

Job Descriptive Index (JDI): Reliability and validity study in Greece

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Abstract

The purpose of the present study was the translation of the Job Descriptive Index (JDI) and testing it for reliability and validity, as in Greece there is not a valid and reliable measurement tool for job satisfaction (Aziri, 2011; Greenberk & Baron, 2013; Smith et al., 1987; Smith, Kendall, & Hulin 1969; Spector, 2008; Drakou, Kampitsi, & Helen, 1997). The sample was random, with the requirements being employees with Greek citizenship and not self-employed. The sample consisted of 323 people, with ages ranging from 18 to 60 years old ($M = 35.56$, $SD = 9.18$). 47.3% were male and 52.7% were women. Participants completed the JDI along with the Employee Satisfaction Inventory (ESI). Results indicated a strong correlation ($p = 0.79$, $DF = 321$, $p < 0.001$) between these two questionnaires. Factor analysis revealed that JDI follows almost the same factor structure as in the American population. Although validity and reliability were established in Greece, future research should examine in detail the influence of demographic and emotional-personality factors that may shape the responses in JDI across different cultures.

Introduction

In recent years job satisfaction amongst employees has been the subject of extensive study by many researchers (Aydogdu & Asikgil, 2011; Belias, Koustelios, Vairaktarakis, & Sdrolias, 2015; Spector, 1997). First, it should be mentioned that there are several definitions of “job satisfaction” (Agarwal, 2016; Alam, 2012; Aziri, 2011; Belias, Koustelios, Sdrolias, Koutiva, Zournatzi, & Varsanis, 2014; Drakou, Kampitsi, Charachousou, & Glynou, 1997; Giannouli, 2017a; Kosteas, 2011; Rast & Tourani, 2012; Vakola & Nicholaou, 2012). Locke (1976) explained job satisfaction as a positive emotional state experienced by an individual on his work, after job evaluation.

Later, in 1980, Francis and Milbourn defined job satisfaction as the result of the employee's perception of his work, but also within various parameters (Francis & Milbourn, 1980; Vakola & Nicholaou, 2012). Furthermore, according to Kohler (1988), job satisfaction is defined as a representative notion for the attitude of the person, including his feelings about the specific parameters of his work, which is the result of the satisfaction of these aspects (e.g. position creativity, autonomy, opportunities for further education, difficulty and volume of work, salary, advancement opportunity, supervision, and colleagues) (Kohler, 1988; Drakou et al., 1997).

Finally, job satisfaction could be defined as the emotional response of the employee towards the tasks and the natural and social environment of the work (Al-zu, 2010; Drakou et al., 1997; Wood, Wallace, Zeffane, Schermerhorn, Hurn, & Osborn, 1998). Summarized, it may be said that job satisfaction describes the emotions of a person reflecting how much he likes his job

and can be studied as a general term “global approach,” or to study the individual characteristics which influence job satisfaction “facet approach.” However, it has been shown in the past that individual factors are related to and affect the overall job satisfaction (Aziri, 2011; Gangai & Agrawal, 2015; McClelland, 1971; Najafi, Noruzi, Azar, Nazari-Shirkouhi, & Dalvand, 2011; Spector, 2008; Zhu, 2013).

Theories

Because of the importance of job satisfaction for an organization, many theories have tried to investigate and illustrate the factors affecting it. Some of these could be grouped in process theories and content theories or satisfaction of needs (Rast & Tourani, 2012; Stamps, 1997).

The process theories emphasize how personality characteristics of an individual affect the professional behavior and thus job satisfaction. The personality characteristics of individuals, according to these theories, play a major role in both the employee behavior in the workplace and in personal life. Typical process theories are the “Expectancy Theory” (Vroom 1964), the “Equity Theory” (Adams 1963), and the “Goal Setting Theory” (Locke 1968) (Rast & Tourani, 2012; Spector, 2008; Stamps, 1997; Vakola & Nicholaou, 2012).

The content theories, or needs satisfaction, are based on the feeling of joy which the employee feels when he has fulfilled his professional goal, the pleasant feeling that covered his desire and his need. An important role in these theories is played by the mental processes a person utilizes for decision making (Gruneberg, 1979; Luthans, 2006; Rast & Tourani, 2012). Important theories according to meta-analysis of Rast and Tourani (2012) and Spector (2008) are the “Need Hierarchy Theory” (Maslow, 1943), the “Two-Factor Theory” (Herzberg, 1959), the “Achievement Theory” (McClelland, 1958), the “X and Y Theory” (McGregor, 1960), and the “Existence, Relatedness, and Growth Theory” (Alderfer, 1969).

One of these theories which must be explained further is Herzberg’s Two-Factor Theory, in which different factors are related to job satisfaction and to dissatisfaction. In summary, internal factors such as the nature and responsibilities of the job lead to job satisfaction, while external factors, such as money and working environment, are associated with dissatisfaction (Aziri, 2011; Greenberk & Baron, 2013; Judge, Parker, Colbert, Heller, & Ilies, 2001; Shinde & Durgawale, 2014; Platsidou & Salman, 2012; Vakola & Nicholaou, 2012).

However, there are more recent theories which interpret job satisfaction in a different way. One of these theories is “Social Information Processing” (Judge et al., 2001), in which the person has not formed an opinion about his work until the time he is asked about it, as the concept of job satisfaction is socially constructed. Because of this, the employee’s response is based on external sources, such as colleagues' comments (Greenberk & Baron, 2013; Vakola & Nicholaou, 2012; Drakou et al., 1997).

Worth mentioning is “The Job Characteristics Model,” (Hackman & Oldhan, 1980), which is confirmed by research data. In this theory, when the job provides and ensures “the identity of work” (the person is able to understand the result of his work), “the importance of the work” (whether the person is aware of the extent and in which way his work affects his life and the life of other people), “diversity skills” (how many skills a person needs to effectively do his work), “autonomy” (freedom and independence of decision making in the job) and “feedback” (if the employee is informed of the result in relation to his work), the employee is more satisfied (Drakou et al., 1997; Fried & Ferris, 1987; Hackman & Oldhan, 1980; Judge et al., 2001; Spector, 2008; Vakola & Nicholaou, 2012).

