Stress; Organizational attributes in dental care.

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In 1939, Lewin and colleagues observed that the work environment could influence human behavior. Since then, a number of studies analyzed the relationship between the work environment and the well- and ill-being of workers (Olaz, 2013). It was argued that research into the work environment offers a different perspective for understanding how the experiences of workers affect the working environment itself (Schneider et al., 2013).

The study of the dimensions of work environment has varied considerably in recent years, with more emphasis being placed on aspects such as worker enthusiasm, remuneration factors, lack of freedom to decide, or lack of authority (Muñoz-Seco et al., 2006; Parker et al., 2003; Patterson et al., 2005; Stansfeld & Candy, 2006), and focusing on relational aspects such as conflict in the workplace, autonomy, or social recognition (Aalto et al., 2018; Muñoz-Seco et al., 2006; Parker et al., 2003; Patterson et al., 2005; Schneider et al., 2010; Stansfeld & Candy, 2006; Tayfur & Arslan, 2013).

The studies published to date generally demonstrated that the better the work environment is perceived to be, the more satisfied people are at work (Parker et al., 2003; Patterson et al., 2005; Salgado et al., 1996). More specifically, the work environment was linked to multiple variables related to well- and

ill-being, such as job satisfaction (Taris & Schreurs, 2009), stress or burnout (Salmela-Aro et al., 2011; Stansfeld & Candy, 2006). Previous research showed that workers experience a higher level of ill-being when the work environment is negative, which leads to the development of psychological problems such as anxiety, burnout, depression, or dysphoria (Stansfeld & Candy, 2006).

The medical field has been described as a rapidly changing environment (Cohen et al., 2004) which could affect the work characteristics. Being able to follow progress in medicine and adapting to the changes in the health care management system are key elements to having a better clinical performance and guaranteeing high-quality assistance to patients.

The model of work environment proposed by Cohen et al. (2004) centers on the clinician and staff characteristics, considering the importance of their relationships to improve the delivery of prevention services. The four main elements of their model are the motivation of key stakeholders, resources for change, outside motivators, and opportunities for change. The dimension of resources for change evaluates relationships among practice members, leadership and decision-making approaches, communication, and the perception of competing demands.

Following the approach of Cohen et al. (2004), other authors revised different validated instruments that measure organizational performance in Intensive Care Units (ICUs), hospitals, large corporations, and nursing homes, and extracted 120 items focused on communication, relationships, leadership, and decision-making (Ohman-Strickland et al., 2006). Their final work contemplates 21 items that evaluate the work environment in small practices in the primary healthcare setting and is known as the Survey of Organizational Attributes for Primary Care (SOAPC). These 21 items are organized into four dimensions: communication, decision-making, stress/chaos, and history of change. The communication dimension describes whether all members of the practice can work as a team through discussion and consultation with others. Decision-making examines if there is a participatory approach to making decisions focused on the leader role. The third dimension, stress and chaos, evaluates if employees feel overwhelmed by the workload depending mainly on organizational aspects as well as on occupational demands. The last dimension is history of change, which explores whether the clinic has had to modify any aspect of the management and culture to adapt to a new market and patient requirements (Ohman-Strickland et al., 2006).

A number of studies in the medical field showed the work environment to be positively related to job satisfaction (Appelbaum et al., 2019; Goetz et al., 2015; Iliopoulos et al., 2018; Muñoz-Seco et al., 2006) and negatively related to stress (Goetz et al., 2015) or burnout (Appelbaum et al., 2019; Ashker et al., 2012; Gardner & Walton, 2011). Nevertheless, some studies found no relationship between the work environment and the ill-being of workers, but confirmed a relationship between professional career perspectives, pressure at work, and the balance between work and professional life on one hand, and burnout on the other (Gorter et al., 1998).

Other studies examined whether there are gender differences in work environment perception in the medical field. While some studies maintained that there are no gender differences (Hayes et al., 2015), other publications provided evidence that women have poorer perceived job satisfaction due to less organizational support in comparison to men (Appelbaum et al., 2019). Conversely, other studies showed that men have a worse perception of the work environment and greater psychological problems because women are more often engaged in part-time jobs (Stansfeld & Candy, 2006).

