Measuring Job Satisfaction in Portuguese Military Sergeants and Officers: Validation of the Job Descriptive Index and the Job in General Scale

Silvia Lopes and Maria José Chambel
University of Lisbon

Filipa Castanheira
Universidade Nova de Lisboa

Fernando Oliveira-Cruz
Army Centre of Applied Psychology, Lisbon, Portugal

This article presents the psychometric properties of the Job Descriptive Index (JDI) and Job in General (JIG) instruments with a Portuguese representative sample of military sergeants and officers. Demographic correlates of job satisfaction are also investigated. The sample consists of 413 sergeants and 362 officers in different hierarchical positions, who equally perform different functions. The results show high internal consistency coefficients for the scores on the JDI and JIG subscales, ranging from .76 to .92. The data support a 6-factor structure of job satisfaction. The results offer empirical support for the Portuguese adaptation of the JDI and JIG scales with these militaries. Pay and promotion opportunities emerge as the job satisfaction dimensions more related to the demographic variables.

Keywords: JDI, JIG, job satisfaction, Portuguese militaries

Military leaders, namely sergeants and officers, are expected to exemplify the highest levels of ethical and moral conduct, and simultaneously to gain the trust of their followers so that the latter make appropriate sacrifices for their unit (Bass, Avolio, Jung, & Berson, 2003). Therefore, a military career is rather demanding because it requires both mental and physical training (Rashid & Sultan, 2013). Considering the important role played by the militaries who have a higher rank in the Army, the study of their levels of job satisfaction seems to be of great relevance.

Job satisfaction is simply how people feel about their jobs and different aspects of their

jobs. It is the extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs (Spector, 1997). There are important reasons why we should be concerned with job satisfaction. First, the humanitarian perspective is that people deserve to be treated fairly and with respect. Job satisfaction is, to some extent, a reflection of good treatment and it may also be considered an indicator of emotional well-being or psychological health. Second, the utilitarian or economic perspective is that job satisfaction can lead to behavior by employees that positively affects the organizational functioning (Balzer et al., 1997; Spector, 1997).

The present study aims to validate a measure of military satisfaction, namely the Job Descriptive Index (JDI; Smith, Kendall, & Hulin, 1969) and the Job in General scale (JIG; Ironson, Smith, Brannick, Gibson, & Paul, 1989) in a Portuguese context. The JDI is perhaps the most widely used measure of job satisfaction and has been subject to numerous validation and reliability studies (Castanheira, 2014; Stanton et al., 2001). Along with the JDI, the JIG has also been pointed to as a valuable scale, which enables the provision of different information that is complementary to the approach of job satis-

Silvia Lopes and Maria José Chambel, Faculty of Psychology, University of Lisbon; Filipa Castanheira, Nova School of Business and Economics, INOVA, Universidade Nova de Lisboa; Fernando Oliveira-Cruz, Army Centre of Applied Psychology, Lisbon, Portugal.

Filipa Castanheira acknowledges support from Nova Forum.

Correspondence concerning this article should be addressed to Maria José Chambel, Faculdade de Psicologia, Universidade de Lisboa, Alameda da Universidade, 1649-013 Lisboa, Portugal. E-mail: mjchambel@psicologia.ulisboa.pt

faction as facets (Ironson et al., 1989). The present study used the JDI, which considered five aspects of job related satisfaction (i.e., present work, pay, promotion, supervision and people in the present job—or coworkers), as well as the JIG scale. The validity of these measures has already been tested in Portugal (McIntyre & McIntyre, 2010) with a sample of health professionals. However, although it is possible to find validity studies conducted with military samples (e.g., Borman & Bleda, 1978; Dragow & Kanfer, 1985), our study represents the first effort to validate a measure of job satisfaction with militaries in a Portuguese context, where the legislative background and work conditions paint a very different picture to that of other European countries. Furthermore, with the present study, we expect to give some clues as to the levels of job satisfaction—in specific dimensions of the work (i.e., JDI) or generally (i.e., JIG) – of militaries who have a higher rank in the Army, namely military sergeants and officers.

The Importance of Military Satisfaction

Simply stated, job satisfaction is an affective or emotional response toward various aspects of one's job and has important implications for workers' attitudes and behaviors (Kreitner & Kinicki, 2008). For example, Harrison, Newman, and Roth (2006) used a combination of meta-analytic correlations and a structural equation modeling to demonstrate that job satisfaction strongly predicts behavior outcomes such as employee performance, lateness, absence, and turnover. Previously, a meta-analysis conducted by Tett and Meyer (1993) also found job satisfaction an important attitude that contributes toward explaining turnover intention. LePine, Erez, and Johnson (2002), in their meta-analysis, found that job satisfaction correlated with organizational citizenship behaviors. In the same vein, Whitman, Van Rooy, and Viswesvaran (2010) showed in a meta-analysis that the organization units with employees who enjoyed high job satisfaction were the ones with the best performance and more organizational citizenship behaviors.

In the military context, previous studies have also suggested some determinants of job satisfaction and established the advantages of this attitude. With a sample of British military per-

sonnel, Limbert (2004) found that when individuals were engaged in positive thinking and acceptance of the situation, as well as when individuals perceived social support from those, who helped them to cope with stressful situations, they presented higher levels of job satisfaction and psychological well-being. Furthermore, the results of this study also showed that job satisfaction and psychological well-being were significantly related.

Regarding the advantages of this attitude, Prevosto (2001) and Sanchez, Bray, Vincus, and Bann (2004) demonstrated that military personnel who reported greater job satisfaction were more likely to stay, or indicated an intention to stay, in the army. Gurbuz (2009) showed that job satisfaction was an important predictor of organizational citizenship behaviors. It may, therefore, be considered crucial for the Portuguese army to have a valid measure for evaluating the satisfaction of its militaries, because high levels of job satisfaction are important to the army for the retention and productivity of high-quality personnel (Borman & Bleda, 1978). Indeed, the army needs to recruit competent professionals and to invest in their training and development so as to assure their efficacy. Thus, their level of satisfaction cannot be underestimated, because, as we have already established, this attitude is an important predictor of turnover, absenteeism, psychological well-being, and the organizational citizenship behavior of militaries (e.g., Gurbuz, 2009; Limbert, 2004; Prevosto, 2001; Sanchez et al., 2004).