Finally, the “Dispositional Model of Job Satisfaction” is directly related to individual differences and genetic factors (Drakou et al., 1997; Greenberk & Baron, 2013; Vakola & Nicholaou, 2012). It is a relatively modern theory, which points out that some people are satisfied more easily and are positively predisposed towards their profession, and some people

are more difficult to satisfy and complain more easily. Indeed, it is noted that neuroticism, affability, internal locus of control, and high self-esteem are associated with more job satisfaction (Greenberk & Baron, 2013; Judge et al., 2001; Vakola & Nicholaou, 2012).

Factors which are related to the job satisfaction

Many factors, including environmental and personal factors, can affect job satisfaction (Giannikis & Mihail, 2011; Spector, 2008; Vakola & Nicholaou, 2012). Environmental factors include the job characteristics (e.g. stability), the salary, fairness in the workplace, and ergonomics (Alam, 2012; de Graaf- Zijl, 2012; Lottrup, Stigsdotter, Meilby, & Claudi, 2015). Personal factors include a person's personality, gender, age, and social differences (Agarwal, 2016; Aydogdu & Asikgil, 2011; Belias et al., 2015; Bell, Lee, & Yeung, 2010; Bushra, Usman, & Naveed, 2011; Judge et al., 2001; Rast & Tourani, 2012; Parvin & Nurul, 2011; Reisel, Probst, Chia, Maloles, & König, 2010). However, recent studies have shown that additional factors, such as education level, self-awareness, empathy, emotional intelligence, and social skills, have a positive correlation with job satisfaction (Belias et al., 2014; Brunetto, Teo, Shacklock, & Farr-Wharton, 2012; Bushra et al., 2011; Ealias, & George, 2012; Moradi, Honari, Jabari, & Azarpira, 2012; Ouyang, Sang, Li, & Peng, 2015). A recent research study by Drydakis (2015) which took place in Greece adds the factor of sexual orientation to the factors that may affect job satisfaction. It should be noted that the sample consisted only of people from Athens and did not investigate other factors, which means that the results could be associated with other parameters.

Job characteristics refer to the nature and responsibilities of the job. As mentioned above, Hackman and Oldhan (1980) reported 5 characteristics ("skill variety," "task identity," "task significance," "autonomy," and "feedback") which according to studies, such as the meta-analysis by Fried and Ferris (1987), obtained correlations with job satisfaction ranging between .20 (work identity) to .45 (meaning of work).

It should be noted that the studies used in the meta-analysis by Fried and Ferris (1987) had limitations. According to Spector (2008), the studies, which were used in the meta-analysis, based their results on questionnaires completed by the employees themselves. This view is supported by other studies, e.g., Spector and Jex (1991), which used different methodologies and their results varied from previous studies. The culture of each country plays a crucial role in all of these studies. Studies with the same methodology in the United States of America (USA), in Western countries, and in some developed cities of Asia (Hong Kong) agree on the relationship between characteristics of work and job satisfaction, but similar results are not obtained in countries such as Malaysia (Spector, 2008).

There are many views regarding the relation of culture and national differences to job satisfaction. Many companies outside of Greece have organizations and factories where local employees work. These companies respect the diversity of each population and as a result there are no differences in job satisfaction in relation to this factor; although, there is the possibility that culture influences job satisfaction when there are differences between colleagues and not in relation to the organization (Bhandari, Xiao, & Belan, 2015; Brush et al., 1987; Greenhaus, Parasuraman, & Wormley, 1990; Hauff, Richter, & Tressin, 2015; Somers & Birnbaum, 2001; Onorato & Zhu, 2015; Spector, 2008).

According to books and to the expressed opinions of many employees, salary is associated with job satisfaction (Jehanzeb, Rasheed, Rasheed, & Aamir, 2012; Spector, 2008). Nevertheless, many surveys show that increased salary does not mean greater job satisfaction, because salary is mainly correlated and influenced by perceived justice regarding effort at the workplace, and because of the individual perception differences regarding monetary worth (Giannouli, 2017a). For this reason a worker with a small salary can be satisfied, while the opposite may occur with a highly-paid employee. Thus, employees are more or less satisfied depending mainly on their perceptions of their working efforts' monetary worth (Brasher &

Chen, 1999; Cohen-Charash & Spector, 2001; Malik, Nawab, Naeem, & Danish, 2010; Rice, Phillips, & McFarlin, 1990; Williams, McDaniel, & Nguyen, 2006).

Equity in the workplace is closely linked to satisfaction and is directly correlated with salary as mentioned above, the rewards, the procedures (e.g. promotions) within an organization, with their managers, and with the job requirements (Cohen-Charash & Spector, 2001; Kosteas, 2011; Mudor & Phadett, 2011; Mung, May-Chiun, Kwang Sing, & Ayob, 2011; Nadiri & Tanova, 2010; Onorato & Zhu, 2015; Spector, 2008).

Personality plays a crucial role in job satisfaction (Jones, Hill, Henn, Jones, Hill, & Henn, 2015; Spector, 2008). Several studies have concluded that negative emotionality/affectivity, which is associated with anxiety and depression, and describes someone who has a tendency to experience negative emotions, extends to the workplace (Connolly & Viswesvaran, 2000; Spector, 2008; Watson, Pennebaker, & Folger, 1987). The personality trait “locus of control,” featuring whether one believes that the successes or failures are his achievements or because of luck or misfortune, is associated with job satisfaction. People who possess an internal locus of control (“internals”) tend to be more satisfied with their jobs than individuals who possess an external locus of control (Lambrou, Kontodimopoulos, & Niakas, 2010; Moyle & Parkes, 1999; Spector, 2008; Watson et al., 1987).

Gender does not seem to play a crucial role as a factor impacting job satisfaction. Several studies have found differences in job positions between women and men, but they did not find statistically significant differences in relation to job satisfaction (Brush, Moch, & Pooyan, 1987; Witt & Nye, 1992; Greenhaus et al., 1990).

Another factor which was reported to affect job satisfaction is age. Studies have shown that older people are usually more satisfied with their jobs, while the lowest levels of satisfaction were observed in people between the ages of 26 and 31 years (Brush et al, 1987; Kooij, Jansen, Dikkers, & De Lange, 2010; Siu, Lu, & Cooper, 1999; Riza, Ganzach, & Liu, 2015). The cause of these differences is not clear. Some studies noted that older people have different values and adapt more easily to their jobs. On the other hand, studies noted that as a consequence of their age, they have better working conditions and better rewards which could contribute to greater job satisfaction (Birdi, Warr, & Oswald, 1995; Clark, Oswald, & Warr, 1996; Klassen & Chiu, 2010; Lorber & Savic, 2012; Spector, 2008; Warr, 2001; Zacher & Griffin, 2015).