Another variable that has been introduced in the literature regarding the perception of the work environment refers to the years of professional experience. In this regard, previous studies showed that

those workers who worked for more years reported a better perception of their work environment (Grau et al., 2009; Hayes et al., 2015; Silver & Boiano, 2018).

Focusing on the dental profession as the specific setting of the present study, previous research showed dentistry to be a very stressful profession (Johns & Jepsen, 2015; Puriene et al., 2007) and highlighted several sources of stress, such as the relationship with patients, income, workload, work pressure, running behind schedule, and dissatisfied patients (Choy & Wong, 2017; Collin et al., 2019; Gorter et al., 1998; Myers & Myers, 2004; Uziel et al., 2019). Furthermore, the dental labor market in Spain has changed considerably in recent years as a result of the creation of clinics run by large insurance companies and franchised dental polyclinics (Pinilla Domínguez, 2012). This has triggered organizational restructuring of the traditional model of the dental clinic, forcing the creation of new marketing and clinical management strategies to compete in the new market (Pinilla Domínguez, 2012). Current socioeconomic conditions have contributed to this situation, with Spain experiencing an unexpected growth of almost 102% in the number of dental professionals during the last decade (Llodra Calvo, 2010). This has also been accompanied by a reduction in the number of visits, in both the public and the private sectors, due to patients' inability to pay the treatment costs (Barrios et al., 2011; Pinilla Domínguez, 2012).

Even though all these changes in the social and working conditions could affect the work environment and, consequently, the experiences of workers in the field of dental care, very few studies to date have analyzed the relationship between the characteristics of the work environment and the experiences of well- and ill-being among these professionals. Different studies support the importance of certain dimensions of the work environment in dentistry, such as team coordination, leadership within the practice, economic aspects, and the management of worker satisfaction (Berthelsen et al., 2017; Hakanen et al., 2008; Merisalu et al., 2014), which are also deemed to be more important than the number of hours worked or professional experience (Merisalu et al., 2014). To date, however, there have been no validated instruments in Spanish for measuring either quality of care in dental clinics or quality of the working environment in such clinics — in contrast to other countries such as Germany or the United Kingdom (Bader, 2009; Crall et al., 2012; Greenfield & Braithwaite, 2008; Mills & Batchelor, 2011).

On an international level, mention must be made of the scale developed by Goetz and colleagues (2016), which was adapted to the dental context and named Survey of Organizational Attributes in Dental Care (SOADC). This scale aimed to assess the work climate and other related aspects such as the quality of care or organization in dental clinics. This scale is a modification of the SOAPC (Ohman-Strickland et al., 2006), maintaining all the theoretical principles of Cohen commented above (Cohen et al., 2004).

The main aim of the present study was to adapt to the Spanish context and validate a specific tool for the work environment in the national dental setting. With this objective in mind, empirical evidence was provided on: a) the factor structure of the SOADC, as well as its measurement invariance across sociodemographic variables such as gender and years of professional experience — where the literature shows inconsistent results — to confirm that the differences in the work environment between males and females, and also between professionals with more years of experience versus the youngest in the profession, cannot be attributed to the psychometric properties of the instrument — this being a necessary condition for group comparison (Schmitt & Ali, 2015); b) the reliability of the scales; c) the differences across genders of the workers and years of professional experience; and d) the relationship between perceived work environment and other variables such as stress perceived by the workers, to test the predictive validity of the instrument.

## Materials and Method

### Study Participants

The study was carried out in a province of Spain, with the participation of 366 people contacted through the official dental associations. Women represented 71% of the sample ($n$ = 260) and men 29% ($n$ = 106). Participants' age ranged between 24 and 69 years ($M$ = 37.63; $SD$ = 9.69). The study inclusion criteria were: a) graduates in dentistry, and b) membership in an official dental association in a specific area. In terms of professional specialization, 26.2% of the participants worked in dental surgery and periodontology; 17.3% worked in orthodontics and odontopediatrics; and 14.5% worked in endodontics. A total of 42% also confirmed that they worked as general dentists. Moreover, 38% of the participants also had teaching duties. In relation to the years of professional experience, the participants had worked for an average of 13.51 years ($M$ = 13.51; $SD$ = 8.73).