Specifically regarding the importance of job satisfaction to sergeants and officers, it is also possible to find some interesting results that provide some clues on the subject. With a sample of 467 army officers in Sweden, Nystedt, Sjöberg, and Hagglund (1999) found that job satisfaction correlated positively and significantly with leader and coworker support, role explicitness, career possibilities, and alternative employment. Yang, Wu, Chang, and Chien (2011) also found that military officers' job satisfaction and organizational-related identification were positively related. In the same vein, Hyun and Oh (2011), using the data obtained from food-service soldiers and logistics officers serving in the Korean Army food-service operation, found a statistically significant difference in job satisfaction between the

food-service soldiers and logistics officers: For the food-service soldier group, hygiene factors (e.g., status, job security, salary, fringe benefits, work conditions) were more powerful predictors of general job satisfaction than motivators (e.g., challenging work, recognition, responsibility). On the other hand, motivators had a more significant association with logistics officers' general job satisfaction than hygiene factors. Adding further understanding of the importance of job satisfaction levels of militaries with a higher rank, the study conducted by Rashid and Sultan (2013) also found that well-educated officers had more perceived social support, perceived stress, and job satisfaction levels in comparison to those who were less educated. Similarly, officers of higher ranks received higher levels of perceived social support, perceived stress and job satisfaction.

Measuring Job Satisfaction

Job satisfaction has been measured in several ways (see: Motowidlo et al., 1976; Stanton, Bachiochi, Robie, Perez, and Smith, 2002); however among the many existing measures, the Job Descriptive Index (JDI; Balzer et al., 1997) is the most commonly used measure of job satisfaction (Castanheira, 2014; Stanton et al., 2001), as previously noted.

As a facet measure of job satisfaction, the JDI has the advantage of analyzing five important dimensions of job satisfaction (Robbins, Odendaal, & Roodt, 2003): (a) the present work—the extent to which the job provides the individual with stimulating tasks, opportunities for learning and personal growth, and the chance to be responsible and accountable for the results; (b) pay—the remuneration received and the degree to which this is viewed as equitable compared to that of another person in a similar position within or outside the organization; (c) promotions—the opportunities for promotion and advancement in the organization, not necessarily associated with hierarchical support and guidance with work-related tasks; (d) supervision—the abilities of supervisors to provide emotional and technical support and guidance with work-related tasks; and finally (e) coworkers—the extent to which fellow workers are technically, emotionally, and socially supportive.

The JDI has been the target of numerous validation and reliability studies. Within the military context, the study by Borman and Bleda (1978) represents an initial attempt to test the reliability and validity of the JDI on the Army. Nonetheless, more recent studies provide support to the validity and reliability of the JDI among several work contexts, including the military context. To inspect the stability of the JDI factor structure, Jung, Dalessio, and Johnson (1986) conducted a study among 11 different groups representing a wide range of organizations and occupations and confirmed that the five JDI dimensions were very stable. Regarding generalizability, Drasgow and Kanfer (1985) investigated measurement equivalence across health care, retailing, and the military occupations, and showed that the measure provided equivalence across these subpopulations. The results also indicated that the JDI scales had similar relations with the individuals sampled from a variety of organizational settings. More recently, Kinicki, Mckee-Ryan, Schriesheim, and Carson (2002) performed a meta-analysis with 152 studies on the JDI published from 1975 to 1999, and they concluded that the JDI scales' scores presented adequate internal consistency reliability; the JDI significantly correlated with presumed antecedents of job satisfaction (e.g., job, group and organizational characteristics, role states, and leader relations) in the expected direction; the JDI was also associated, in the expected direction, with workers' attitudes and psychological states (e.g., organizational commitment, job involvement, life satisfaction and work and nonwork perceived stress and poor health symptoms). As for the presumed consequences of job satisfaction, the JDI was positively associated with motivation, performance, and citizenship behaviors and negatively related to withdrawal cognition and withdrawal behaviors.

Regardless of the advantages of the JDI, Ironson, Smith, Brannick, Gibson, and Paul (1989) developed a global JIG to accompany the JDI. The development of this global job satisfaction measure emerged upon acknowledgment that "composite scales may not be sufficient for estimating general satisfaction" (Ironson et al., 1989; pp. 194) and its authors pointing to several reasons to justify this statement: First, when job satisfaction is analyzed through the conceptualization of specific facets, this approach may

omit some areas that may be important to an individual; second, at the same time, some facets may be less important to a particular person (e.g., satisfaction with the supervisor may be more important to some individuals than others); third, as a descriptive and an evaluative component, the assessment of job satisfaction through facet scales may interfere with the affective evaluation of a given job; fourth, the frame of reference that individuals think about in order to answer the questionnaire considering facet scales may differ from the global level assessment approach of job satisfaction, therefore, when individuals think about specific facets, this may elicit a more short-term response; finally, the assessment of specific facets may interfere with a process that emerges naturally in individuals whenever asked to globally assess their job satisfaction level: global scales permit respondents to combine aspects of their job situation as they usually think of them.

Balancing the advantages of both job satisfaction measures, and following previous recommendations (see Balzer et al., 1997), as well as previous validity studies (e.g., McIntyre & McIntyre, 2010), in the present study the five facets of the JDI and JIG scale are assessed together as complementary job satisfaction measures.

Demographic Characteristics and Job Satisfaction

According to previous studies, demographic characteristics may produce differences in individual's levels of job satisfaction (e.g., Sanchez et al., 2004; Reiner, 1998). Considering the importance of these variables to explain this attitude at work, in this study, we examined the relationship of gender, age, schooling, and tenure to job satisfaction.

Within the literature, inconsistent results were encountered regarding the relationship between gender and job satisfaction. Although some studies report that females are more satisfied than males, or vice versa, other studies have found no differences (Jones, 1997; Lundquist, 2008). Mainly, two explanations were advanced to clarify these findings: (a) women have lower expectations than men and, as a result, they are satisfied with less; on the other hand (b) women and men have different values—men give more importance to career-

related rewards such as pay, benefits, or security whereas women attach more importance to social rewards such as the quality of the established relationships with their coworkers and supervisors (Jones, 1997).