The above-mentioned theories try to correlate environmental and personal factors with job satisfaction individually. There is the “person-job fit approach”, which refers to the match between the worker and the job. Studies examined this theory and concluded that job satisfaction increases when the employee receives from his job everything he demands (Kristof, 1996; Loher, Noe, Moeller, & Fitzgerald, 1985; Spector, 2008; Verquer, Beehr, & Wagner, 2003).

Consequences of job satisfaction

The importance of job satisfaction, beyond the importance for each person separately, is clear by its relationship with other organizational behaviors related to the “health” of each organization. More specifically, job satisfaction is related to employee performance, withdrawals or employee absences, dedication, disinterest, stress-burnout, workers’ health/welfare, and their general life satisfaction (Agarwal, 2016; Al-zu, 2010; Aydogdu & Asikgil, 2011; Aziri, 2011; Giannouli, 2017b; Greenberk & Baron, 2013; Norizan, 2012; Olatunde & Odusanya, 2015; Spector, 2008; Tschuur, Raptis, Morf, Staffelbach, Manser, & Clavien, 2014; Vakola & Nicholaou, 2012).

Although this is the general idea, there have been many studies (Arocas & Morley, 2015; Bowling, 2010; Callaghan & Coldwell, 2014; Danish & Usman, 2010; Judge, Thoresen, Bono, & Patton 2001; Iaffaldano & Muchinsky, 1985) that support the view that employees who are satisfied with their jobs are working harder, so they are more productive. However, there is another explanation for that, which is supported by the research of Jacobs and Solomon (1977),

and mentioned by Spector (2008) and by Vakola and Nicholaou (2012). These studies report that employees who work hard are recognized and rewarded for their performance. Therefore, this recognition and subsequent reward leads to job satisfaction. The view that the relationship between job satisfaction and productivity are impacted by other factors requires more investigation according to several researchers (Aziri, 2011; Imran, Majeed, & Ayub, 2015).

The correlation between job satisfaction and withdrawal of workers is an old research topic, and several studies have proven that there is a correlation between these two. Unhappy employees are more likely to quit (Alam, 2012; Chen, Ployhart, Thomas, Anderson, & Bliese, 2011; Crampton & Wagner, 1994; De Gieter, Hofmans, & Pepermans, 2011; Dicter, Roznowski, & Harrison, 1996; Hussein, Moriarty, Stevens, Sharpe, & Manthorpe, 2014; Mudor & Phadett, 2011; Spector, 2008; Yücel, 2012). On the other hand the link between job satisfaction and absences from work despite being considered as common sense has not yet been proven. More specifically, previous research showed a small correlation between the two concepts (Farrell & Stamm, 1988; Georgellis, Lange, & Tabvuma, 2012; Tharenou, 1993). This view is supported by Kohler and Mathieu (1993), indicating that employee absences can occur because of an illness, a family problem, some personal work, or fatigue. As shown by studies, (De Gieter, Hofmans, & Pepermans, 2011; Gangai & Agrawal, 2015; Spector, 2008), the link between job satisfaction and absences is not causal.

In a plethora of studies, job satisfaction is indicated to be the basis for building dedication and conscientious behavior within a company (Aminikhah, Khaneghah, & Naghdian, 2016; Aziri, 2011; Bushra et al., 2011; Danish & Usman, 2010; Eslami & Gharakhani, 2012; Lepine, Erez, & Johnson, 2002; Malik et al., 2010; Paine & Bachrach, 2000; Podsakoff, Mackenzie, Williams, & Anderson, 1991). In this line, it has been found that employees who are satisfied with their company tend to be involved more in their job, take the initiative without being ordered to do so, and will try to offer more to the organization for the promotion of the company (Alarcon & Edwards, 2011; Edmans, 2012; Judge et al., 2001; Vakola & Nicholaou, 2012).

Finally, it has been shown that job satisfaction is linked to the overall satisfaction of a person's life. This theory holds that satisfaction or dissatisfaction in a sector in one's life, positively or negatively, affects other areas of life (Adams, King, & King, 1996; Lance, Lautenshlager, Sloan, & Varca, 1989; Senter, Morgan, Serna-McDonald, & Bewley, 2010; Tong, Tak, & Wong, 2015; Spector, 2008).

Measuring job satisfaction

For all these reasons, there has been great interest in the way in which one can investigate whether employees are satisfied with their job or not. The evaluation of job satisfaction might be by asking someone if he likes his work or not, or with an interview or a questionnaire. In a few cases, this information is used by the manager of the employee. In most cases, a questionnaire is used, which the worker fills in by himself, as he knows better than anyone how he feels about his work; it protects the anonymity, and the employee expresses opinions more freely in less time (Greenberk & Baron, 2013; Salim & Haq, 2015; Spector, 2008).

One of the most widespread and popular questionnaires is the “*Job Descriptive Index*” (*JDI*). Created by Smith et al (1987), it supports the theory of Smith, Kendall, and Hulin (1969). Smith et al in 1969 wanted to measure job satisfaction using words, mainly adjectives, to describe the employee's feelings about his job. They, following their own surveys and statistical analysis (such as factor analysis,) also added other words in order to create a questionnaire that could assess the factors which affect job satisfaction. The *JDI* is the most valid measure of job satisfaction and contains 72 questions. It measures five factors, the job in general (e.g. “my work is good”), how satisfied the employee is with the supervisor's behaviour (e.g. “bad”), salary (e.g. “my salary is less than what I deserve”), how satisfied with his colleagues he is (e.g., “my colleagues are responsible”), and opportunities for promotions (e.g. “very limited”). The

questions are descriptive, and answers are given to three-point Likert- scale (Aziri, 2011; Greenberk & Baron, 2013; Spector, 2008; Drakou et al., 1997).

Later they created the *Job in General Index (JIG)* as complementary to *JDI*, which evaluates overall satisfaction and contains 18 general questions. The difference with the *JDI* is that it evaluates some aspects of the profession that did not exist before, such as “how satisfied the employee is by customers”. *JIG* consists of a combination of descriptive and assessment questions (the evaluation questions show the best overall satisfaction and have higher reliability as predictors). The questions of *JIG* are associated with long term feelings, while *JDI* is associated with short-term feelings (“*In general, I like to work here*”) (Greenberk & Baron, 2013; Spector, 2008; Drakou et al., 1997).