### Instruments

*Sociodemographic information*. Ad hoc questions were presented to obtain information on gender, age, and years of professional experience (e.g., "How long have you been working in dentistry?"). In this section, the participants answered closed questions such as "What are the most common dental procedures you carry out?," for which they were given a choice of five options (periodontology, orthodontics, surgery, general dentistry, or endodontics).

*Work environment*. To assess dentist satisfaction with the organizational system in the clinic where they work, we translated and adapted to the Spanish context the Survey of Organizational Attributes in Dental Care (SOADC) developed by Goetz et al. (2016). The scale, as described by Ohman-Strickland et al. (2006), contains 21 items distributed into four dimensions: communication, decision-making, stress/chaos, and history of change. The communication dimension contains four items like "When there is a conflict in this practice, the people involved usually resolve the problem successfully." In relation to the decision-making dimension, it is measured through eight items such as "All of the staff participate in important decisions about the clinical operation." The third dimension of the questionnaire focuses on the stress and chaos in the work environment and is evaluated through six items such as "The dentists in this practice very frequently feel overwhelmed by the work demands." The last dimension (history of change) was assessed via three items such as "Our practice has changed in how it takes initiative to improve patient care." All responses were scored on a 5-point Likert scale, where 1 = *strongly disagree* and 5 = *strongly agree*. The questionnaire has been used by researchers in different countries such as India (Ali et al., 2017).

*Perceived stress*. To assess the level of stress perceived by the dentists, we used the Spanish version (Remor, 2006) of the Perceived Stress Scale (PSS; Cohen et al., 1983). This scale evaluates the level of perceived stress during the last month through 14 items such as "In the last month, how often have you been upset because of something that happened unexpectedly?" or "In the last month, how often have you been angered because of things that happened that were outside of your control?" All responses were scored based on a Likert scale, where 1 = *never*, 2 = *almost never*, 3 = *once in a while*, 4 = *often*, and 5 = *always*. In previous studies, this scale demonstrated adequate internal consistency ($\alpha$ = .81), test-retest consistency ($r$ = .73), and concurrent validity (Remor, 2006). It has also been used in several studies in the medical and dental fields (Chakraborti et al., 2013; Mahmoud & Ghada, 2012).

## Study Procedure

The information was collected via a questionnaire package that was submitted and completed through the Survey Monkey website. An informed consent form was presented beforehand to advise that participation in the study was voluntary and anonymous, and that participants could leave the study whenever they wished. Completing this part was obligatory to continue with the questionnaire. The latter was set up so that people could only participate once. Questions were designed in such a way that answering each was mandatory before being able to continue to the next page. Because there was no validation in the Spanish language, translation and cultural adaptation was done in collaboration with a translation and interpretation department, through the meticulous Harkness (2003) back-translation process, to ensure correct adaptation.

## Data Analysis

Firstly, the Spanish version of the Survey of Organizational Attributes in Dental Care (SSOADC) was analyzed using confirmatory factor analysis, to test whether the 4-factor structure proposed by Goetz et al. (2016) adequately fit the data collected in the Spanish sample. Considering the ordinal nature of the items, the maximum likelihood estimation with robust corrections (MLR) was used to estimate model parameters (Finney & DiStefano, 2013). Two models were tested: (1) an orthogonal 4-factor model ($M_o$), where total independence between scales was assumed; and (2) an oblique 4-factor model ($M_c$), where scales were assumed to be correlated. To evaluate the goodness-of-fit, we used the Satorra-Bentler scaled chi-squared test (SB-$\chi^2$; Satorra & Bentler, 2001) and other robust indexes: the comparative fit index (CFI), where values > .95 indicate a good fit and values > .90 indicate acceptable fit (Marsh & Hau, 1996); and the root-mean-square error of approximation (RMSEA) with a confidence interval of 90%, where values < .05 indicate good fit, values ranging from .05 to .08 indicate acceptable fit, and values > .08 indicate marginal or poor fit (Browne & Cudeck, 1992).