A more consistent result has been found in relation to age, which is commonly found as a stronger predictor of the military's job satisfaction (Reiner, 1998). According to the results obtained by Sanchez et al. (2004), job satisfaction is lower among younger militaries, and the same pattern was found by Abedi and Mazruee (2010) with a sample of soldiers.

In keeping with what has been found with the gender variable, levels of schooling also produce inconsistent results in relation to the job satisfaction levels of the militaries. For example, while in the study by Rashid and Sultan (2013) well-educated officers were found to have more job satisfaction levels in comparison to those who were less educated, in the study by Abedi and Mazruee (2010) precisely the opposite results were found, whereas in the study of Sanchez et al. (2004) the relationship between schooling and job satisfaction was not significant.

Finally, regarding how tenure may contribute toward explaining the levels of job satisfaction, as observed by Reiner (1998), "it may be difficult to separate the effects of age and tenure on the level of job satisfaction" (p. 20) due to the lack of lateral mobility in military careers. Considering this statement, observation of a positive relationship between tenure and job satisfaction is also expected.

Method

Sample and Procedure

Seven hundred seventy-five militaries from positions at the top of the hierarchy, namely 413 sergeants and 362 officers, participated in this study conducted in Portugal. This sample arises from a universe of 3,776 sergeants and 2,602 officers, which is representative of a 95% confidence level. Most of the sample was composed by men (88.90%), aged between 21 and 56 years ($M = 38.66$; $SD = 8.87$), with secondary school education—Year 12 (44.20%)—or higher (54.30%). The average tenure was 18 years ($M = 17.84$; $SD = 9.70$), with the minimum of 1 year to 44 years of tenure. More

demographic information on the sample is presented in Table 1.

With regard to the JDI application, Donovan, Drasgow, and Probst (2000) and Kantor (1991) showed that paper-and-pencil and computer administration were equivalent in terms of results with the JDI. Considering that there were no differences between these two forms of application—because the questionnaire used is the same in both forms of application (paper-and-pencil and computer administration)—in addition to the fact that the JIG should be applied in the standard JDI fashion (Stanton et al., 2001), in the present study participants were asked to answer the questionnaire online and the same pattern of the questionnaire with the JIG application was used.

Measures

JDI. A Portuguese version of the JDI, earlier validated by McIntyre and McIntyre (2010) with a Portuguese sample of health professionals was used. This job satisfaction measure includes five scales composed by checklists of adjectives or adjective phrases related to different facets of job related satisfaction: present work (18 items with a Cronbach's alpha of .92, e.g., "gives a sense of accomplishment," "repetitive"), pay (nine items with a Cronbach's alpha of .79, e.g., "barely live on income," "fair"), opportunities for promotion (nine items with a Cronbach's alpha of .76, e.g., "good opportunities for promotion," "very limited"), supervision (18 items with a Cronbach's alpha of .92, e.g., "around when needed," "has favorites"), and coworkers (18 items with a Cronbach's alpha of .89, e.g., "stimulating," "easy to make enemies"). All scales exhibited a Cronbach's

alpha above .70, as recommended by Nunnally and Bernstein (1994), and were similar to the internal consistency indices obtained by McIntyre and McIntyre (2010): present work – $\alpha = .87$, pay – $\alpha = .75$, opportunities for promotion – $\alpha = .82$, supervision – $\alpha = .90$, and people in your present job/coworkers – $\alpha = .85$.

Respondents were asked to fill in the blank beside each item, as follows: "Y" (agreement), "N" (disagreement), and "?" (cannot decide). The scoring system was as follows: Y (agreement) responses to positive items and N (disagreement) responses to negative items received a score of 3, N (disagreement) responses to positive items and Y (agreement) responses to negative items received a score of 0, and the? response was given a score of 1.

JIG. A Portuguese version of the JIG, previously validated by McIntyre and McIntyre (2010) with a Portuguese sample of health professionals was used. This measure of job satisfaction was measured through responses to the 18 items in the same format as the JDI (e.g., "pleasant," "bad"). The scale exhibited a Cronbach's alpha of .92, above .70, as recommended by Nunnally and Bernstein (1994), and was similar to the internal consistency index obtained by McIntyre and McIntyre (2010) of .85. Respondents were asked to fill in the blank beside each item, as follows: "Y" (agreement), "N" (disagreement), and "?" (cannot decide). The scoring system was as follows: Y (agreement) responses to positive items and N (disagreement) responses to negative items received a score of 3, N (disagreement) responses to positive items and Y (agreement) responses to negative items received a score of 0, and the? response was given a score of 1.

Table 1
Demographic Characteristics

Sample	Sergeants (<i>n</i> = 413)	Officers (<i>n</i> = 362)	Total (<i>N</i> = 775)
Gender (% male)	91.20%	86.70%	88.90%
Age, <i>M</i>	40.59 (<i>SD</i> = 8.63)	36.47 (<i>SD</i> = 8.63)	38.66 (<i>SD</i> = 8.87)
Education			
12th grade	82.20%	1.10%	44.20%
Higher	15.10%	98.90%	54.30%
Tenure, <i>M</i>	19.87 (<i>SD</i> = 8.70)	15.55 (<i>SD</i> = 10.24)	17.84 (<i>SD</i> = 9.70)

Results

The structural validity of these measures included a confirmatory factor analysis by structural equation modeling, where all estimates were calculated by the AMOS 19.0 program (Arbuckle, 2003). The second step was to analyze the convergent and discriminant validity of the theoretical model (Model 1). First, using a stringent procedure outlined by Fornell and Larcker (1981) and recommended by Podsakoff et al. (2003). Second, through the analysis of the relationships among all the JDI dimensions (present work, pay, promotion, supervision, and people in present job), the JIG scale and the demographic variables (gender, age, schooling, and tenure), by values of correlation coefficients (Rodgers & Nicewander, 1988), to test whether the five dimensions of the JDI as well as the JIG scale related differently to the demographic variables. We will now go on to explain the above mentioned steps in more detail.