JIG was established as complementary to *JDI* and relates to long-term emotions and was designed to measure the overall satisfaction. According to the literature, it contains assessment questions (words) which have higher reliability as predictors of behaviour. Its design is similar to that of *JDI*, as well as the response method. Statistical characteristics of *JIG* are reported in Table 1 (Michelle et al., 2009; Smith et al., 1969; Drakou et al., 1997).

Table 1

Correlations between aspects of JDI.

JDI Factors	Cronbach's Coefficient Alpha	Work	Pay	Promotion	Supervision	Co-workers	JIG
Work	.90	1.00					
Pay	.88	0.34	1.00				
Promotion	.91	0.37	0.31	1.00			
Supervision	.92	0.42	0.31	0.41	1.00		
Co-Workers	.92	0.47	0.31	0.26	0.47	1.00	
Job In General	.92	0.69	0.45	0.42	0.58	0.54	1.00

Note. All correlations are significant at the 0.01 level (2-tailed).

Another widely known questionnaire is the “*Minnesota Satisfaction Questionnaire (MSQ)*”, which can be encountered in two forms. Extensive, containing 100 questions, assesses 20 different dimensions of work and is associated with 20 needs of work. The short form contains only 20 questions, one for each dimension of the profession. The *MSQ* counts three aspects of job satisfaction: internal satisfaction (i.e. the nature of work and how one feels about it), external gratification (i.e. working conditions, salary, etc.), and overall satisfaction. The short form can measure only one of the above three factors. These two forms are five-point Likert-scale, and higher scores indicate greater job satisfaction (Aziri, 2011; Greenberk & Baron, 2013; Olatunde & Odusanya, 2015; Spector, 2008; Drakou et al., 1997).

The “*Employee Satisfaction Inventory (ESI)*” is another measurement tool for job satisfaction created by Koustelios and Mpagiati (1997). Based on the theory of Smith et al, (1969) and Weiss, Dawis, England, and Lofquist (1967), it evaluates a five-point Likert scale on six working parameters (four of them are the same as those of *JDI*): work (e.g., “My job is worthwhile”), salary (e.g., “I get paid as much as I need for the job I offer”), promotion (e.g., “the prospects for promotion are very limited”), supervision (e.g., “my supervisor is rude”), working conditions (e.g., “the space of my work is pleasant”), and the organization as a whole (e.g., “the service takes care of its employees”). *ESI*, despite being created in 1997, has not been

tested for validity and the Cronbach α for some questions were quite low (Belias et al., 2014; Belias et al., 2015; Platsidou, 2010; Drakou et al., 1997).

Table 2

Reliability of ESI questionnaire.

Variables	Cronbach 's alpha
Nature of work	0.70
Salary	0.81
Opportunities for promotion	0.81
Manager	0.70
Work environment	0.70
The organization as a whole	0.75
Overall satisfaction	0.82

In conclusion, job satisfaction directly affects all organizations, and it is important to assess it quite often, by trained personnel, using valid and reliable tools. The purpose of this research is the translation into Greek of the *JDI* questionnaire, and testing it for its reliability and validity, as in Greece there does not exist a valid and reliable measurement tool of job satisfaction.

Methodology

Participants. The sample consisted of 323 individuals, between the ages of 18 and 60 years old. The mean age was 35.56 (SD = 9.18). 47.3% were male and 52.7% were women. In relation to the educational level, 1.6% were graduates of elementary school, 1.3% were graduates of the first three classes of high school, 19.3% were graduates of all high school classes, 7.2% were holders of a postgraduate degree, 1.3% were holders of Ph.D., 4.9% were Vocational graduates, and 4.9% graduated from a Technical school. Regarding residence and professional employment, 12.7% were from Southern Greece, 41.8% from Northern Greece, 10.5% from Eastern Greece, 7.7% from Western Greece, and 27.2% from Central Greece. 87.9% were employed in the private sector and 12.1% in the public sector.

The sample met the requirement to be workers with Greek citizenship that were not self-employed. The nationality requirement was because the reliability and validity testing of the questionnaire was in relation to Greece. Therefore, people from other countries may have a different culture or would evaluate their own work in a different way, which would affect the objectivity of the survey analysis. Also, people who were self-employed were excluded from the survey because they cannot respond to questions about salary or supervision because they supervise themselves, and are not paid with a salary.

Questionnaires. Demographic data was collected simultaneously with the completion of the questionnaires, following the procedure of relevant prior research in Greece (Giannouli & Stoyanova, 2014), from May to September 2016. After the information and consent forms, there was a page in which participants completed their age, sex, education level, residence, and the sector of their employment (Annex A).

Job satisfaction in general is defined as the feelings of workers in relation to their work. *JDI* and *ESI* are self-completed questionnaires that assess job satisfaction (Aziri, 2011; Greenberk & Baron, 2013; Michelle et al., 2009; Smith et al., 1987; Spector, 2008; Drakou et al., 1997).

In this study, the researchers used the *JDI* (2009 revision), which contains the *JIG*. The *JDI* measures job satisfaction in relation to different aspects of work, such as salary, promotion, supervision, and colleagues. The *JIG* measures job satisfaction in general (Michelle et al., 2009; Smith et al., 1987; Smith et al., 1969; Drakou et al., 1997).

The revision of *JDI* happened in 1980 when 11 factors from four groups were replaced (the group which referred to promotions remained the same). At that time, the *JIG* was added to the *JDI*, as the group “*Job in General*” (Balzer, Smith, Kravitz, Lovell, Paul, Reilly, & Reilly, 1990). The number of words in each group remained the same. Studies, such as those of Paul, Kravitz, Balzer, and Smith (1990) and Balzer, Parra, Ployhart, Shepherd, and Smith (1995), noted the balance between the previous and the new form (Kinicki, Mckee-Ryan, Schriesheim, & Carson, 2002).

Both *JDI* and *JIG* consist of groups of words that describe different aspects of work or the work in general. The *JDI* contains 72 words grouped into five groups. The *JIG* consists of 18 words which create one group. Therefore, the revised version of *JDI*, which was translated and used in this study consists of 90 words (six groups). There are four groups of 18 words and two groups of nine words. The words are the same as those of the American form of the questionnaire, which were used by the creators. For every word, the person marks “N” for yes, “O” for no, and “?” if he/she cannot decide. “N” means that the word describes the employment situation and expresses the person. “O” means that the word does not describe the situation and does not express the individual, while “?” means that the person cannot decide. The answer mode is the same as the way of the creators (Michelle et al., 2009; Drakou et al., 1997).