Once the factorial structure of the instrument was established, a multigroup confirmatory factor analysis (CFA) was applied to examine its invariance across genders and years of professional experience. Participants were classified as early workers (49.7%) and long-term workers (50.3%) according to the procedure of dichotomizing the sample by the median ($50^{th}$ percentile) ($M$ = 10 years of experience) (Frick, 1996). Firstly, the 4-factor structure was separately tested on each group individually (Models $M_{0a}$ and $M_{0b}$). After confirming the adequate fit of the models for each group separately, we tested a configural model in a second step, including both groups to establish the structural invariance of the baseline model ($M_1$). Then, increasingly constrained models were applied to examine the equality of measurement: first, equal factor loadings across groups ($M_2$) and equal factor variances and covariances ($M_3$), both for testing metric invariance; second, the intercepts of items to be the same across groups ($M_4$) for testing scalar invariance; and, lastly, the equality of error variances and covariances ($M_5$) for testing strict invariance. Empirical evidence has consistently shown that, to consider an instrument to be invariant and, therefore, to compare means of the latent factors across groups, evidence must be obtained on the equivalence of factor loadings and intercepts (Byrne, 2008; Millsap & Olivera-Aguilar, 2012; van de Schoot et al., 2012). However, the addition of factor variances-covariances and error variances-covariances constraints improves the equivalence hypothesis across groups (Byrne, 2008; Putnick & Bornstein, 2016). Model invariance was tested by analyzing the changes in SB-$\chi^2$ ($\Delta$SB-$\chi^2$) between constrained

and unconstrained models, with nonsignificant values suggesting multigroup equivalence. However, taking into account the important and well-known limitations of this statistical procedure, changes in CFI (ΔCFI) and changes in RMSEA (ΔRMSEA) were also estimated to evaluate measurement invariance, where values equal to or less than .01 in ΔCFI, and values less than .015 in ΔRMSEA indicate measurement invariance (Byrne, 2008; Chen, 2007; Cheung & Rensvold, 2002; Putnick & Bornstein, 2016).

Subsequently, Pearson correlation for testing inter-correlation between scales was applied, and the reliability of the scales was estimated using Cronbach's α and composite reliability. Then, a factorial multivariate design (2 × 2 analysis of variance, MANOVA) was used, considering genders (men vs. women) and years of professional experience (early workers vs. long-term workers) as independent variables to test for significant differences in the work environment (communication, decision-making, stress/chaos, and history of change). Finally, multiple linear regression was applied to determine the predictive capacity of the dimensions of the work environment on the stress perceived by workers. The SPSS version 24.0 statistical package (SPSS Inc., Chicago, IL, USA) was used throughout.

## RESULTS

### Factor Structure and Multigroup Analyses

The CFA results showed the correlated 4-factor ($M_{C\_r\#}$) model to be the model with the best fit (SB-$\chi^2$ = 375.24; CFI = .94; RMSEA = .055; see Table 1), providing evidence of the validity of the 4-factor model that assumes the correlation between the SSOADC scales (see Figure 1).

TABLE 1
Goodness-of-fit indices in confirmatory factor analysis

| Model | Model description | SB-$\chi^2$ | *df* | CFI | RMSEA [90% CI] |
|---|---|---|---|---|---|
| $M_O$ | 4 Orthogonal factors | 896.44 | 189 | .77 | .10 [.09, .11] |
| $M_C$ | 4 Correlated factors | 648.714 | 183 | .85 | .08 [.08, .09] |
| $M_{C\_r}$ | 4 Correlated factors + $r_{error}$ | 375.24 | 179 | .94 | .06 [.05, .06] |

*Note*. SB-$\chi^2$ = Satorra-Bentler scaled chi-squared test; CFI = comparative fit index; RMSEA with 90% CI = root-mean-square error of approximation with a confidence interval of 90%; model is the same as $M_c$, except that in $M_{c\_r}$ independence has been freed for the errors in the pairs: 5-6, 7-11, 15-16, 4-14, 20-21.