Confirmatory Factor Analysis

To ascertain the validity of the JDI and JIG, applied to a military sample of sergeants and officers, a confirmatory factor analysis with six dimensions (i.e., present work, pay, opportunities for promotion, supervision, people in present job/coworkers and job in general) was conducted. To confirm the dimensionality, 16 further possible models were examined for comparison purposes. The models were compared based on chi-square difference tests and on other fit indices: the standardized root mean square (SRMR), the Bentler comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA). Levels of .90 or higher for CFI and TLI and levels of .06 or lower for RMSEA, combined with levels of .08 or lower for SRMR, indicated that the models fitted the data reasonably well (Arbuckle, 2003).

Within the confirmatory factor analysis we tested an initial theoretical model, to inspect whether the model fitted the data, and to verify whether it was necessary to make some modifications for a better adjustment of the theoretical model to the data. The tested theoretical model (Model 1), with six latent factors and their respective observed variables (i.e., present work, pay, opportunities for promotion, super-

vision, people in present job/coworkers, and job in general), showed a better fit to the data— $\chi^2(3,730) = 7,092.20$, $p < .001$, $SRMR = .05$, $CFI = .90$, $TLI = .90$, $RMSEA = .03$ —when we deleted the eighth item of the JDI pay dimension (i.e., the item that described the pay received as “uncertain”), because this item had a lower loading on the latent pay factor ($\beta = .13$, $p < .01$). Supporting the results obtained with this analysis, we also established earlier, with the Cronbach’s alpha analysis, that the internal consistency of the JDI pay dimension increased from .79 to .83, when this item was deleted. Hence, we maintained this model, without the eighth item of the JDI pay dimension as our final theoretical model (Model 1), to be compared with other alternative models. In comparison with other models, we verified a significantly lower fit on the single factor model (Model 2) where all items loaded on a single latent variable— $\chi^2(3,745) = 15,698.63$, $p < .001$, $SRMR = .10$, $CFI = .65$, $TLI = .63$, $RMSEA = .06$ —as well as on other tested alternative models, with five factors, where we alternately grouped two dimensions into one latent variable, leaving the other four studied dimensions, as four latent variables of the alternative tested model (see Table 2).

Furthermore, the difference between the goodness-of-fit of our theoretical model (Model 1) and the goodness-of-fit of other alternative models was significant: with Model 2 – $\Delta\chi^2(15) = 8,606.43$, $p < .001$; with Model 3 – $\Delta\chi^2(5) = 1,753.23$, $p < .001$; with Model 4 – $\Delta\chi^2(5) = 832.64$, $p < .001$; with Model 5 – $\Delta\chi^2(5) = 2,811.50$, $p < .001$; with Model 6 – $\Delta\chi^2(5) = 3,358.38$, $p < .001$; with Model 7 – $\Delta\chi^2(5) = 160.16$, $p < .001$; with Model 8 – $\Delta\chi^2(5) = 704.14$, $p < .001$; with Model 9 – $\Delta\chi^2(5) = 1,765.63$, $p < .001$; with Model 10 – $\Delta\chi^2(5) = 1,772.57$, $p < .001$; with Model 11 – $\Delta\chi^2(5) = 1,748.99$, $p < .001$; with Model 12 – $\Delta\chi^2(5) = 890.58$, $p < .001$; with Model 13 – $\Delta\chi^2(5) = 923.11$, $p < .001$; with Model 14 – $\Delta\chi^2(5) = 830.58$, $p < .001$; with Model 15 – $\Delta\chi^2(5) = 2,565.45$, $p < .001$; with Model 16 – $\Delta\chi^2(5) = 2,566.01$, $p < .001$; with Model 17 – $\Delta\chi^2(5) = 3,003.72$, $p < .001$. Thus, our theoretical model was the one that presented the best fit to the data.

Despite these results, it is interesting to note that although the difference between the goodness-of-fit of our theoretical model (Model 1)

Table 2
Results of Structural Equation Models

Models	χ^2	$\Delta\chi^2$	SRMR	CFI	TLI	RMSEA
Model 1	$\chi^2(3,730) = 7,092.20^{**}$	—	.05	.90	.90	.03
Model 2	$\chi^2(3,745) = 15,698.63^{**}$	$\Delta\chi^2(15) = 8,606.43^{**}$	.10	.65	.63	.06
Model 3	$\chi^2(3,735) = 8,845.43^{**}$	$\Delta\chi^2(5) = 1,753.23^{**}$	.06	.85	.84	.04
Model 4	$\chi^2(3,735) = 7,924.84^{**}$	$\Delta\chi^2(5) = 832.64^{**}$	.06	.88	.87	.04
Model 5	$\chi^2(3,735) = 9,903.70^{**}$	$\Delta\chi^2(5) = 2,811.50^{**}$	.07	.82	.81	.05
Model 6	$\chi^2(3,735) = 10,450.58^{**}$	$\Delta\chi^2(5) = 3,358.38^{**}$	.07	.80	.79	.05
Model 7	$\chi^2(3,735) = 7,252.36^{**}$	$\Delta\chi^2(5) = 160.16^{**}$	.05	.90	.89	.04
Model 8	$\chi^2(3,735) = 7,796.34^{**}$	$\Delta\chi^2(5) = 704.14^{**}$	.06	.88	.87	.04
Model 9	$\chi^2(3,735) = 8,857.83^{**}$	$\Delta\chi^2(5) = 1,765.63^{**}$	.06	.85	.84	.04
Model 10	$\chi^2(3,735) = 8,864.77^{**}$	$\Delta\chi^2(5) = 1,772.57^{**}$	.06	.85	.84	.04
Model 11	$\chi^2(3,735) = 8,841.19^{**}$	$\Delta\chi^2(5) = 1,748.99^{**}$	.06	.85	.84	.04
Model 12	$\chi^2(3,735) = 7,982.78^{**}$	$\Delta\chi^2(5) = 890.58^{**}$	.06	.87	.87	.04
Model 13	$\chi^2(3,735) = 8,015.31^{**}$	$\Delta\chi^2(5) = 923.11^{**}$	.06	.87	.87	.04
Model 14	$\chi^2(3,735) = 7,922.78^{**}$	$\Delta\chi^2(5) = 830.58^{**}$	.06	.88	.87	.04
Model 15	$\chi^2(3,735) = 9,657.65^{**}$	$\Delta\chi^2(5) = 2,565.45^{**}$	.07	.82	.82	.05
Model 16	$\chi^2(3,735) = 9,658.21^{**}$	$\Delta\chi^2(5) = 2,566.01^{**}$	.07	.82	.82	.05
Model 17	$\chi^2(3,735) = 10,095.92^{**}$	$\Delta\chi^2(5) = 3,003.72^{**}$	.07	.81	.80	.05