JDI has the advantage of measuring specific aspects of work and not general job satisfaction. The words that describe situations are quite simple, so a high level of education it is not needed. Another positive aspect of *JDI* is that it does not directly ask the worker how satisfied he/she is with his/her job, but indirectly asks him to describe it. In that way, the employee perceives that questions have centered on his work and not himself. Finally, in relation to the statistical characteristics of the tool (reliability and validity) the scores are high (Michelle et al., 2009; Smith et al., 1969).

Procedure. First of all, the study was approved by the ethics board of the College in Greece. Then the researcher, in collaboration with the supervisor, obtained licenses for the use of these questionnaires by each officer.

Prior to participation in research, workers were informed individually, both verbally and in writing, about the ethical issues and research purposes as well as their rights to withdraw, their anonymity, etc., according to the British Psychological Association (BPS) guidelines for research.

After obtaining all licenses, the translation process of *JDI* started with the method forward-translations and back-translations. It was originally translated from English to Greek by a Greek lawyer who is qualified to translate from English into Greek and vice-versa. Then, it was certified for the interpretation of the words and the accurate rendition of the meaning by a Greek psychology professor. She translated the questionnaire again from Greek into English, as she is qualified to do so.

After the completion of translations, the questionnaires were printed and the pilot study was conducted. The aim of the pilot study was to determine the ease of completing the questionnaire and potential problems. The pilot study resulted in no problems related to the understanding of words or in the completion time, etc.. The main study lasted two months. The questionnaires were distributed by the same researcher and almost all cases were completed at

the same time. It should be noted that the investigator did not know the sample subjects. In cases of people from remote areas, questionnaires were mailed at the researcher's expense, since there had been a telephone conversation where the necessary information and explanations were given.

After the collection of the questionnaires, scoring followed. The scoring was conducted according to the manual for the American version of *JDI*. The same manual provided guidelines for which questionnaires were considered valid and which were considered invalid. Also, they were checked for possible cases where some individuals answered only "N," only "O," or only "?," which were excluded. Here it should be noted that the invalid questionnaires, which were neither scored nor transferred to SPSS, consisted of only five questionnaires.

The same tactic was followed in relation to *ESI* with the researchers following the authors' guidelines for scoring and evaluation.

Results

Cronbach's alpha *JDI* and *ESI*. Cronbach's alpha score of the 90 questions of the questionnaire *JDI* was 0.95, which indicates that the questionnaire has good reliability. An alpha value less than 0.70 is considered satisfactory. All the factors (words) of the questionnaire attained, good Cronbach alpha scores ranging from 0.950 up to 0.952. Therefore, all factors remain in the questionnaire (Table 3). Also, in accordance with the correlation table (linear correlation index r of Pearson) almost all values (except eight words-factors *set*, *stubborn*, *Simple*, *barely to live*, *with influence*, *Hard*, *He likes*, *Constant*) are greater than +0.3 another indication that the internal consistency is high.

Table 3

Cronbach's Alpha for JDI words.

	Corrected Item- Total correlation	Cronbach 's Alpha if the question deleted
Stimulating	.335	.951
Boring	.440	.951
Slow	.361	.951
Helpful	.253	.951
Stupid	.368	.951
Responsible	.354	.951
Likeable	.465	.951
Intelligent	.473	.951
Easy to make enemies	.374	.951
Rude	.483	.951
Smart	.406	.951
Lazy	.390	.951
Unpleasant	.453	.951
Supportive	.445	.951
Active	.415	.951
Narrow interests	.411	.951
Frustrating	.404	.951
Stubborn	.094	.952
Pleasant	.494	.951

Bad	.494	.951
Great	.494	.951
Waste of time	.496	.951
Good	.519	.951
Undesirable	.425	.951
Worthwhile	.532	.951
Worse than most	.394	.951
Acceptable	.302	.951
Superior	.482	.951
Better than most	.447	.951
Disagreeable	.471	.951
Makes me content	.571	.950
Inadequate	.555	.950
Excellent	.562	.950
Rotten	.384	.951
Enjoyable	.444	.951
Poor	.467	.951
Fascinating	.467	.951
Routine	.509	.951
Satisfying	.532	.951
Boring	.545	.950
Good	.513	.951
Gives sense of accomplishment	.537	.950
Respected	.463	.951
Exciting	.486	.951
Rewarding	.460	.951
Useful	.440	.951
Challenging	.321	.951
Simple	.251	.951
Repetitive	.374	.951
Creative	.470	.951
Dull	.547	.950
Uninteresting	.553	.950
Can see results	.567	.950
Uses my abilities	.491	.951
Income adequate for normal expenses	.354	.951
Fair	.382	.951
Barely live on income	.259	.951
Bad	.420	.951
Comfortable	.343	.951
Less than I deserve	.363	.951
Well paid	.358	.951
Enough to live on	.320	.951

Underpaid	.414	.951
Good opportunities for promotion	.386	.951
Opportunities somewhat limited	.359	.951
Promotion on ability	.406	.951
Dead-end job	.501	.951
Good chance for promotion	.409	.951
Very limited	.465	.951
Infrequent promotions	.401	.951
Regular promotions	.378	.951
Fairly good chance for Promotion	.441	.951
Supportive	.511	.951
Hard to please	.370	.951
Impolite	.397	.951
Praises good work	.437	.951
Tactful	.352	.951
Influential	.198	.951
Up-to-date	.343	.951
Unkind	.295	.951
Has favorites	.154	.952
Tells me where I stand	.478	.951
Annoying	.446	.951
Stubborn	.113	.952
Knows job well	.314	.951
Bad	.403	.951
Intelligent	.438	.951
Poor planner	.421	.951
Around when needed	.506	.951
Lazy	.394	.951

Cronbach's alpha of the 24 questions for *ESI* is 0.84, which indicates that this questionnaire has good reliability. An alpha value less than 0.70 is considered satisfactory. All the factors (words) included in the present questionnaire indicated a reliable tool as their Cronbach's alphas ranged from 0.831 to 0.866. Therefore, all factors remain on the questionnaire (Table 4). In accordance with the correlation table (linear correlation index r of Pearson) almost all values (except *On the contrary, I, surviving with this salary*, and *the service takes care of its employees*) are greater than +0.3, which indicates that the internal cohesion of this questionnaire is high.