With respect to measurement invariance, firstly, the correlated 4-factor model was separately tested across groups. The model showed acceptable fit in both genders — men: SB-$\chi^2(178) = 264.64$, $p < .001$; CFI = .91; RMSEA = .06; women: SB-$\chi^2(179) = 294.58$, $p < .001$; CFI = .95; RMSEA = .05 — and years of professional experience — early workers: SB-$\chi^2(179) = 330.23$, $p < .001$; CFI = .90; RMSEA = .07; long-term workers: SB-$\chi^2(179) = 271.96$, $p < .001$; CFI = .93; RMSEA = .06. Then, after testing the adequate fit of the configural model for each sociodemographic variable ($M_1$), the increasingly constrained models were applied. Results of the differences between the constrained models and the established baseline model (the configural model) are shown in Table 2.

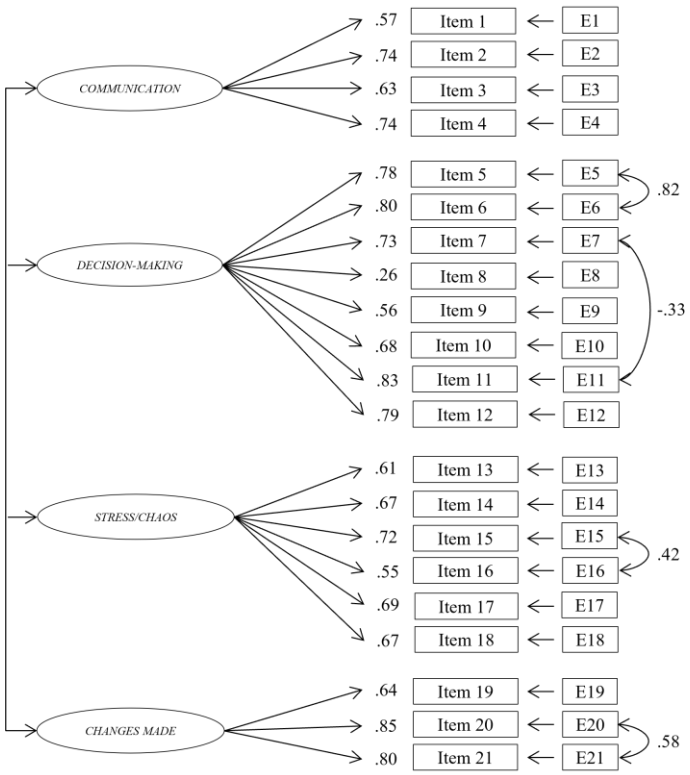


FIGURE 1
Four-factor oblique model of the SSOADC
*Note*. SSOADC = Spanish version of the Survey of Organizational Attributes in Dental Care

TABLE 2
Goodness-of-fit indices in confirmatory factor analysis

| Model | Model description | SB-$\chi^2$ | *df* | ASB-$\chi^2$ | Δ*df* | CFI | ΔCFI | RMSEA [90% CI] | ΔRMSEA |
|---|---|---|---|---|---|---|---|---|---|
| Gender invariance | | | | | | | | | |
| $M_1$ | Configural model | 560.58 | 357 | | | .937 | | .056 [.047, .064] | |
| $M_2$ | FL invariance | 584.69 | 382 | 23.27 | 25 | .937 | < .001 | .054 [.045, .062] | .002 |
| $M_3$ | FL + FVC invariance | 599.55 | 388 | 38.66 | 31 | .935 | .002 | .055 [.046, .063] | .001 |
| $M_4$ | FL + FVC + INT invariance | 641.91 | 409 | 81.28* | 52 | .934 | .003 | .056 [.047, .064] | < .001 |
| $M_5$ | FL + FVC + INT + EVC invariance | 697.93 | 430 | 143.00* | 73 | .927 | .01 | .059 [.050, .067] | .003 |
| Years of professional experience | | | | | | | | | |
| $M_1$ | Configural model | 600.54 | 358 | | | .914 | | .065 [.056, .074] | |
| $M_2$ | FL invariance | 633.16 | 383 | 31.89 | 25 | .911 | .003 | .064 [.055, .072] | .001 |
| $M_3$ | FL + FVC invariance | 656.38 | 389 | 56.01* | 31 | .905 | .009 | .065 [.056, .074] | < .001 |
| $M_4$ | FL + FVC + INT invariance | 706.29 | 410 | 108.59* | 52 | .910 | .004 | .067 [.058, .075] | .002 |
| $M_5$ | FL + FVC + INT + EVC invariance | 739.91 | 431 | 139.63* | 73 | .906 | .008 | .067 [.058, .075] | .002 |