Note. Model 1 = theoretical model (with six latent factors; i.e., present work, pay, opportunities for promotion, supervision, people on present job/co-workers and job in general) as conceptualized; Model 2 = one latent factor model (with all items of each of the six variables studied grouped in one latent variable); Model 3 = five latent factors model (present work and pay grouped as one latent factor and the other four dimensions studied represented each as other four latent factors); Model 4 = five latent factors model (present work and opportunities for promotion grouped as one latent factor and the other four dimensions studied represented each as other four latent factors); Model 5 = five latent factors model (present work and supervision grouped as one latent factor and the other four dimensions studied represented each as other four latent factors); Model 6 = five latent factors model (present work and people on present job/co-workers grouped as one latent factor and the other four dimensions studied represented each as other four latent factors); Model 7 = five latent factors model (present work and job in general grouped as one latent factor and the other four dimensions studied represented each as other four latent factors); Model 8 = five latent factors model (pay and opportunities for promotion grouped as one latent factor and the other four dimensions studied represented each as other four latent factors); Model 9 = five latent factors model (pay and supervision grouped as one latent factor and the other four dimensions studied represented each as other four latent factors); Model 10 = five latent factors model (pay and people on present job/co-workers grouped as one latent factor and the other four dimensions studied represented each as other four latent factors); Model 11 = five latent factors model (pay and job in general grouped as one latent factor and the other four dimensions studied represented each as other four latent factors); Model 12 = five latent factors model (opportunities for promotion and supervision grouped as one latent factor and the other four dimensions studied represented each as other four latent factors); Model 13 = five latent factors model (opportunities for promotion and people on present job/co-workers grouped as one latent factor and the other four dimensions studied represented each as other four latent factors); Model 14 = five latent factors model (opportunities for promotion and job in general grouped as one latent factor and the other four dimensions studied represented each as other four latent factors); Model 15 = five latent factors model (supervision and people on present job/co-workers grouped as one latent factor and the other four dimensions studied represented each as other four latent factors); Model 16 = five latent factors model (supervision and job in general grouped as one latent factor and the other four dimensions studied represented each as other four latent factors); Model 17 = five latent factors model (people on present job/co-workers and job in general grouped as one latent factor and the other four dimensions studied represented each as other four latent factors). SRMR = standardized root mean square residual; CFI = comparative fit index; TLI = Tucker-Lewis Index; RMSEA = root mean square error of approximation.

** $p < .01$.

and Model 7 was significant— $\Delta\chi^2(5) = 160.16$, $p < .001$ —Model 7 with five latent factors, where the present work dimension of JDI and JIG were grouped as one latent factor and the other four studied dimensions represented each as a further four latent factors, showed an acceptable fit, $\chi^2(3735) = 7252.36$, $p < .001$; SRMR = .05, CFI = .90, TLI = .89 RMSEA =

.04. Regarding these results, it is important to observe the variance shared among the present work dimension of JDI and the JIG scale in the discriminant validity analysis, as well as observing whether these two dimensions correlate differently with the four demographic variables analyzed in the present study (i.e., gender, age, schooling and tenure).

Convergent and Discriminant Validity

Regarding convergent validity, we computed the $\rho_{vc}(\eta)$ index which denotes the proportion of variance in the items explained by the underlying factor. The $\rho_{vc}(\eta)$ values of the present work ($\rho_{vc}(\eta) = 18\%$), pay ($\rho_{vc}(\eta) = 23\%$), promotion ($\rho_{vc}(\eta) = 7\%$), supervision ($\rho_{vc}(\eta) = 15\%$), people in the present job ($\rho_{vc}(\eta) = 26\%$) and job in general ($\rho_{vc}(\eta) = 32\%$) were well below the 50% criterion given by Fornell and Larcker (1981). In terms of discriminant validity, the six latent factors did not share a substantial amount of variance. In this study these factors shared, on average, 28% of the variance (3% to 93% range). Although the variance maximum shared between the present work and job in general is high (93%), it is important to note that the sharing variance range was within the scope of that which was theoretically expected and what was observed in previous studies (e.g., McIntyre & McIntyre, 2010; Russell et al., 2004). Furthermore, pay and people in present job/coworkers share, on average, less variance (3%), compared to present work and supervision (43%), which represents the second highest value of variance shared following the shared variance between present work and job in general (93%). In addition, the variance shared among the other studied alternative models was always less than the variance in items explained by each of the

six factors of the theoretical model, thus satisfying Fornell and Larcker’s (1981) discriminant validity criterion.

According to Podsakoff et al. (2003), two potential sources of method biases are common scale formats that refer to artifactual covariation produced by the use of the same scale format on a questionnaire, as well as item context effects that refer to any influence or interpretation that a respondent might ascribe to an item solely because of its relationship with the other items of an instrument. Therefore, looking at the mean rates of the five JDI dimensions, on average, the participants classified each dimension differently (according to Table 3: present work— $M = 1.99$, $SD = .84$; pay— $M = .87$, $SD = .82$; promotion— $M = .53$, $SD = .59$; supervision— $M = 2.24$, $SD = .79$; people in present job— $M = 2.17$, $SD = .68$). We assumed that, although all five JDI dimensions may represent different facets of the same construct (and as we have seen above, they share a common variance), each one seems to measure a distinct aspect of job satisfaction: On average it was rated differently by all participants in this study, thus, leading us to assume that perhaps each dimension carried a different meaning and importance for each of the participants. Because of the differences observed among the mean rates of all five dimensions of the JDI, the inclusion of the JIG scale will also allow us to determi-