Table 4

Cronbach's alpha phrases ESI.

	Corrected Item- Total correlation	Cronbach 's Alpha if delete query
The working conditions are the best I ever had.	.549	.835
My workplace is pleasant.	.628	.834
Working conditions are dangerous for my health.	.418	.839
The ventilation is not sufficient in my workplace.	.345	.842
The light is not sufficient in my workplace.	.339	.842
I Paid enough for the job I offer.	.458	.838
I feel insecure with such salary.	.386	.840
I just surviving with this salary.	-.418	.866
I paid less than I deserve.	.411	.839
There are many opportunities for promotion.	.389	.840
The experience I gained increasing my prospects for promotion.	.389	.840
Prospects for promotion are very limited.	.397	.840
My work is remarkable.	.423	.840
My work satisfy me.	.540	.836
My job is monotonous (routine).	.495	.836
My job is boring.	.524	.835
My supervisor supports me when I need it.	.567	.835

My boss understands my problems.	.493	.837
My boss is rude.	.450	.838
My boss is annoying.	.465	.838
The organization cares for the workers.	.293	.864
It is the best organizations I've ever worked.	.582	.833
There is cronyism (no merit) inside the organization.	.518	.836
The service discriminates employees.	.611	.831

Factor analysis of JDI scale. Factor analysis was conducted to highlight the factors determining job satisfaction. The Kaiser-Meyer-Olkin index that measures the adequacy of the selected sample was satisfactory with the value of 0.877. The Bartlett test, which shows the sphericity of the tool, was also satisfactory with value $\chi^2 = 15188.194$, $df = 4005$, $p < 0.05$. The export of factors came out from Principal Component Analysis. We used Oblimin rotation and Kaiser normalization. At the beginning, six factors were defined as the subcategories of the questionnaire (Word subgroups). The first factor consists of 19 words and determines the 20.20% of the variance yielding satisfaction from work. The second factor consists of nine words and defines an additional 26.76% of the variance, giving the satisfaction of the worker from his salary. The third factor consists of 16 words, and defines an additional 31.90% of the variance yielding satisfaction supervision. The fourth factor consists of 17 words, and determines the 35.91% of the variance yielding the satisfaction of working with people in the workplace. The fifth factor is composed of 15 words but the negatively charged, and determines the 39.35% giving the job satisfaction of the person in this job, and the sixth factor consists of nine words, which again were negatively charged, and determines the 42.57% yield satisfaction the employee experiences with respect to promotion. These six factors determine 42.57% of the variance of the total score of the questionnaire *JDI* (Tables 5, 6).

Table 5

Factor Analysis of JDI scale with six factors.

	Factors					
	1	2	3	4	5	6
Bad	.696					
Good	.689					
Good	.684					
Undesirable	.680					
Rotten	.678					
Disagreeable	.649					
Uninteresting	.586					
Waste of time	.576					

Worst than most	.550	
Worthwhile	.499	
Satisfying	.495	
Respected	.492	
Useful	.483	
Poor	.474	
Acceptable	.468	
Makes me content	.428	-.332
Inadequate	.422	
Can see the results	.368	-.319
Challenging	.310	
Better than most		
Has favorites		
Income adequate for normal expenses	.725	
Underpaid	.723	
Fair	.689	
Enough to live on	.665	
Barely live on income	.660	
Less than I deserve	.657	
Well paid	.652	
Bad	.643	
Comfortable	.615	
Rewarding		
Stubborn		
Around when needed	.692	
Tactful	.679	
Annoying	.670	
Supportive	.640	
Tells me where I stand	.634	
Hard to please	.608	
Impolite	.608	
Bad	.576	
Knows well the job	.564	
Praises good work	.524	
Unkind	.524	
Up-to-date	.512	
Poor planner	.483	
Lazy	.418	
Intelligent	.409	
Stubborn	.390	
Slow		.760
Frustrating		.685
Responsible		.675
Intelligent		.633

Lazy		.608	
Unpleasant		.604	
Boring		.602	
Active		.594	
Smart		.557	
Supportive		.549	
Narrow interests		.537	
Stimulating		.536	
Rude		.535	
Likeable		.517	
Stupid		.517	
Easy to make enemies		.496	
Supportive		.331	
Fascinating			-.717
Exciting			-.671
Creative			-.643
Great			-.582
Gives sense of accomplishment			-.517
Routine			-.489
Boring	.323		-.480
Repetitive			-.464
Dull	.434		-.451
Excellent			-.449
Enjoyable			-.416
Uses my abilities	.360		-.412
Superior			-.404
Pleasant	.356		-.375
Simple			-.371
Influential			
Good chance for promotion			-.837
Good opportunities for promotion			-.827
Very limited			-.811
Regular promotions			-.743
Opportunities somewhat limited			-.705
Infrequent promotions			-.670
Fairly good chance for promotion			-.662
Promoting on ability			-.636
Dead-end job			-.463

Table 6

Correlation between six JDI scale factors (Spearman *r*).

Factors	1	2	3	4	5	6
1	1.000	.112	.217	.296	-.214	-.152
2	.112	1.000	.176	.134	-.211	-.308
3	.217	.176	1.000	.308	-.160	-.222
4	.296	.134	.308	1.000	-.222	-.182
5	-.214	-.211	-.160	-.222	1.000	.242
6	-.152	-.308	-.222	-.182	.242	1.000

Note. Extraction Method: Principal Component Analysis; Rotation Method: Oblimin with Kaiser Normalization.

However, if the factor analysis is run with five factors, excluding the index *JIG*, the results vary, and are as follows. The Kaiser-Meyer-Olkin index that measures the adequacy of the selected sample is satisfactory with a value of 0.870. The Bartlett test is also satisfactory with score $\chi^2 = 10940.659$, $df = 2556$, $p < 0.05$. The export of factors emerged from the Principal Component Analysis, with Oblimin rotation and Kaiser normalization. The first factor consists of 17 words, and determines 9.23% of the variance yielding job satisfaction in this job. The second factor consists of nine words, and defines an additional 26.80% of the variance, giving the satisfaction of the employee with respect to promotion. The third factor consists of 16 words, and defines an additional 32.25% of the variance yielding satisfaction supervision. The fourth factor consists of 17 words, and determines the 36.67% of the variance yielding the satisfaction of working with people in the workplace. The fifth factor is composed of nine words, and determines 40.75% yielding satisfaction from salary. These five factors determine 40.75% of the variance of the total score of the questionnaire *JDI* (Tables 7, 8).