*Note*. SB-$\chi^2$ = Satorra-Bentler scaled chi-squared test; CFI = comparative fit index; RMSEA with 90% CI = root-mean-square error of approximation with a confidence interval of 90%; FL = factor loadings; FVC = factor variances-covariances; INT = intercepts; EVC = error variances-covariances.
* $p < .05$

With respect to invariance across gender groups, the factor loadings for each item did not differ across groups ($M_2$), the relative importance of each of the four factors was equivalent, and they followed the same relational pattern ($M_3$) — ensuring metric invariance. Regarding the constrained models of item intercepts ($M_4$) and item residual variances and covariances ($M_5$), although $\Delta SB\text{-}\chi^2$ proved statistically significant ($p < .05$), the results referred to $\Delta CFI$ and $\Delta RMSEA$, as more stringent criteria, fell below the established limits ($\Delta CFI \leq .01$ and $\Delta RMSEA < .015$), ensuring the scalar and strict invariance by gender.

Results regarding invariance across years of professional experience were quite similar to gender invariance. In this sense, although in some constrained models $\Delta SB\text{-}\chi^2$ proved statistically significant, the values obtained in the fit indexes did not exceed the established limits ($\Delta CFI \leq .01$ and $\Delta RMSEA < .015$), thus ensuring metric, scalar, and strict invariance across early workers and long-term workers.

## Inter-Correlation between SSOADC scale and Reliability

The Pearson correlation results showed communication to be positively and largely related to decision-making, and negatively and largely related to the stress/chaos dimension. Also, communication showed a positive and a medium-small relation to history of change. Decision-making was negatively and largely related to stress/chaos, and positively and moderately related to the history of change dimension (see Table 3).

Regarding reliability, values obtained in both Cronbach's α and composite reliability ranged from .76 to .88, providing evidence of adequate internal consistency as tested by both procedures (see Table 3).

TABLE 3
Pearson correlations, Cronbach's α, and composite reliability

| | Pearson correlations | | | Reliability | |
|---|---|---|---|---|---|
| SSOADC scale | 1 | 2 | 3 | Cronbach's α | Composite reliability |
| 1. Communication | – | | | .76 | .77 |
| 2. Decision-making | .61*** | – | | .87 | .88 |
| 3. Stress/chaos | –.53*** | –.53*** | – | .83 | .82 |
| 4. History of change | .18*** | .28*** | –.09 | .80 | .81 |

*Note*. SSOADC = Spanish version of the Survey of Organizational Attributes in Dental Care.
*** $p < .001$

## Genders, Years of Professional Experience, and Work Environment

The results obtained in the factorial MANOVA (2 × 2) only showed a significant effect of years of professional experience, $\Lambda = .95$, $F(4, 317) = 4.43$, $p < .01$. Statistically significant differences were obtained for decision-making, $F(1, 332) = 9.23$, $p < .01$, and stress/chaos, $F(1, 332) = 14.27$, $p < .001$. Long-term workers scored higher on decision-making (respectively, $M = 3.53$, $SD = 0.48$ vs. $M = 3.35$,

*SD* = 0.59); whereas early workers obtained higher scores on stress/chaos (respectively, *M* = 3.03, *SD* = 0.82 vs. *M* = 2.71, *SD* = 0.71).