Table 3
Means, Standard Deviations, and Correlations Between Demographic Variables, Five Facets of Job Descriptive Index and the Job in General Scale

Variable	M	SD	r Sample								
			1	2	3	4	5	6	7	8	9
1. Gender	.11 ^a	.31 ^a									
2. Age	38.66	8.87	-.39**								
3. Education level	2.68 ^a	.75 ^a	.09*	-.31**							
4. Tenure	17.84	9.70	-.42**	.94**	-.29**						
5. Present work	1.99	.84	.04	.07	.03	.06					
6. Pay	.87	.82	.30**	-.26**	.14**	-.30**	.07				
7. Promotion	.53	.59	.03	-.13**	.26**	-.11**	.19**	.30**			
8. Supervision	2.24	.79	.03	.08*	.00	.08*	.41**	.07	.13**		
9. People on present job/coworkers	2.17	.68	.07	.05	-.02	.06	.34**	.04	.07*	.42**	
10. Job in general	2.16	.73	.04	.08*	-.01	.06	.82**	.10**	.20**	.45**	.42**

^a Values without statistical significance because it is a dummy variable in the case of gender (0 = Men, 1 = Women) and a categorical variable in the case of educational level (1 = 9th grade, 2 = high school, 3 = graduate degree, 4 = master degree).
* $p < .05$. ** $p < .01$.

nate a global job satisfaction score, where (contrary to the JDI measure) the limitation related to the fact that some important components of job satisfaction could be being omitted or the limitation of including some facets of job satisfaction which, in fact, are not important for some individuals, is overcome.

In addition, and also in order to test convergent and discriminant validity, differential relationships among demographic variables (gender, age, schooling, and tenure) and the five dimensions of the JDI (i.e., present work, pay, promotion, supervision, and people in their present job) as well the JIG scale (i.e., job in general) were examined (see Table 3). We found that gender was significantly correlated with pay ($r = .30, p < .01$, see Table 3), whereby females reported higher satisfaction with this dimension of job satisfaction than males. With regard to age, we observed that the older the military, the lower the satisfaction with pay, $r = -.26, p < .01$ and promotion opportunities, $r = -.13, p < .01$, but the higher the satisfaction with supervision, $r = .08, p < .05$ the higher the levels of satisfaction with the job in general, $r = .08, p < .05$. Schooling was significantly correlated with pay and promotion opportunities: the higher the level of schooling, the higher the satisfaction with pay, $r = .14, p < .01$ and promotion opportunities, $r = .26, p < .01$. With regard to tenure, we found that pay, $r = -.30, p < .01$ and promotion opportunities, $r = -.11, p < .01$ were negatively correlated with this demographic variable (i.e., such as longer tenure, less satisfaction with pay and promotion opportunities), whereas supervision correlated positively, $r = .08, p < .05$. Overall, these results may suggest that the JDI dimensions with a greater extrinsic nature (e.g., pay and promotion opportunities dimension) tend to be the variables that are more related to the demographic characteristics of the militaries. This observation is supported by the fact that the more significant and stronger relationships were found to be in the pay and promotion opportunities relationship with all the studied demographic variables. The only exception is the relationship between gender and promotion opportunities which was found not to be significant ($r = .03, ns$).

Discussion

This study analyzed the psychometric properties of the JDI and JIG scale in a sample of Portuguese militaries in a sergeant or an officer position. In terms of construct validity, the factorial structure found for this sample supported a theoretical model with six factors: present work, pay, promotion opportunities, supervision, people in present job/coworkers and job in general. The Cronbach's alpha coefficients for the six scales showed high internal consistency, with values that were similar to the Portuguese version adapted for health professionals (McIntyre & McIntyre, 2010). As highlighted by the observation of the average values obtained for each JDI scale, the identified levels of job satisfaction with specific facets were also similar to the results found in the research of Parra and Paravic (2002): Militaries were most satisfied with their work at present, peers, and supervisors, and least satisfied with opportunities for promotion and pay. However, LaRocco, Tetrick, and Meder (1989) compared military physicians, dentists, and nurses and verified that the levels of satisfaction with pay, personal growth, supervision, and coworkers were significantly different in these three groups of militaries. For example, for physicians and dentists satisfaction with pay was the lowest, but nurses' satisfaction with personal growth and with supervisors were the lowest. Future studies are required to compare different groups of militaries with different functions or who work in different contexts and to analyze the levels of satisfaction in different work dimensions.

The findings also revealed that demographic characteristics correlated with specific facets of job satisfaction as well as with job in general satisfaction. Considering the differences observed among males and females in satisfaction with the pay dimension of JDI, where females reported higher satisfaction with this dimension of job satisfaction than males, our results seem to be in line with the aforementioned vision that refers to the fact that women have lower expectations than men (Jones, 1997). These lower expectations on the part of women may be due to the fact that the workforce of the Army continues to be predominantly composed of men (Lundquist, 2008; Rashid & Sultan, 2013), which is also reflected by the sample composition of the present study. Thus, as women are a

minority in the Army, they have lower expectations of being treated similarly to men, and if they perceive an equitable treatment, women will have higher satisfaction toward the benefits received.

In general, our results showed that being older, being less educated and having belonged to the army for a longer period of time were associated with lower satisfaction with extrinsic work factors, namely with pay and opportunities for promotion. However, satisfaction with relational work factors (e.g., supervisor) related positively to being older and having been in the army for longer. Future studies need to include job (e.g., workload, control, variety, complexity) and organization (e.g., climate, teamwork) characteristics as the dominant theories of job satisfaction postulate that these variables predict job satisfaction above and beyond the demographic characteristics (Hackman & Oldham, 1980; Parker et al., 2003; Spector, 1997).

Regarding the general level of job satisfaction, assessed through the JIG scale, we found that the older the military, the higher the levels of satisfaction with the job in general. This result is in keeping with the findings of the study conducted by Sanchez et al. (2004) who found the same relationship nature with these two variables. As advanced by these authors, a possible explanation may be due to the fact that “older respondents are likely to have been sufficiently satisfied to continue their service. Those for whom the military proves to be less satisfying probably will not remain and therefore are less likely to be a member of the military at an older age” (p. 31). Furthermore, it is important to note that within the Portuguese context, military service is not mandatory. As such, it is easier to leave the military career whenever one is dissatisfied with his or her job.