Table 7

Factor Analysis for JDI scale with five factors.

	Factors				
	1	2	3	4	5
Creative	.733				
Uninteresting	.713				
Dull	.701				
Uses my abilities	.676				
Boring	.647				
Gives sense of accomplishment	.597				
Useful	.582				
Fascinating	.563				
Can see results	.558				
Routine	.539				
Exciting	.494				
Good	.494				
Satisfying	.484				

Challenging	.478	
Simple	.477	
Repetitive	.414	
Respected	.323	
Good chance for promotion	.834	
Good opportunities for promotion	.832	
Very limited Opportunities somewhat limited	.754	
Fairly good chance for promotion	.689	
Regular promotions	.678	
Infrequent promotions	.654	
Promoting on ability	.592	
Dead-end job	.408	
Influential		
Annoying		.693
Around when needed		.685
Tactful		.665
Impolite		.618
Bad		.617
Hard to please		.607
Supportive		.595
Tells me where I stand		.573
Unkind		.557
Knows job well		.543
Praises good work		.505
Up-to-date		.489
Lazy		.442
Stubborn		.391
Poor planner		.387
Intelligent		.363
Slow		.755
Frustrating		.697
Responsible		.689
Unpleasant		.627
Intelligent		.625
Lazy		.614
Boring		.603
Active		.600
Supportive		.575
Rude		.561
Smart		.548
Likeable		.539

Narrow interests	.535	
Stupid	.535	
Stimulating	.529	
Easy to make enemies	.518	
Helpful	.364	
Underpaid		.745
Income adequate for normal expenses		.740
Fair		.695
Barely live on income		.685
Enough to live on		.676
Bad		.675
Well paid		.657
Less than I deserve		.650
Comfortable		.642
Rewarding		
Has favorites		
Stubborn		

Table 8

Correlation between JDI scale five factors (Spearman r).

factors	Component Correlation Matrix				
	1	2	3	4	5
1	1.000	.231	.215	.340	.201
2	.231	1.000	.182	.161	.313
3	.215	.182	1.000	.316	.181
4	.340	.161	.316	1.000	.154
5	.201	.313	.181	.154	1.000

Note. Extraction Method: Principal Component Analysis; Rotation Method: Oblimin with Kaiser Normalization.

Factor analysis of the *ESI* questionnaire. A factor analysis was conducted for the *ESI* to highlight the factors determining job satisfaction. The Kaiser-Meyer-Olkin index was satisfactory with a value of 0.812. The Bartlett test was also satisfactory with a score $\chi^2 = 3761.577$ $df = 276$, $p < 0.05$. The export of factors emerged with Principal Component Analysis, with Oblimin rotation Kaiser normalization. When using characteristics with an eigenvalue of less than 1.00, seven factors arose. The first factor consists of three phrases, and determines 28.99% of the variance. The second factor consists of four sentences, and determines an additional 39.99% of the variance. The third factor consists of three sentences, and establishes an additional 46.96% of the variance. The fourth factor consists of three sentences, but was charged negatively, and determines 53.41% of the variance. The fifth factor is composed of four sentences but most of them were charged negatively, and determines 59.15%. The sixth factor consists of three sentences, which are negatively charged, and determines 64.28%, and the

seventh factor consists of three phrases and determines 69.03%. These six factors determine a total of 69.03% of the variance of the total score of the questionnaire *ESI* (Table 9).

Table 9

Factor analysis of the scale ESI.

	1	2	3	Factors 4	5	6	7
The working conditions are the best I have ever had.	.673						
It is the best organization I've ever worked.	.599						
My workplace is pleasant.	.478						
My boss is rude.		.799					
My boss is annoying.		.786					
My boss understands my problems.	.437	.744					
My supervisor supports me when I need it.	.411	.721					
My job is monotonous (routine).							
My job is boring.							
My work is remarkable.							
My work with satisfies me.							
The ventilation is not sufficient in my workplace.							
The lighting is not sufficient in my workplace.							
Working conditions are dangerous for my health.							
I feel insecure with such salary.							
Just enough to survive with this salary.							
I paid less than I deserve.							
Paid far enough for the job I offer.							
Prospects for promotion are very limited.							

There are many opportunities for promotion.	-.830
The experience I gained increasing my prospects for promotion.	-.750
The organization makes discriminations between employees.	.839
The organization cares about the workers.	.726
There is favoritism (no merit) in organization.	.586

The initial group of factors from the *ESI* authors were five groups, as mentioned above. In more detail, the first factor represents the job in general, the second factor is related to supervision, the third factor concerns working in the current job, the fourth factor describes working conditions, the fifth factor depicts salary-related issues, the sixth factor is about promotions, and the seventh factor relates to questions regarding organization.

Pearson correlation coefficient between *JDI* and *ESI*. There is a statistically significant relationship between the questionnaires *JDI* and *ESI* ($p = 0.79$, $DF = 321$, $p < 0.001$). Workers who obtain high scores on one questionnaire obtain high scores on the other and vice versa (Table 10).

Table 10

Pearson correlation coefficient between JDI and ESI.

		Total JDI	Total ESI
Total JDI	Pearson Correlation	1	.786 **
	Sig. (2-tailed)		.000
	N	323	323
Total ESI	Pearson Correlation	.786 **	1
	Sig. (2-tailed)	.000	
	N	323	323

Note. **. Correlation is significant at the 0.01 level (2-tailed).

Conclusions

In conclusion, the aims of this study were the translation of the *JDI* and testing it for reliability and validity, as in Greece a valid, reliable tool for measuring job satisfaction does not exist. As job satisfaction directly affects all organizations, it is important that it be evaluated periodically by trained people.