### Work Environment and Perceived Stress

The regression results showed the SSOADC scales to significantly explain 19.6% of the variance in stress perceived by the workers ($R^2$ = .196, $p$ < .001). Specifically, higher scores on the stress/chaos and decision-making scales significantly predicted higher scores on perceived stress (respectively, β = .44, $p$ < .001; β = .16, $p$ < .01), whereas higher scores on the communication scale significantly predicted lower scores on perceived stress (β = –.13, $p$ < .05).

## Discussion

The main aim of the present study was to validate the Survey of Organizational Attributes in Dental Care (SOADC) in the Spanish dental context, examining the psychometric properties of the instrument and its invariance across genders and years of professional experience, as well as its predictive validity analyzing the relationship between the work environment and stress perceived by dental professionals. The results obtained confirmed the adequacy of the instrument, as well as its invariance across genders and years of professional experience; they showed that predictive validity had medium-small effects.

Specifically, the results of the confirmatory factor analysis endorse the factor structure of the SOADC translated and adapted to the Spanish population and provide evidence on the four dimensions of the questionnaire: communication, decision-making, stress/chaos, and history of change. Although this model has included a re-specification that incorporates freely estimated error correlations given the similarity in the content of some of the items, the literature suggests that forcing large error terms to be uncorrelated is rarely appropriate with real data (Bentler & Chou, 1987; Byrne, 2008). Accordingly, these results, supporting the adequate fit of the four oblique factor model, are consistent with those obtained in the original scale created for medical professionals and with those provided in the instrument adapted to the dental context (Goetz et al., 2016; Ohman-Strickland et al., 2006).

Moreover, the results demonstrate that the SSAODC can be used adequately and invariantly across male and female dentists in the Spanish context. Whereas to date, we are aware of no previous studies analyzing the invariance of the instrument across gender, some publications report gender differences in relation to the perception of the work environment and how this can impact upon worker ill-being (Berthelsen et al., 2017; Merisalu et al., 2014; Stansfeld & Candy, 2006). Taking these differences into account, we underscore the relevance of the results obtained in our study, showing that the instrument is gender invariant, to guarantee that possible gender differences are not due to incorrect adaptation of the questionnaire.

Focusing on the invariance of the instrument across workers with different years of professional experience, our results show that the SSAODC can be used invariantly among dentists with less than 10 years of experience and those that have been in the profession for over 10 years. We know of no studies to date that allow us to compare our results with those obtained by other authors in terms of invariance. Nevertheless, given the importance of the length of professional experience for the perception of the work environment (Ashker et al., 2012; Gardner & Walton, 2011; Salmela-Aro et al., 2011), we emphasize the

need of being able to rely on a measurement instrument that assures that these differences are not due to incorrect adaptation of the questionnaire.

Regarding reliability, results obtained in this study confirm the reliability of the SSOADC and the adequacy of the four dimensions of the questionnaire (communication: $\alpha = .76$; decision-making: $\alpha = .87$; stress/chaos: $\alpha = .83$; history of change: $\alpha = .80$). Our findings are consistent with the adequacy of the structure obtained for the original instrument adapted to the dental population by Goetz et al. (2016), which showed adequate internal consistency levels (communication: $\alpha = .728$; decision-making: $\alpha = .838$; stress/chaos: $\alpha = .807$; history of change: $\alpha = .718$). Similarly, the results are consistent with those obtained with the original scale created for medical professionals (Ohman-Strickland et al., 2006).

The results show that there are differences in the perception of the work environment between dentists with more years of professional experience compared to those who have been working for fewer years. These findings are consistent with those of previous studies within the dental setting (Berthelsen et al., 2011; Hakanen et al., 2008), which argued that dentists at the start of their professional life show higher levels of stress and perceive more chaos in their work. However, as the years go by, they experience more security doing their work, can take more decisions, and are also happier with their work environment. Focusing on the perception of the work environment across male and female participants, our findings do not support the existence of significant gender differences. Previous literature has shown inconsistent results in this regard. Thus, whereas some studies have observed no differences across the genders (Gorter et al., 1998; Hayes et al., 2015; Iliopoulos et al., 2018; Rundcrantz et al., 1991), other publications have reported gender differences in the perception of the work environment as well as in the perceived level of stress (Appelbaum et al., 2019; Choy & Wong, 2017; Hayes et al., 2015; Stansfeld & Candy, 2006).