Some limitations need to be pointed out regarding the present study. First, test–retest reliability and convergent validity were not analyzed and need to be investigated in the future. The cross-sectional and confidential nature of the study precluded test–retest assessments and the absence of other valid measures of job satisfaction in Portugal compromised the study of convergent validity. Nevertheless, further validation work should test the measure of militaries’ job satisfaction in longitudinal designs and with multiple measures. Second, although we examined differen-

tial relationships between different job satisfaction dimensions and some demographic characteristics, other constructs still need to be considered. Future studies should also analyze the relationship among job and organizational characteristics and each job satisfaction dimension, and also their relationship with the outcomes, namely the well-being, health, and performance of militaries.

In conclusion, despite the limitations presented above, this study indicates that the Portuguese version of the JDI and JIG scale has good psychometric properties and is a useful measure for research and organizational assessment in militaries, namely sergeants and officers. The factor analysis results support the cross-cultural generalizability and multidimensional nature of the job satisfaction construct, whereas the correlate study suggests that there may be a relationship between demographic factors and job satisfaction.

At a time of tight economic restrictions, which have conditioned not only the Portuguese Army but also that of other countries, in terms of having cut back on the benefits that mainly affect sergeants and officers (Roppoli, 2012), the validation of this measure will ensure that the medium and long-term effects of such changes on the job satisfaction of these militaries may be further analyzed. Moreover, by means of the JDI and JIG, it will also be possible to develop future studies to compare the level of job satisfaction of militaries from different countries. For instance, it would be rather interesting to conduct this comparison with countries where, like Portugal, military service is voluntary or with countries where, on the contrary, it is mandatory.

References

- Abedi, L., & Mazruee, H. (2010). Individual factors affecting military forces’ job satisfaction. *Iranian Journal of Military Medicine*, 12, 45–49.
- Arbuckle, J. L. (2003). *Amos 5.0 update to the Amos user’s guide*. Chicago, IL: SmallWaters.
- Balzer, W. K., Kihm, J. A., Smith, P. C., Irwin, J. L., Bachiochi, P. D., Robie, C., . . . Parra, L. F. (1997). *Users’ manual for the Job Descriptive Index and the Job in General Scales*. Bowling Green, OH: Bowling Green State University.
- Bass, B. M., Avolio, B. J., Jung, D. I., & Berson, Y. (2003). Predicting unit performance by assessing transformational and transactional leadership.

- Journal of Applied Psychology*, 88, 207–218. <http://dx.doi.org/10.1037/0021-9010.88.2.207>
- Borman, W. C., & Bleda, P. R. (1978). *Measuring motivation and job satisfaction in a military context*. U. S. Army Research Institute for the Behavioral and Social Sciences. Technical Paper 309.
- Castanheira, F. (2014). Job Description Index. In A. C. Michalos (Ed.), *Encyclopedia of quality of life and well-being research* (pp. 3439–3441). Dordrecht, The Netherlands: Springer.
- Donovan, M. A., Drasgow, F., & Probst, T. M. (2000). Does computerizing paper-and-pencil job attitude scales make a difference? New IRT analyses offer insight. *Journal of Applied Psychology*, 85, 305–313.
- Drasgow, F., & Kanfer, R. (1985). Equivalence of psychological measurement in heterogeneous populations. *Journal of Applied Psychology*, 70, 662–680. <http://dx.doi.org/10.1037/0021-9010.70.4.662>
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18, 39–50. <http://dx.doi.org/10.2307/3151312>
- Gurbuz, S. (2009). Some possible antecedents of military personnel organizational citizenship behavior. *Military Psychology*, 21, 200–215. <http://dx.doi.org/10.1080/08995600802574621>
- Hackman, J. R., & Oldham, G. (1980). *Work redesign*. Reading, MA: Addison Wesley.
- Harrison, D. A., Newman, D. A., & Roth, P. L. (2006). How important are job attitudes? Meta-analytic comparisons of integrative behavioral outcomes and times sequences. *Academy of Management Journal*, 49, 305–325. <http://dx.doi.org/10.5465/AMJ.2006.20786077>
- Hyun, S., & Oh, H. (2011). Reexamination of Herzberg's two-factor theory of motivation in the Korean army foodservice operations. *Journal of Foodservice Business Research*, 14, 100–121. <http://dx.doi.org/10.1080/15378020.2011.574532>
- Ironson, G. H., Smith, P. C., Brannick, M. T., Gibson, W. M., & Paul, K. B. (1989). Construction of a Job in General Scale: A comparison of global, composite and specific measures. *Journal of Applied Psychology*, 74, 1–8. <http://dx.doi.org/10.1037/0021-9010.74.2.193>
- Jones, J. T. (1997). *Gender differences in job satisfaction in the U.S. Army* (Study Report 97–04). Alexandria, VA: U. S. Army Research Institute for the Behavioral and Social Sciences.
- Jung, K., Dalessio, A., & Johnson, S. (1986). Stability of the factor structure of the Job Descriptive Index. *Academy of Management Journal*, 29, 609–616. <http://dx.doi.org/10.2307/256227>
- Kantor, J. (1991). The effects of computer administration and identification on the Job Descriptive Index (JDI). *Journal of Business and Psychology*, 5, 309–323. <http://dx.doi.org/10.1007/BF01017705>
- Kinicki, A. J., Mckee-Ryan, F. M., Schriesheim, C. A., & Carson, K. P. (2002). Assessing the construct validity of the job descriptive index: A review and meta-analysis. *Journal of Applied Psychology*, 87, 14–32. <http://dx.doi.org/10.1037/0021-9010.87.1.14>
- Kreitner, R., & Kinicki, A. (2008). *Organizational behavior* (8th ed.). New York, NY: McGraw-Hill.
- LaRocco, J. M., Tetrick, L. E., & Meder, D. (1989). Differences in perceptions of work environment conditions, job attitudes, and health beliefs among military physicians, dentists, and nurses. *Military Psychology*, 1, 135–151. http://dx.doi.org/10.1207/s15327876mp0103_2
- LePine, J. A., Erez, A., & Johnson, D. E. (2002). The nature and dimensionality of organizational citizenship behavior: A critical review and meta-analysis. *Journal of Applied Psychology*, 87, 52–65. <http://dx.doi.org/10.1037/0021-9010.87.1.52>
- Limbert, C. (2004). Psychological well-being and job satisfaction amongst military personnel on unaccompanied tours: The impact of perceived social support and coping strategies. *Military Psychology*, 16, 2004, 37–51. http://dx.doi.org/10.1207/s15327876mp1601_3
- Lundquist, J. H. (2008). Ethnic and gender satisfaction in the military: The effect of a meritocratic institution. *American Sociological Review*, 73, 477–496. <http://dx.doi.org/10.1177/000312240807300306>
- McIntyre, S. E., & McIntyre, T. M. (2010). Measuring job satisfaction in Portuguese health professionals: Correlates and validation of the Job Descriptive Index and the Job in General Scale. *International Journal of Selection and Assessment*, 18, 425–431. <http://dx.doi.org/10.1111/j.1468-2389.2010.00524.x>
- Motowidlo, S. J., Dowell, B. E., Hopp, M. A., Borman, W. C., Johnson, P. D., & Dunnette, M. D. (1976). *Motivation, satisfaction, and morale in army careers: A review of theory and measurement* (Tech. Rep. No. 76-A7). Minneapolis, MN: U. S. Army Research Institute for the Behavioral and Social Sciences.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York, NY: McGraw-Hill.
- Nystedt, L., Sjöberg, A., & Hagglund, G. (1999). Discriminant validation of measures of organizational commitment, job involvement, and job satisfaction among Swedish army officers. *Scandinavian Journal of Psychology*, 40, 49–55. <http://dx.doi.org/10.1111/1467-9450.00097>
- Parker, C. P., Baltes, B. B., Young, S. A., Huff, J. W., Altmann, R. A., Lacost, H. A., & Roberts, J. E.