More specifically, employee job satisfaction has a direct relationship with the “health” of each organization, the performance of employees, withdrawals or employee absences, dedication, disinterest, stress-burnout, health - welfare workers and regards to general life

satisfaction (Adams et al., 1996; Agarwal, 2016; Al-zu, 2010; Aydogdu & Asikgil, 2011; Aziri, 2011; Greenberk & Baron, 2013; Lance et al., 1989; Norizan, 2012; Olatunde & Odusanya, 2015; Senter et al., 2010; Spector, 2008; Tong et al., 2015; Tschuor et al., 2014; Vakola & Nicholaou, 2012). Furthermore, many studies (Arocas & Morley, 2015; Bowling, 2010; Callaghan & Coldwell, 2014; Danish & Usman, 2010; Judge, Thoresen, Bono, & Patton 2001; Iaffaldano & Muchinsky, 1985) support the view that employees who are happy with their jobs work harder and are more productive while disgruntled employees are likely to quit (Alam, 2012; Chen et al., 2011; Crampton & Wagner, 1994; De Gieter, Hofmans, & Pepermans, 2011; Dicter, Roznowski, & Harrison, 1996; Hussein et al., 2014; Mudor & Phadett, 2011; Spector, 2008; Yücel, 2012).

It is therefore understood that job satisfaction is a very important factor in an organization. Equally important are the sources of job satisfaction (Giannikis, & Mihail, 2011; Spector, 2008; Vakola & Nicholaou, 2012). These may be many, such as work (tasks) in a particular job, the salary (Alam, 2012; de Graaf -Zijl, 2012; Lottrup et al, 2015), the manner of supervision, the people who supervise, the chances of promotion, and the behavior and personalities of coworkers (Agarwal, 2016; Aydogdu & Asikgil, 2011; Belias et al., 2015; Bell et al., 2010; Brasher & Chen, 1999; Bushra et al., 2011; Cohen-Charash & Spector , 2001; Hackman, & Oldhan 1980; Jehanzeb et al., 2012; Judge et al., 2001; Malik et al., 2010; Rast & Tourani, 2012; Rice et al., 1990; Parvin, & Nurul, 2011; Reisel et al., 2010; Williams et al., 2006).

JDI is a job satisfaction questionnaire covering the multidimensional concept of job satisfaction and consisting of five groups. *JIG*, which is the sixth group of words, was added later and evaluates job satisfaction over a greater range of time. *JIG* covers several factors that may affect job satisfaction (Greenberk & Baron, 2013; Spector, 2008; Drakou et al., 1997), including the feelings of workers in relation to their colleagues, job satisfaction in relation to individual tasks, salary satisfaction, feelings related to promotion opportunities, and opinions related to supervisory aspects of one's job (Aziri, 2011; Greenberk, & Baron, 2013; Michelle et al., 2009; Smith et al., 1987; Smith et al., 1969; Spector, 2008; Drakou et al., 1997).

The first aim of this study was the translation of the questionnaire from English to Greek, which happened successfully with the described method above. After translation and data collection, the scoring and transfer of data in SPSS was followed according to the instructions provided by the questionnaire creators. The Cronbach alpha of the Greek *JDI* is 0.95, indicating very good reliability. Good reliability was attained for the individual factors (words) of the questionnaire, ranging from Cronbach alphas of 0.950 up to 0.952. Furthermore, in accordance with the correlation table (linear correlation index r of Pearson) almost all values were greater than +0.3, indicating that the internal consistency of the questionnaire is high (Heiman, 2001; Howitt, & Cramer, 2008; Lloyd, Streiner, & Shannon, 1998). A comparison of the results with those provided by the authors and those attained in this study demonstrates agreement between analyses, suggesting that the Greek version of the *JDI* can be considered reliable. However, in some other studies, the reliability index is lower, but there the sample was more specific, such as workers associated with sports, or used outdated samples. Finally, they have been made in other countries, which should not be left unnoticed because as mentioned in the introduction, the culture of people can lead to differences in job satisfaction (Bhandari et al., 2015; Brush et al., 1987; Buckley, Carraher, & Cote, 1992; Greenhaus et al., 1990; Hauff et al., 2015; Janet & Parra, 1994; Leong & Vaux, 1992; Somers & Birnbaum, 2001; Onorato & Zhu, 2015; Spector, 2008).

Factor analysis of the Greek version of *JDI* resulted in six factors. As reported by Smith, Kendall and Hulin (1969), there are correlations between the factors, such as the salary in relation to the promotion. Also, personality traits can affect the way in which someone answers the questionnaire. Therefore, the loads are recommended in a possible factor analysis not meant

to be interpreted strictly. Also, the study of Smith, Kendall, and Hulin (1969) stresses the multi-dimensional nature of the questionnaire, along with the fact that the questionnaire consists of at least five factors. However, several studies have reported that the questionnaire may also consist of several additional factors. It should be noted here that in their study the *JIG* had not yet been added. Thus, the results of the factor analysis of this survey with five factors, excluding the group "*The work generally*" are consistent with the results of the factor analysis in research of the authors. This perhaps is based on the fact that the *JIG* was designed to be complementary to the *JDI* and assess long-term overall job satisfaction. This becomes even clearer from surveys that said the *JIG* shows high correlations with some words of the *JDI*, as the *JIG* evaluates overall job satisfaction, while the *JDI* aspects of job satisfaction (Ironson, Smith, Brannick, Gibson, & Paul, 1989; Kinicki et al., 2002).

Factor analysis was conducted for *ESI* to highlight the factors determining job satisfaction in this questionnaire. Although the questionnaire has been used in Greece, there is data only for Cronbach's alpha, which is mentioned above. Data for factor analysis of the questionnaire was not found.

Finally, Pearson correlation analysis was made between the *JDI* and the *ESI*, which showed a statistically significant relationship between the Greek questionnaire *JDI* and *ESI* (Heiman, 2001; Howitt & Cramer, 2008). Based on the fact that the reliability index, factor analysis of the Greek *JDI*, and the correlation of the Greek questionnaire *ESI* are good, we can conclude that the *JDI* translated version could be used in Greece.

The generalization of the results, however, should be done with caution, as the sample was 323 people, not equally distributed in Greece, and most of them are from the private sector. For measuring job satisfaction, one should not overlook the fact that such environmental factors (e.g., differences between companies) and personal differences (e.g., age and personality) affect the results. Therefore, when evaluating a questionnaire such as the *JDI*, it is important that each aspect be examined separately and that researchers not focus only on the final score. A larger sample would be interesting for future research, which should be characterized by better geographical and occupational distribution, where correlations, or differences in the questionnaire responses in relation to age differences and differences in the personality of individuals will be investigated.

In conclusion, the aim of this study was the translation of the *JDI* as well as assessing its reliability and validity as in Greece there is not a valid and reliable measurement tool of job satisfaction. This study met its purpose after the *JDI* questionnaire was translated and ended with satisfactory results for both the reliability and the validity.

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