In relation to predictive validity, the results of the regression analysis showed that the work environment explains 19.6% of the variance of stress perceived by the workers, which corresponds to a medium-large size (Cohen, 1977). Stress/chaos is the most important dimension for the prediction of perceived stress, which can be explained given the similarities between the two constructs. The other dimensions contributing to its prediction are decision-making and communication. As mentioned above, these three dimensions (stress/chaos, decision-making, and communication) fit into the dimension of resources for change in the model described by Cohen et al. (2004). The dimension of history of change did not predict perceived stress, because the correlation between both variables was not statistically significant ($r = –.10$, $p > .05$). Although the literature reports a positive correlation between changes in organization and stress (Hugh & Brennan, 1994; Yu, 2009), our results did not confirm this relationship. In line with Ohman-Strickland et al. (2006), we assume that one weakness of the scale is that it cannot identify the nature of the change being measured, whether due to turnover of the staff, improvement in the procedures in the practice, or financial crisis, which could provide meaningful information about the perceived change. In addition, Goetz et al. (2016) did not record a significant correlation between history of change and other expected positive outcomes such as worker job satisfaction.

We do not know of any study within the dental context that analyzed these relationships using the SOADC, but there are studies in this field that found a negative correlation between professional stress or burnout and certain aspects of the work environment such as interpersonal relationships at work (Berthelsen et al., 2017), colleague support, and trust between manager and employees (Berthelsen et al., 2011). Other studies found a positive correlation between the well-being of the workers and other aspects of the work environment such as managerial support, interpersonal relationships, security, or good work planning (Gorter et al., 2012; Merisalu et al., 2014). Moreover, a study among nurses showed communication perceived within

the work environment to explain 17% of the variance in professional stress. In turn, satisfaction with coworkers explained 14% of its variance (Khamisa et al., 2015). Nevertheless, other authors emphasized the importance of the worker individual perception of being able to cope with the work conditions, because this is supposed to be decisive for the development of ill-being at work (Gorter et al., 1998).

From a practical point of view, the development of a Spanish version of the SAODC offers the dental care community an adequate tool for measuring the work climate in private practices on a national level and can give visibility to the social and working conditions in dentistry, which is considered a high-risk profession (Vodanović et al., 2016). At the same time, it facilitates the execution of new standardized studies that can help to support scientific evidence about the current social and working situation in dentistry, enabling cross-border studies and analyses of the relationship between work environment and how it correlates to worker experiences.

Whilst the psychometric validity of the tool has been confirmed in our study, further research is needed to provide more empirical evidence about its appropriate properties. We also must draw attention to some possible limitations. First of all, the fact that we had medium-small evidence of its predictive validity with stress at work, and a small correlation with the dimension of history of change. We think that the relationship of change with chaos, communication, and participatory decision-making would be best addressed in the context of prospective, longitudinal studies with the aid of qualitative observations.

It would be interesting for future studies to test whether the instrument is invariant across professionals working in the private or public sectors, given the different organizational structures involved in each sector. In addition, the fact that this study was distributed via a web link may have resulted in reduced participation, as some people may mistrust such links. Moreover, this procedure did not allow us to resolve doubts raised by participants during the administration of the questionnaire.

In conclusion, the results obtained in this study support the internal validity and reliability of the Spanish version of the Survey of Organizational Attributes in Dental Care among dentists in the Valencian Community, and its invariance across genders and years of professional experience. As seen in previous studies, creating a positive work environment has a major impact on worker well-being (Parker et al., 2003), which highlights the importance of promoting positive environments within dental clinics to reduce professional stress and other negative consequences.

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