- (2003). Relationships between psychological climate perceptions and work outcomes: A meta-analytic review. *Journal of Organizational Behavior*, 24, 389–416. <http://dx.doi.org/10.1002/job.198>
- Parra, S., & Paravic, T. (2002). Satisfacción laboral en enfermeras/os que trabajan en el sistema de atención médica de urgencia (SAMU). [Job Satisfaction of nurses working at the emergency medical assistance service (SAMU)]. *Ciencia y Enfermería*, 8, 37–48.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88, 879–903. <http://dx.doi.org/10.1037/0021-9010.88.5.879>
- Prevosto, P. (2001). The effect of “mentored” relationships on satisfaction and intent to stay of company-grade U.S. Army Reserve nurses. *Military Medicine*, 166, 21–26.
- Rashid, S., & Sultan, S. (2013). Military officers rank: Determining their job satisfaction, perceived stress and perceived social support. *Journal of Asian Development Studies*, 2, 146–150.
- Reiner, M. D. (1998). *The determinants of job satisfaction among United States air force security police*. Lincoln: University of Nebraska.
- Robbins, S. P., Odendaal, A., & Roodt, G. (2003). *Organisational behaviour* (9th ed.). Cape Town, South Africa: Prentice Hall International.
- Rodgers, J. L., & Nicewander, W. A. (1988). Thirteen ways to look at the correlation coefficient. *The American Statistician*, 42, 59–66. <http://dx.doi.org/10.2307/2685263>
- Roppoli, S. A. (2012). *Military benefits that retain mid-career army officers*. Leavenworth, KS: U. S. Army Command and General Staff College.
- Russell, S. S., Spitzmuller, C., Lin, L. F., Stanton, J. M., Smith, P. C., & Ironson, G. H. (2004). Shorter can also be better: The abridged job in general scale. *Educational and Psychological Measurement*, 64, 878–893. <http://dx.doi.org/10.1177/0013164404264841>
- Sanchez, R. P., Bray, R. M., Vincus, A. A., & Bann, C. M. (2004). Predictors of job satisfaction among active duty and reserve/guard personnel in the U.S. military. *Military Psychology*, 16, 19–35. http://dx.doi.org/10.1207/s15327876mp1601_2
- Smith, P. C., Kendall, L. M., & Hulin, C. L. (1969). *The measurement of satisfaction in work and retirement*. Chicago, IL: Rand McNally.
- Spector, P. E. (1997). *Job satisfaction: Application, assessment, cause and consequences*. London: Sage. <http://dx.doi.org/10.4135/9781452231549>
- Stanton, J. M., Bachiochi, P. D., Robie, C., Perez, L. M., & Smith, P. C. (2002). Revising the JDI work satisfaction subscale: Insights into stress and control. *Educational and Psychological Measurement*, 62, 877–895. <http://dx.doi.org/10.1177/001316402236883>
- Stanton, J. M., Sinar, E. F., Balzer, W. K., Julian, A. M., Thoresen, P., Aziz, S., . . . Smith, P. C. (2001). Development of a compact measure of job satisfaction: The abridged Job Descriptive Index. *Educational and Psychological Measurement*, 61, 1104–1122.
- Tett, R. P., & Meyer, J. P. (1993). Job satisfaction, organizational commitment, turnover intention, and turnover: Path analyses based on meta-analytic findings. *Personnel Psychology*, 46, 259–293. <http://dx.doi.org/10.1111/j.1744-6570.1993.tb00874.x>
- Whitman, D. S., Van Rooy, D. L., & Viswesvaran, C. (2010). Satisfaction, citizenship behavior, and performance in work units: A meta-analysis of collective construct relations. *Personnel Psychology*, 63, 41–81. <http://dx.doi.org/10.1111/j.1744-6570.2009.01162.x>
- Yang, F.-H., Wu, M., Chang, C.-C., & Chien, Y. (2011). Elucidating the relationships among transformational leadership, job satisfaction, commitment foci and commitment bases in the public sector. *Public Personnel Management*, 40, 265–278.

Received June 18, 2014

Revision received November 7, 2014

Accepted November 26, 2014 ■